October 16, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N037709

RE: PG&E Topock - BCW, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 01, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

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CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary due to precipitation of samples upon the addition of eluent.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N037709-001B-MS1 and N037709-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N037709-002B-MS2 and N037709-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on Beryllium for sample N037709-002 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meets internal standard recovery limit.

Matrix Spike (MS) is outside recovery criteria for Copper in QC sample N037709-001B-MS possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037709-001B-MS and N037709-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *16-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - BCW, 30019131
Lab Order: N037709
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037709-001A	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-001B	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-001C	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-001D	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-002A	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-002B	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-002C	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-002D	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-003A	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-003B	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-003C	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-003D	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-004A	EB-707-Q319	Groundwater	9/30/2019 3:35:00 PM	10/1/2019	10/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191001B**	QC Batch: **R136726**			PrepDate:			Analyst: **LR**
Specific Conductance	2700	0.10	0.10		umhos/cm	1	10/1/2019 02:00 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191001B**	QC Batch: **R136726**			PrepDate:			Analyst: **LR**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	10/1/2019 02:00 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191001B**	QC Batch: **R136726**			PrepDate:			Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	10/1/2019 02:00 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N037709-001DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	136726
Client ID:	ZZZZZZ	Batch ID:	R136726	TestNo:	EPA 120.1			Analysis Date:	10/1/2019	SeqNo:	3524227

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2770.000	0.10						2730	1.45	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191001C**	QC Batch: **75523**				PrepDate:	**10/1/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1700	20	20		mg/L	1	10/1/2019 01:07 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191001C**	QC Batch: **75523**				PrepDate:	**10/1/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1500	17	17		mg/L	1	10/1/2019 01:07 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191001C**	QC Batch: **75523**				PrepDate:	**10/1/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1400	17	17		mg/L	1	10/1/2019 01:07 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	LCS-75523	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	136728
Client ID:	LCSW	Batch ID:	75523	TestNo:	SM2540C			Analysis Date:	10/1/2019	SeqNo:	3524232

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	948.000	10	1000	0	94.8	80	120				

Sample ID	MB-75523	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	136728
Client ID:	PBW	Batch ID:	75523	TestNo:	SM2540C			Analysis Date:	10/1/2019	SeqNo:	3524233

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

Sample ID	N037679-007ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	136728
Client ID:	ZZZZZZ	Batch ID:	75523	TestNo:	SM2540C			Analysis Date:	10/1/2019	SeqNo:	3524235

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4990.000	100						5190	3.93	5	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	130	0.66	4.0		µg/L	20	10/2/2019 05:35 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	150	0.13	1.0		µg/L	1	10/11/2019 09:54 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	110	0.33	2.0		µg/L	10	10/2/2019 05:55 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	110	0.13	1.0		µg/L	1	10/11/2019 10:48 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	44	0.17	1.0		µg/L	5	10/2/2019 06:33 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_191011A** QC Batch: **75562**				PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	47	0.13	1.0		µg/L	1	10/11/2019 10:58 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-707-Q319
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:35:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/2/2019 06:52 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136743	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	PBW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525208

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

Sample ID	LCS-R136743	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	LCSW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525209

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	90	110				

Sample ID	N037646-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525210

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	5.000	4.813	102	90	110				

Sample ID	N037645-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525212

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.185	1.0	5.000	0	104	90	110				

Sample ID	N037646-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525218

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.053	1.0	5.000	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	251.676	4.0	100.0	151.6	100	90	110				

Sample ID **N037666-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	572.540	10	250.0	326.0	98.6	90	110				

Sample ID **N037666-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	575.035	10	250.0	328.0	98.8	90	110				

Sample ID **N037666-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14705.100	200	5000	9736	99.4	90	110				

Sample ID **N037666-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.214	0.20	1.000	1.245	96.9	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.249	0.20	1.000	1.215	103	90	110				

Sample ID **N037666-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	126.961	2.0	50.00	78.28	97.4	90	110				

Sample ID **N037666-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	250.074	4.0	100.0	151.6	98.5	90	110	251.7	0.639	20	

Sample ID **N037666-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	78.017	2.0						78.28	0.342	20	

Sample ID **N037709-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037645-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525240

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.976	0.20	1.000	0	97.6	90	110				

Sample ID	N037709-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525242

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	229.220	4.0	100.0	129.8	99.4	90	110				

Sample ID	N037709-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525246

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	154.886	2.0	50.00	105.7	98.3	90	110				

Sample ID	N037709-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525248

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	68.950	1.0	25.00	44.24	98.8	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533727

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

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.661	1.0	10.00	0	107	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533734

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	152.511	1.0	10.00	147.5	50.3	75	125				S

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533736

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	153.869	1.0	10.00	147.5	63.9	75	125	152.5	0.886	20	S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037709-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID:	**ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191001A**	QC Batch: **R136725**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	10/1/2019 03:30 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191001A**	QC Batch: **R136725**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	10/1/2019 03:30 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191001A**	QC Batch: **R136725**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	93	1.2	5.0		mg/L	1	10/1/2019 03:30 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID	**LCS-R136725**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:		RunNo: **136725**
Client ID:	**LCSW**	Batch ID: **R136725**	TestNo: **SM 2320 B**		Analysis Date:	**10/1/2019**	SeqNo: **3524218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	101.952	5.0	100.0	0	102	85	115				

Sample ID	**MB-R136725**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:		RunNo: **136725**
Client ID:	**PBW**	Batch ID: **R136725**	TestNo: **SM 2320 B**		Analysis Date:	**10/1/2019**	SeqNo: **3524219**

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

Sample ID	**N037709-001DDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:		RunNo: **136725**
Client ID:	**ZZZZZZ**	Batch ID: **R136725**	TestNo: **SM 2320 B**		Analysis Date:	**10/1/2019**	SeqNo: **3524221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	131.236	5.0						131.2	0	30	

Sample ID	**N037709-003DMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:		RunNo: **136725**
Client ID:	**ZZZZZZ**	Batch ID: **R136725**	TestNo: **SM 2320 B**		Analysis Date:	**10/1/2019**	SeqNo: **3524224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	189.805	5.0	100.0	93.28	96.5	75	125				

Sample ID	**N037709-003DMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:		RunNo: **136725**
Client ID:	**ZZZZZZ**	Batch ID: **R136725**	TestNo: **SM 2320 B**		Analysis Date:	**10/1/2019**	SeqNo: **3524225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	190.889	5.0	100.0	93.28	97.6	75	125	189.8	0.570	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037709
Project: PG&E Topock - BCW, 30019131
Lab ID: N037709-001

Client Sample ID: MW-09-1019
Collection Date: 9/30/2019 12:45:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191003A** QC Batch: **R136772**				PrepDate:			Analyst: **HG**
Bromide	ND	0.060	1.0		mg/L	2	10/3/2019 11:25 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Chloride	740	3.5	50		mg/L	100	10/4/2019 06:22 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Sulfate	240	2.0	25		mg/L	50	10/4/2019 06:06 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191003A** QC Batch: **R136772**				PrepDate:			Analyst: **HG**
Bromide	ND	0.15	2.5		mg/L	5	10/3/2019 12:12 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Chloride	610	7.0	100		mg/L	200	10/4/2019 06:54 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Sulfate	260	2.0	25		mg/L	50	10/4/2019 06:38 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191003A** QC Batch: **R136772**				PrepDate:			Analyst: **HG**
Bromide	ND	0.15	2.5		mg/L	5	10/3/2019 12:28 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Chloride	590	7.0	100		mg/L	200	10/4/2019 07:57 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Sulfate	180	0.80	10		mg/L	20	10/4/2019 07:41 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	MB-R136772_BR	SampType:	MBLK	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	PBW	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526347

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

Sample ID	LCS-R136772_BR	SampType:	LCS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	LCSW	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526348

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.284	0.50	1.250	0	103	90	110				

Sample ID	N037679-001AMS	SampType:	MS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	ZZZZZZ	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526361

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.466	2.5	6.250	0.2805	99.0	80	120				

Sample ID	N037679-001AMSD	SampType:	MSD	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	ZZZZZZ	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526362

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.708	2.5	6.250	0.2805	103	80	120	6.466	3.68	20	

Sample ID	N037679-003ADUP	SampType:	DUP	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	ZZZZZZ	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526364

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.324	2.5						0.3550	0	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R136791_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	PBW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527508

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

Sample ID	LCS-R136791_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	LCSW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527509

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.037	0.50	2.000	0	102	90	110				

Sample ID	N037665-001AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3135.100	250	1000	2138	99.7	80	120				

Sample ID	N037665-001AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527517

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3142.450	250	1000	2138	100	80	120	3135	0.234	20	

Sample ID	N037665-002ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527518

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2086.750	250						2106	0.932	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	N037665-008AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527526

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3552.100	500	2000	1661	94.6	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136791_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	PBW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527538

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.212	0.50									

Sample ID	LCS-R136791_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	LCSW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527539

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.084	0.50	4.000	0	102	90	110				

Sample ID	N037665-001AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	668.720	25	200.0	467.5	101	80	120				

Sample ID	N037665-001AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527547

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	665.995	25	200.0	467.5	99.2	80	120	668.7	0.408	20	

Sample ID	N037665-002ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527548

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	478.435	25						487.0	1.78	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N037665-008AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	755.190	50	400.0	371.1	96.0	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	5.2	0.32	0.50		mg/L	10	10/12/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136983	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983		
Client ID:	PBW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536757		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050											

Sample ID	LCS-R136983	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983		
Client ID:	LCSW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536758		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.496	0.050	0.5000	0	99.2	85	115						

Sample ID	N037723-001CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983		
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536807		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050						0.03870	0	20			

Sample ID	N037679-006BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983		
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536809		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	25.814	1.0	10.00	15.25	106	75	125						

Sample ID	N037679-006BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983		
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536810		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	26.802	1.0	10.00	15.25	116	75	125	25.81	3.76	20			

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_191014A**	QC Batch: **75609**			PrepDate:	**10/9/2019**		Analyst: **DJ**
Boron	720	74	100		ug/L	1	10/14/2019 10:54 AM
Calcium	140000	85	500		ug/L	1	10/14/2019 10:54 AM
Iron	ND	18	20		ug/L	1	10/14/2019 10:54 AM
Magnesium	31000	48	100		ug/L	1	10/14/2019 10:54 AM
Sodium	420000	2400	12000		ug/L	25	10/10/2019 02:36 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_191014A**	QC Batch: **75609**			PrepDate:	**10/9/2019**		Analyst: **DJ**
Boron	790	74	100		ug/L	1	10/14/2019 11:20 AM
Calcium	140000	85	500		ug/L	1	10/14/2019 11:20 AM
Iron	36	18	20		ug/L	1	10/14/2019 11:20 AM
Magnesium	21000	48	100		ug/L	1	10/14/2019 11:20 AM
Sodium	330000	2400	12000		ug/L	25	10/10/2019 02:40 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_191014A**	QC Batch: **75609**			PrepDate:	**10/9/2019**		Analyst: **DJ**
Boron	450	74	100		ug/L	1	10/14/2019 11:26 AM
Calcium	150000	85	500		ug/L	1	10/14/2019 11:26 AM
Iron	ND	18	20		ug/L	1	10/14/2019 11:26 AM
Magnesium	23000	48	100		ug/L	1	10/14/2019 11:26 AM
Sodium	240000	2400	12000		ug/L	25	10/10/2019 03:08 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75609	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	PBW	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532529

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

Sample ID	LCS2-75609	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	LCSW	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532530

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20170.008	500	20000	0	101	85	115				

Sample ID	N037709-002B-MS2	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	ZZZZZZ	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532593

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	402765.550	12000	20000	332100	353	75	125				S

Sample ID	N037709-002B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	ZZZZZZ	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	467452.413	12000	20000	332100	677	75	125	402800	14.9	20	S

Sample ID	MB-75609	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136926
Client ID:	PBW	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3534531

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **LCS1-75609** SampType: **LCS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **10/9/2019** RunNo: **136926**
Client ID: **LCSW** Batch ID: **75609** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/14/2019** SeqNo: **3534532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	4939.236	100	5000	0	98.8	85	115				
Calcium	9861.057	500	10000	0	98.6	85	115				
Iron	101.284	20	100.0	0	101	85	115				
Magnesium	9766.748	100	10000	0	97.7	85	115				

Sample ID **N037709-001B-MS1** SampType: **MS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **10/9/2019** RunNo: **136926**
Client ID: **ZZZZZZ** Batch ID: **75609** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/14/2019** SeqNo: **3534538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6058.051	100	5000	720.3	107	75	125				
Calcium	141296.578	500	10000	135100	61.8	75	125				S
Iron	101.504	20	100.0	0	102	75	125				
Magnesium	42150.500	100	10000	31120	110	75	125				

Sample ID **N037709-001B-MSD** SampType: **MSD** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **10/9/2019** RunNo: **136926**
Client ID: **ZZZZZZ** Batch ID: **75609** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/14/2019** SeqNo: **3534539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6004.982	100	5000	720.3	106	75	125	6058	0.880	20	
Calcium	147941.567	500	10000	135100	128	75	125	141300	4.59	20	S
Iron	100.260	20	100.0	0	100	75	125	101.5	1.23	20	
Magnesium	43208.033	100	10000	31120	121	75	125	42150	2.48	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	N037709-002B-PS	SampType:	PS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136883
Client ID:	ZZZZZZ	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532591

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	363990.517	12000	20000	332100	159	80	120				S

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136926
Client ID:	ZZZZZZ	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3534537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	5990.753	100	5000	720.3	105	80	120				
Calcium	144353.764	500	10000	135100	92.3	80	120				
Iron	104.869	20	100.0	0	105	80	120				
Magnesium	42786.187	100	10000	31120	117	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Arsenic	1.7	0.081	0.10		µg/L	1	10/14/2019 03:04 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 09:54 PM
Molybdenum	4.8	0.21	0.50		µg/L	1	10/11/2019 09:54 PM
Selenium	5.8	0.36	0.50		µg/L	1	10/14/2019 03:04 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Antimony	ND	0.16	0.50		µg/L	1	10/11/2019 10:48 PM
Arsenic	2.1	0.081	0.10		µg/L	1	10/14/2019 03:29 PM
Barium	49	0.15	1.0		µg/L	1	10/14/2019 03:29 PM
Beryllium	ND	0.21	2.5		µg/L	5	10/11/2019 10:53 PM
Cadmium	ND	0.053	0.50		µg/L	1	10/11/2019 10:48 PM
Cobalt	ND	0.042	0.50		µg/L	1	10/11/2019 10:48 PM
Copper	ND	0.55	1.0		µg/L	1	10/15/2019 01:18 PM
Lead	ND	0.13	1.0		µg/L	1	10/11/2019 10:48 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 10:48 PM
Molybdenum	18	0.21	0.50		µg/L	1	10/11/2019 10:48 PM
Nickel	8.5	0.26	1.0		µg/L	1	10/14/2019 03:29 PM
Selenium	6.3	0.36	0.50		µg/L	1	10/14/2019 03:29 PM
Silver	ND	0.23	0.50		µg/L	1	10/11/2019 10:48 PM
Thallium	ND	0.19	0.50		µg/L	1	10/11/2019 10:48 PM
Vanadium	14	0.28	1.0		µg/L	1	10/14/2019 03:29 PM
Zinc	ND	2.3	10		µg/L	1	10/11/2019 10:48 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	10/14/2019 03:34 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 10:58 PM
Molybdenum	5.3	0.21	0.50		µg/L	1	10/11/2019 10:58 PM
Selenium	4.7	0.36	0.50		µg/L	1	10/14/2019 03:34 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75562**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.201	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.182	0.50	10.00	0	112	85	115				
Beryllium	10.145	0.50	10.00	0	101	85	115				
Cadmium	10.440	0.50	10.00	0	104	85	115				
Cobalt	10.539	0.50	10.00	0	105	85	115				
Lead	10.534	1.0	10.00	0	105	85	115				
Manganese	107.815	0.50	100.0	0	108	85	115				
Molybdenum	10.518	0.50	10.00	0	105	85	115				
Silver	10.055	0.50	10.00	0	101	85	115				
Thallium	10.229	0.50	10.00	0	102	85	115				
Zinc	9.570	10	10.00	0	95.7	85	115				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.199	0.50	10.00	0	112	75	125				
Cadmium	10.002	0.50	10.00	0	100	75	125				
Cobalt	9.606	0.50	10.00	0	96.1	75	125				
Lead	10.221	1.0	10.00	0	102	75	125				
Manganese	83.952	0.50	100.0	0	84.0	75	125				
Molybdenum	15.737	0.50	10.00	4.821	109	75	125				
Silver	10.317	0.50	10.00	0	103	75	125				
Thallium	10.404	0.50	10.00	0	104	75	125				
Zinc	9.059	10	10.00	0	90.6	75	125				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533826

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	11.280	2.5	10.00	0	113	75	125				

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533827

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.220	0.50	10.00	0	112	75	125	11.20	0.187	20	
Cadmium	9.963	0.50	10.00	0	99.6	75	125	10.00	0.390	20	
Cobalt	9.699	0.50	10.00	0	97.0	75	125	9.606	0.972	20	
Lead	10.186	1.0	10.00	0	102	75	125	10.22	0.343	20	
Manganese	84.416	0.50	100.0	0	84.4	75	125	83.95	0.552	20	
Molybdenum	15.725	0.50	10.00	4.821	109	75	125	15.74	0.0725	20	
Silver	10.351	0.50	10.00	0	104	75	125	10.32	0.323	20	
Thallium	10.444	0.50	10.00	0	104	75	125	10.40	0.390	20	
Zinc	9.284	10	10.00	0	92.8	75	125	9.059	0	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533830

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	10.895	2.5	10.00	0	109	75	125	11.28	3.47	20	

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.449	0.10	10.00	0	104	85	115				
Barium	10.231	1.0	10.00	0	102	85	115				
Nickel	10.984	1.0	10.00	0	110	85	115				
Selenium	9.240	0.50	10.00	0	92.4	85	115				
Vanadium	10.242	1.0	10.00	0	102	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.217	0.10	10.00	1.722	105	75	125				
Barium	63.832	1.0	10.00	54.69	91.4	75	125				
Nickel	11.837	1.0	10.00	1.706	101	75	125				
Selenium	16.378	0.50	10.00	5.803	106	75	125				
Vanadium	23.059	1.0	10.00	12.81	102	75	125				

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.652	0.10	10.00	1.722	109	75	125	12.22	3.50	20	
Barium	63.925	1.0	10.00	54.69	92.3	75	125	63.83	0.145	20	
Nickel	12.907	1.0	10.00	1.706	112	75	125	11.84	8.65	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	14.879	0.50	10.00	5.803	90.8	75	125	16.38	9.59	20	
Vanadium	22.970	1.0	10.00	12.81	102	75	125	23.06	0.386	20	

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535833

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536640

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

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536641

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	11.384	1.0	10.00	0	114	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536647

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536647

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.073	1.0	10.00	0	70.7	75	125				S

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536648

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.565	1.0	10.00	0	75.6	75	125	7.073	6.72	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.128	0.50	10.00	0	111	80	120				
Cadmium	10.044	0.50	10.00	0	100	80	120				
Cobalt	9.544	0.50	10.00	0	95.4	80	120				
Lead	10.198	1.0	10.00	0	102	80	120				
Manganese	83.531	0.50	100.0	0	83.5	80	120				
Molybdenum	15.886	0.50	10.00	4.821	111	80	120				
Silver	10.194	0.50	10.00	0	102	80	120				
Thallium	10.497	0.50	10.00	0	105	80	120				
Zinc	9.328	10	10.00	0	93.3	80	120				

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	11.277	2.5	10.00	0	113	80	120				

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.211	0.10	10.00	1.722	105	80	120				
Barium	66.279	1.0	10.00	54.69	116	80	120				
Nickel	11.286	1.0	10.00	1.706	95.8	80	120				
Selenium	14.509	0.50	10.00	5.803	87.1	80	120				
Vanadium	23.538	1.0	10.00	12.81	107	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536646

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	6.320	1.0	10.00	0	63.2	80	120				S

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA2_191003C**	QC Batch: **75542**			PrepDate:	**10/2/2019**		Analyst: **DJ**
Mercury	ND	0.13	0.20		µg/L	1	10/3/2019 12:43 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID	MB-75542	SampType:	MBLK	TestCode:	7470_W_DIS	Units:	µg/L	Prep Date:	10/2/2019	RunNo:	136760
Client ID:	PBW	Batch ID:	75542	TestNo:	EPA 7470A			Analysis Date:	10/3/2019	SeqNo:	3525894

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID	LCS-75542	SampType:	LCS	TestCode:	7470_W_DIS	Units:	µg/L	Prep Date:	10/2/2019	RunNo:	136760
Client ID:	LCSW	Batch ID:	75542	TestNo:	EPA 7470A			Analysis Date:	10/3/2019	SeqNo:	3525896

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.900	0.20	5.000	0	98.0	85	115				

Sample ID	N037718-003C-MS	SampType:	MS	TestCode:	7470_W_DIS	Units:	µg/L	Prep Date:	10/2/2019	RunNo:	136760
Client ID:	ZZZZZZ	Batch ID:	75542	TestNo:	EPA 7470A			Analysis Date:	10/3/2019	SeqNo:	3525897

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.740	0.20	5.000	0	94.8	75	125				

Sample ID	N037718-003C-MSD	SampType:	MSD	TestCode:	7470_W_DIS	Units:	µg/L	Prep Date:	10/2/2019	RunNo:	136760
Client ID:	ZZZZZZ	Batch ID:	75542	TestNo:	EPA 7470A			Analysis Date:	10/3/2019	SeqNo:	3525898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.830	0.20	5.000	0	96.6	75	125	4.740	1.88	20	

Qualifiers:

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

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CHAIN OF CUSTODY RECORD

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Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement / QA/QC / Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD; Geotracker; Labspec; Others ✓ (Specify: RWQCB); Global ID:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	6. Method of Cooling: ICE
Title: Scientist 1			Sample Temp: 2.4°
Signature: Date: 9/30/2019	Sampled By: Nara Tay		Courier: ASSET
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface	Tracking No.:
Project Name: PG&E Topock - ~~GMP~~ BCW	Signature: 9/30/2019		
Project Number: 30019131			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (SW6020A): FF, Ag, Ar, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn; HNO3 (500 mL poly)	Metals Dissolved (SW6010B); FF B, Ca, Cu, Fe, Na, Ni; HNO3 (500 mL poly)	Metals Dissolved (SW 6020); FF Ar, Cr, Mg, Mn, Mo, Se; HNO3 (500 mL poly)	Metals Dissolved (6010B); FF B, Ca, Fe, Na; HNO3 (500 mL poly)	Dissolved metals (7470A) FF Mercury; HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C), H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037709-01	MW-09-1019	9/30/2019	12:45		X				X	X		X	X	X	X	X				E	4	P	BNS	
2	-02	MW-10-1019	9/30/2019	14:30		X		X	X			X	X	X	X	X	X				E	4	P	BNS	
3	-03	MW-11-1119	9/30/2019	15:20		X				X	X		X	X	X	X	X				E	4	P	BNS	
4	-04	EB-707-Q319	9/30/2019	15:35		X															E	1	P	B	
5																									
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tay	9/30/19 1630	Joe Gatel	9/30/19 1630
Joe Gatel	10/1/19 1006	Jordan Colli	10/1/19 1006
Jordan Colli	10/1/19 1217	Leandro Rodriguez	10/1/19 12:17

Turn Around Time (TAT)

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

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

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

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

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	10/1/2019	Workorder:	N037709
Rep sample Temp (Deg C):	2.4	IR Gun ID:	1

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

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

Comments:

Checklist Completed By: YR YRJ 10/1/2019

Reviewed By: LG 100919

Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Tuesday, October 01, 2019 1:26 PM
To: Yoandra Rodriguez
Cc: maryann.balilu@assetlaboratoriesph.com; Tina Rice; andrea.gallardo@assetlaboratories.com
Subject: RE: PG&E Topock - BCW, 30019131 (Asset Labs No. N037709)

Please use MW-11-1019.

Thanks,
Laura

-----Original Message-----
From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Tuesday, October 1, 2019 3:03 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; Tina Rice <Tina.Rice@critigen.com>; andrea.gallardo@assetlaboratories.com
Subject: PG&E Topock - BCW, 30019131 (Asset Labs No. N037709)

Hi Laura,

Please kindly advise on the following issues for the attached COC:

- Sample 3: ID is MW-11-1119 on COC and MW-11-1019 on sample labels.

Thanks,

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ASSET Laboratories

WORK ORDER Summary

01-Oct-19

WorkOrder: N037709

Client ID: ARCUS02

Project: PG&E Topock - BCW, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037709-001A	MW-09-1019	9/30/2019 12:45:00 PM	10/15/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-001B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037709-001C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037709-001D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/15/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/15/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/15/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037709-002A	MW-10-1019	9/30/2019 2:30:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-002B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019			DISSOLVED MERCURY PREP	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

01-Oct-19

WorkOrder: N037709

Client ID: ARCUS02

Project: PG&E Topock - BCW, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037709-002B	MW-10-1019	9/30/2019 2:30:00 PM	10/15/2019	Groundwater	EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N037709-002C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037709-002D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/15/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/15/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/15/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037709-003A	MW-11-1019	9/30/2019 3:20:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-003B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037709-003C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037709-003D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/15/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/15/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/15/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

01-Oct-19

WorkOrder: N037709

Client ID: ARCUS02

Project: PG&E Topock - BCW, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037709-003D	MW-11-1019	9/30/2019 3:20:00 PM	10/15/2019	Groundwater	EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037709-004A	EB-707-Q319	9/30/2019 3:35:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-005A	FOLDER	10/15/2019	10/15/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - BCW

Project No.: 30019131

ASSET Laboratories Work Order:

N037709

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 16, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N037709

RE: PG&E Topock - BCW, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 01, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - BCW, 30019131
Lab Order: N037709

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary due to precipitation of samples upon the addition of eluent.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N037709-001B-MS1 and N037709-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N037709-002B-MS2 and N037709-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on Beryllium for sample N037709-002 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meets internal standard recovery limit.

Matrix Spike (MS) is outside recovery criteria for Copper in QC sample N037709-001B-MS possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037709-001B-MS and N037709-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *16-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - BCW, 30019131
Lab Order: N037709
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037709-001A	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-001B	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-001C	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-001D	MW-09-1019	Groundwater	9/30/2019 12:45:00 PM	10/1/2019	10/16/2019
N037709-002A	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-002B	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-002C	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-002D	MW-10-1019	Groundwater	9/30/2019 2:30:00 PM	10/1/2019	10/16/2019
N037709-003A	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-003B	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-003C	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-003D	MW-11-1019	Groundwater	9/30/2019 3:20:00 PM	10/1/2019	10/16/2019
N037709-004A	EB-707-Q319	Groundwater	9/30/2019 3:35:00 PM	10/1/2019	10/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191001B**	QC Batch: **R136726**			PrepDate:			Analyst: **LR**
Specific Conductance	2700	0.10	0.10		umhos/cm	1	10/1/2019 02:00 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191001B**	QC Batch: **R136726**			PrepDate:			Analyst: **LR**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	10/1/2019 02:00 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191001B**	QC Batch: **R136726**			PrepDate:			Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	10/1/2019 02:00 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037709-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:					RunNo: **136726**		
Client ID: **ZZZZZZ**	Batch ID: **R136726**	TestNo: **EPA 120.1**		Analysis Date: **10/1/2019**					SeqNo: **3524227**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2770.000	0.10						2730	1.45	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191001C**	QC Batch: **75523**			PrepDate:	**10/1/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1700	20	20		mg/L	1	10/1/2019 01:07 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191001C**	QC Batch: **75523**			PrepDate:	**10/1/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1500	17	17		mg/L	1	10/1/2019 01:07 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191001C**	QC Batch: **75523**			PrepDate:	**10/1/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1400	17	17		mg/L	1	10/1/2019 01:07 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	LCS-75523	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	136728
Client ID:	LCSW	Batch ID:	75523	TestNo:	SM2540C			Analysis Date:	10/1/2019	SeqNo:	3524232

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	948.000	10	1000	0	94.8	80	120				

Sample ID	MB-75523	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	136728
Client ID:	PBW	Batch ID:	75523	TestNo:	SM2540C			Analysis Date:	10/1/2019	SeqNo:	3524233

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

Sample ID	N037679-007ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/1/2019	RunNo:	136728
Client ID:	ZZZZZZ	Batch ID:	75523	TestNo:	SM2540C			Analysis Date:	10/1/2019	SeqNo:	3524235

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4990.000	100						5190	3.93	5	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	130	0.66	4.0		µg/L	20	10/2/2019 05:35 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	150	0.13	1.0		µg/L	1	10/11/2019 09:54 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	110	0.33	2.0		µg/L	10	10/2/2019 05:55 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	110	0.13	1.0		µg/L	1	10/11/2019 10:48 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	44	0.17	1.0		µg/L	5	10/2/2019 06:33 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_191011A** QC Batch: **75562**				PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	47	0.13	1.0		µg/L	1	10/11/2019 10:58 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-707-Q319
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:35:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/2/2019 06:52 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136743	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	PBW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525208

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

Sample ID	LCS-R136743	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	LCSW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525209

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	90	110				

Sample ID	N037646-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525210

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	5.000	4.813	102	90	110				

Sample ID	N037645-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525212

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.185	1.0	5.000	0	104	90	110				

Sample ID	N037646-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525218

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.053	1.0	5.000	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	251.676	4.0	100.0	151.6	100	90	110				

Sample ID **N037666-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	572.540	10	250.0	326.0	98.6	90	110				

Sample ID **N037666-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	575.035	10	250.0	328.0	98.8	90	110				

Sample ID **N037666-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14705.100	200	5000	9736	99.4	90	110				

Sample ID **N037666-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.214	0.20	1.000	1.245	96.9	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.249	0.20	1.000	1.215	103	90	110				

Sample ID **N037666-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	126.961	2.0	50.00	78.28	97.4	90	110				

Sample ID **N037666-002AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	250.074	4.0	100.0	151.6	98.5	90	110	251.7	0.639	20	

Sample ID **N037666-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	78.017	2.0						78.28	0.342	20	

Sample ID **N037709-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037645-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.976	0.20	1.000	0	97.6	90	110				

Sample ID **N037709-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	229.220	4.0	100.0	129.8	99.4	90	110				

Sample ID **N037709-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	154.886	2.0	50.00	105.7	98.3	90	110				

Sample ID **N037709-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	68.950	1.0	25.00	44.24	98.8	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533727

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

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.661	1.0	10.00	0	107	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533734

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	152.511	1.0	10.00	147.5	50.3	75	125				S

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533736

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	153.869	1.0	10.00	147.5	63.9	75	125	152.5	0.886	20	S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **N037709-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:				RunNo: **136915**			
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**				SeqNo: **3533732**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191001A**	QC Batch: **R136725**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	10/1/2019 03:30 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191001A**	QC Batch: **R136725**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	10/1/2019 03:30 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191001A**	QC Batch: **R136725**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	93	1.2	5.0		mg/L	1	10/1/2019 03:30 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID	LCS-R136725	SampType:	LCS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	136725
Client ID:	LCSW	Batch ID:	R136725	TestNo:	SM 2320 B			Analysis Date:	10/1/2019	SeqNo:	3524218

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	101.952	5.0	100.0	0	102	85	115				

Sample ID	MB-R136725	SampType:	MBLK	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	136725
Client ID:	PBW	Batch ID:	R136725	TestNo:	SM 2320 B			Analysis Date:	10/1/2019	SeqNo:	3524219

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

Sample ID	N037709-001DDUP	SampType:	DUP	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	136725
Client ID:	ZZZZZZ	Batch ID:	R136725	TestNo:	SM 2320 B			Analysis Date:	10/1/2019	SeqNo:	3524221

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	131.236	5.0						131.2	0	30	

Sample ID	N037709-003DMS	SampType:	MS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	136725
Client ID:	ZZZZZZ	Batch ID:	R136725	TestNo:	SM 2320 B			Analysis Date:	10/1/2019	SeqNo:	3524224

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	189.805	5.0	100.0	93.28	96.5	75	125				

Sample ID	N037709-003DMSD	SampType:	MSD	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	136725
Client ID:	ZZZZZZ	Batch ID:	R136725	TestNo:	SM 2320 B			Analysis Date:	10/1/2019	SeqNo:	3524225

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	190.889	5.0	100.0	93.28	97.6	75	125	189.8	0.570	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037709
Project: PG&E Topock - BCW, 30019131
Lab ID: N037709-001

Client Sample ID: MW-09-1019
Collection Date: 9/30/2019 12:45:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191003A** QC Batch: **R136772**				PrepDate:			Analyst: **HG**
Bromide	ND	0.060	1.0		mg/L	2	10/3/2019 11:25 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Chloride	740	3.5	50		mg/L	100	10/4/2019 06:22 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Sulfate	240	2.0	25		mg/L	50	10/4/2019 06:06 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037709
Project: PG&E Topock - BCW, 30019131
Lab ID: N037709-002

Client Sample ID: MW-10-1019
Collection Date: 9/30/2019 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191003A** QC Batch: **R136772**				PrepDate:			Analyst: **HG**
Bromide	ND	0.15	2.5		mg/L	5	10/3/2019 12:12 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Chloride	610	7.0	100		mg/L	200	10/4/2019 06:54 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Sulfate	260	2.0	25		mg/L	50	10/4/2019 06:38 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037709
Project: PG&E Topock - BCW, 30019131
Lab ID: N037709-003

Client Sample ID: MW-11-1019
Collection Date: 9/30/2019 3:20:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191003A** QC Batch: **R136772**				PrepDate:			Analyst: **HG**
Bromide	ND	0.15	2.5		mg/L	5	10/3/2019 12:28 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Chloride	590	7.0	100		mg/L	200	10/4/2019 07:57 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191004A** QC Batch: **R136791**				PrepDate:			Analyst: **HG**
Sulfate	180	0.80	10		mg/L	20	10/4/2019 07:41 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	MB-R136772_BR	SampType:	MBLK	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	PBW	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526347

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

Sample ID	LCS-R136772_BR	SampType:	LCS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	LCSW	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526348

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.284	0.50	1.250	0	103	90	110				

Sample ID	N037679-001AMS	SampType:	MS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	ZZZZZZ	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526361

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.466	2.5	6.250	0.2805	99.0	80	120				

Sample ID	N037679-001AMSD	SampType:	MSD	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	ZZZZZZ	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526362

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.708	2.5	6.250	0.2805	103	80	120	6.466	3.68	20	

Sample ID	N037679-003ADUP	SampType:	DUP	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	136772
Client ID:	ZZZZZZ	Batch ID:	R136772	TestNo:	EPA 300.0			Analysis Date:	10/3/2019	SeqNo:	3526364

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.324	2.5						0.3550	0	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R136791_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	PBW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527508

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

Sample ID	LCS-R136791_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	LCSW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527509

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.037	0.50	2.000	0	102	90	110				

Sample ID	N037665-001AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3135.100	250	1000	2138	99.7	80	120				

Sample ID	N037665-001AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527517

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3142.450	250	1000	2138	100	80	120	3135	0.234	20	

Sample ID	N037665-002ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527518

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2086.750	250						2106	0.932	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **N037665-008AMS**	SampType: **MS**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:				RunNo: **136791**	
Client ID: **ZZZZZZ**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**				SeqNo: **3527526**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3552.100	500	2000	1661	94.6	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136791_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	PBW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527538

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.212	0.50									

Sample ID	LCS-R136791_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	LCSW	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527539

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.084	0.50	4.000	0	102	90	110				

Sample ID	N037665-001AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	668.720	25	200.0	467.5	101	80	120				

Sample ID	N037665-001AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527547

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	665.995	25	200.0	467.5	99.2	80	120	668.7	0.408	20	

Sample ID	N037665-002ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136791
Client ID:	ZZZZZZ	Batch ID:	R136791	TestNo:	EPA 300.0			Analysis Date:	10/4/2019	SeqNo:	3527548

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	478.435	25						487.0	1.78	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **N037665-008AMS**	SampType: **MS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:				RunNo: **136791**				
Client ID: **ZZZZZZ**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**				SeqNo: **3527556**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Sulfate	755.190	50	400.0	371.1	96.0	80	120					

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	5.2	0.32	0.50		mg/L	10	10/12/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136983	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	PBW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536757

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

Sample ID	LCS-R136983	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	LCSW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536758

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.496	0.050	0.5000	0	99.2	85	115				

Sample ID	N037723-001CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536807

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03870	0	20	

Sample ID	N037679-006BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536809

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	25.814	1.0	10.00	15.25	106	75	125				

Sample ID	N037679-006BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536810

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	26.802	1.0	10.00	15.25	116	75	125	25.81	3.76	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_191014A**	QC Batch: **75609**			PrepDate:	**10/9/2019**		Analyst: **DJ**
Boron	720	74	100		ug/L	1	10/14/2019 10:54 AM
Calcium	140000	85	500		ug/L	1	10/14/2019 10:54 AM
Iron	ND	18	20		ug/L	1	10/14/2019 10:54 AM
Magnesium	31000	48	100		ug/L	1	10/14/2019 10:54 AM
Sodium	420000	2400	12000		ug/L	25	10/10/2019 02:36 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037709
Project: PG&E Topock - BCW, 30019131
Lab ID: N037709-002

Client Sample ID: MW-10-1019
Collection Date: 9/30/2019 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_191014A**	QC Batch: **75609**			PrepDate:	**10/9/2019**		Analyst: **DJ**
Boron	790	74	100		ug/L	1	10/14/2019 11:20 AM
Calcium	140000	85	500		ug/L	1	10/14/2019 11:20 AM
Iron	36	18	20		ug/L	1	10/14/2019 11:20 AM
Magnesium	21000	48	100		ug/L	1	10/14/2019 11:20 AM
Sodium	330000	2400	12000		ug/L	25	10/10/2019 02:40 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037709
Project: PG&E Topock - BCW, 30019131
Lab ID: N037709-003

Client Sample ID: MW-11-1019
Collection Date: 9/30/2019 3:20:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_191014A**	QC Batch: **75609**			PrepDate:	**10/9/2019**		Analyst: **DJ**
Boron	450	74	100		ug/L	1	10/14/2019 11:26 AM
Calcium	150000	85	500		ug/L	1	10/14/2019 11:26 AM
Iron	ND	18	20		ug/L	1	10/14/2019 11:26 AM
Magnesium	23000	48	100		ug/L	1	10/14/2019 11:26 AM
Sodium	240000	2400	12000		ug/L	25	10/10/2019 03:08 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75609	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	PBW	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532529

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

Sample ID	LCS2-75609	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	LCSW	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532530

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20170.008	500	20000	0	101	85	115				

Sample ID	N037709-002B-MS2	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	ZZZZZZ	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532593

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	402765.550	12000	20000	332100	353	75	125				S

Sample ID	N037709-002B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136883
Client ID:	ZZZZZZ	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3532595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	467452.413	12000	20000	332100	677	75	125	402800	14.9	20	S

Sample ID	MB-75609	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	10/9/2019	RunNo:	136926
Client ID:	PBW	Batch ID:	75609	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3534531

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **LCS1-75609** SampType: **LCS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **10/9/2019** RunNo: **136926**
Client ID: **LCSW** Batch ID: **75609** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/14/2019** SeqNo: **3534532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	4939.236	100	5000	0	98.8	85	115				
Calcium	9861.057	500	10000	0	98.6	85	115				
Iron	101.284	20	100.0	0	101	85	115				
Magnesium	9766.748	100	10000	0	97.7	85	115				

Sample ID **N037709-001B-MS1** SampType: **MS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **10/9/2019** RunNo: **136926**
Client ID: **ZZZZZZ** Batch ID: **75609** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/14/2019** SeqNo: **3534538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6058.051	100	5000	720.3	107	75	125				
Calcium	141296.578	500	10000	135100	61.8	75	125				S
Iron	101.504	20	100.0	0	102	75	125				
Magnesium	42150.500	100	10000	31120	110	75	125				

Sample ID **N037709-001B-MSD** SampType: **MSD** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **10/9/2019** RunNo: **136926**
Client ID: **ZZZZZZ** Batch ID: **75609** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **10/14/2019** SeqNo: **3534539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6004.982	100	5000	720.3	106	75	125	6058	0.880	20	
Calcium	147941.567	500	10000	135100	128	75	125	141300	4.59	20	S
Iron	100.260	20	100.0	0	100	75	125	101.5	1.23	20	
Magnesium	43208.033	100	10000	31120	121	75	125	42150	2.48	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **N037709-002B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **ZZZZZZ**	Batch ID: **75609**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3532591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	363990.517	12000	20000	332100	159	80	120				S

Sample ID **N037709-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ZZZZZZ**	Batch ID: **75609**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3534537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	5990.753	100	5000	720.3	105	80	120				
Calcium	144353.764	500	10000	135100	92.3	80	120				
Iron	104.869	20	100.0	0	105	80	120				
Magnesium	42786.187	100	10000	31120	117	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 12:45:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**				PrepDate:	**10/7/2019**	Analyst: **CEI**
Arsenic	1.7	0.081	0.10		µg/L	1	10/14/2019 03:04 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 09:54 PM
Molybdenum	4.8	0.21	0.50		µg/L	1	10/11/2019 09:54 PM
Selenium	5.8	0.36	0.50		µg/L	1	10/14/2019 03:04 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_191011A** QC Batch: **75562** PrepDate: **10/7/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.16	0.50		µg/L	1	10/11/2019 10:48 PM
Arsenic	2.1	0.081	0.10		µg/L	1	10/14/2019 03:29 PM
Barium	49	0.15	1.0		µg/L	1	10/14/2019 03:29 PM
Beryllium	ND	0.21	2.5		µg/L	5	10/11/2019 10:53 PM
Cadmium	ND	0.053	0.50		µg/L	1	10/11/2019 10:48 PM
Cobalt	ND	0.042	0.50		µg/L	1	10/11/2019 10:48 PM
Copper	ND	0.55	1.0		µg/L	1	10/15/2019 01:18 PM
Lead	ND	0.13	1.0		µg/L	1	10/11/2019 10:48 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 10:48 PM
Molybdenum	18	0.21	0.50		µg/L	1	10/11/2019 10:48 PM
Nickel	8.5	0.26	1.0		µg/L	1	10/14/2019 03:29 PM
Selenium	6.3	0.36	0.50		µg/L	1	10/14/2019 03:29 PM
Silver	ND	0.23	0.50		µg/L	1	10/11/2019 10:48 PM
Thallium	ND	0.19	0.50		µg/L	1	10/11/2019 10:48 PM
Vanadium	14	0.28	1.0		µg/L	1	10/14/2019 03:29 PM
Zinc	ND	2.3	10		µg/L	1	10/11/2019 10:48 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 3:20:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	10/14/2019 03:34 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 10:58 PM
Molybdenum	5.3	0.21	0.50		µg/L	1	10/11/2019 10:58 PM
Selenium	4.7	0.36	0.50		µg/L	1	10/14/2019 03:34 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75562** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/7/2019** RunNo: **136915**
Client ID: **PBW** Batch ID: **75562** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/11/2019** SeqNo: **3533818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.201	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **LCS-75562** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/7/2019** RunNo: **136915**
Client ID: **LCSW** Batch ID: **75562** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/11/2019** SeqNo: **3533819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.182	0.50	10.00	0	112	85	115				
Beryllium	10.145	0.50	10.00	0	101	85	115				
Cadmium	10.440	0.50	10.00	0	104	85	115				
Cobalt	10.539	0.50	10.00	0	105	85	115				
Lead	10.534	1.0	10.00	0	105	85	115				
Manganese	107.815	0.50	100.0	0	108	85	115				
Molybdenum	10.518	0.50	10.00	0	105	85	115				
Silver	10.055	0.50	10.00	0	101	85	115				
Thallium	10.229	0.50	10.00	0	102	85	115				
Zinc	9.570	10	10.00	0	95.7	85	115				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.199	0.50	10.00	0	112	75	125				
Cadmium	10.002	0.50	10.00	0	100	75	125				
Cobalt	9.606	0.50	10.00	0	96.1	75	125				
Lead	10.221	1.0	10.00	0	102	75	125				
Manganese	83.952	0.50	100.0	0	84.0	75	125				
Molybdenum	15.737	0.50	10.00	4.821	109	75	125				
Silver	10.317	0.50	10.00	0	103	75	125				
Thallium	10.404	0.50	10.00	0	104	75	125				
Zinc	9.059	10	10.00	0	90.6	75	125				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533826

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	11.280	2.5	10.00	0	113	75	125				

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533827

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.220	0.50	10.00	0	112	75	125	11.20	0.187	20	
Cadmium	9.963	0.50	10.00	0	99.6	75	125	10.00	0.390	20	
Cobalt	9.699	0.50	10.00	0	97.0	75	125	9.606	0.972	20	
Lead	10.186	1.0	10.00	0	102	75	125	10.22	0.343	20	
Manganese	84.416	0.50	100.0	0	84.4	75	125	83.95	0.552	20	
Molybdenum	15.725	0.50	10.00	4.821	109	75	125	15.74	0.0725	20	
Silver	10.351	0.50	10.00	0	104	75	125	10.32	0.323	20	
Thallium	10.444	0.50	10.00	0	104	75	125	10.40	0.390	20	
Zinc	9.284	10	10.00	0	92.8	75	125	9.059	0	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533830

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	10.895	2.5	10.00	0	109	75	125	11.28	3.47	20	

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.449	0.10	10.00	0	104	85	115				
Barium	10.231	1.0	10.00	0	102	85	115				
Nickel	10.984	1.0	10.00	0	110	85	115				
Selenium	9.240	0.50	10.00	0	92.4	85	115				
Vanadium	10.242	1.0	10.00	0	102	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.217	0.10	10.00	1.722	105	75	125				
Barium	63.832	1.0	10.00	54.69	91.4	75	125				
Nickel	11.837	1.0	10.00	1.706	101	75	125				
Selenium	16.378	0.50	10.00	5.803	106	75	125				
Vanadium	23.059	1.0	10.00	12.81	102	75	125				

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.652	0.10	10.00	1.722	109	75	125	12.22	3.50	20	
Barium	63.925	1.0	10.00	54.69	92.3	75	125	63.83	0.145	20	
Nickel	12.907	1.0	10.00	1.706	112	75	125	11.84	8.65	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	14.879	0.50	10.00	5.803	90.8	75	125	16.38	9.59	20	
Vanadium	22.970	1.0	10.00	12.81	102	75	125	23.06	0.386	20	

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535833

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536640

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

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536641

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	11.384	1.0	10.00	0	114	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536647

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536647

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.073	1.0	10.00	0	70.7	75	125				S

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536648

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	7.565	1.0	10.00	0	75.6	75	125	7.073	6.72	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.128	0.50	10.00	0	111	80	120				
Cadmium	10.044	0.50	10.00	0	100	80	120				
Cobalt	9.544	0.50	10.00	0	95.4	80	120				
Lead	10.198	1.0	10.00	0	102	80	120				
Manganese	83.531	0.50	100.0	0	83.5	80	120				
Molybdenum	15.886	0.50	10.00	4.821	111	80	120				
Silver	10.194	0.50	10.00	0	102	80	120				
Thallium	10.497	0.50	10.00	0	105	80	120				
Zinc	9.328	10	10.00	0	93.3	80	120				

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	11.277	2.5	10.00	0	113	80	120				

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.211	0.10	10.00	1.722	105	80	120				
Barium	66.279	1.0	10.00	54.69	116	80	120				
Nickel	11.286	1.0	10.00	1.706	95.8	80	120				
Selenium	14.509	0.50	10.00	5.803	87.1	80	120				
Vanadium	23.538	1.0	10.00	12.81	107	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536646

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	6.320	1.0	10.00	0	63.2	80	120				S

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-1019
Lab Order:	N037709	**Collection Date:**	9/30/2019 2:30:00 PM
Project:	PG&E Topock - BCW, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037709-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **NV00922-AA2_191003C** QC Batch: **75542** PrepDate: **10/2/2019** Analyst: **DJ**							
Mercury	ND	0.13	0.20		µg/L	1	10/3/2019 12:43 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID **MB-75542**	SampType: **MBLK**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **10/2/2019**	RunNo: **136760**
Client ID: **PBW**	Batch ID: **75542**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID **LCS-75542**	SampType: **LCS**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **10/2/2019**	RunNo: **136760**
Client ID: **LCSW**	Batch ID: **75542**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.900	0.20	5.000	0	98.0	85	115				

Sample ID **N037718-003C-MS**	SampType: **MS**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **10/2/2019**	RunNo: **136760**
Client ID: **ZZZZZZ**	Batch ID: **75542**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.740	0.20	5.000	0	94.8	75	125				

Sample ID **N037718-003C-MSD**	SampType: **MSD**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date: **10/2/2019**	RunNo: **136760**
Client ID: **ZZZZZZ**	Batch ID: **75542**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.830	0.20	5.000	0	96.6	75	125	4.740	1.88	20	

Qualifiers:

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

Calculations are based on raw values

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement / QA/QC / Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:	Global ID:	
Signature: Date: 9/30/2019	Sampled By: Nara Tay		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		
Project Name: PG&E Topock - ~~GMP~~ BCW	Signature: 9/30/2019		
Project Number: 30019131			

Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number; 6. Method of Cooling: ICE; Sample Temp: 2.4°C

Courier: ASSET; Tracking No.:

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (SW6020A): FF, Ag, Ar, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn; HNO3 (500 mL poly)	Metals Dissolved (SW6010B); FF B, Ca, Cu, Fe, Na, Ni; HNO3 (500 mL poly)	Metals Dissolved (SW 6020); FF Ar, Cr, Mg, Mn, Mo, Se; HNO3 (500 mL poly)	Metals Dissolved (6010B); FF B, Ca, Fe, Na; HNO3 (500 mL poly)	Dissolved metals (7470A) FF Mercury; HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C), H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037709-01	MW-09-1019	9/30/2019	12:45		X				X	X		X	X	X	X	X				E	4	P	BNS	
2	-02	MW-10-1019	9/30/2019	14:30		X		X	X			X	X	X	X	X	X				E	4	P	BNS	
3	-03	MW-11-1119	9/30/2019	15:20		X				X	X		X	X	X	X	X				E	4	P	BNS	
4	-04	EB-707-Q319	9/30/2019	15:35		X															E	1	P	B	
5																									
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Nara Tay	9/30/19 1630	Joe Gatel	9/30/19 1630
Joe Gatel	10/1/19 1006	Jordan Colli	10/1/19 1206
Jordan Colli	10/1/19 1217	Leandro Rodriguez	10/1/19 12:17

Turn Around Time (TAT)

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

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

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

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

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On: 10/1/2019 Workorder: N037709

Rep sample Temp (Deg C): 2.4 IR Gun ID: 1

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

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

Comments:

Checklist Completed By: YR YRJ 10/1/2019

Reviewed By: LG 100919

Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Tuesday, October 01, 2019 1:26 PM
To: Yoandra Rodriguez
Cc: maryann.balilu@assetlaboratoriesph.com; Tina Rice; andrea.gallardo@assetlaboratories.com
Subject: RE: PG&E Topock - BCW, 30019131 (Asset Labs No. N037709)

Please use MW-11-1019.

Thanks,
Laura

-----Original Message-----
From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Tuesday, October 1, 2019 3:03 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; Tina Rice <Tina.Rice@critigen.com>; andrea.gallardo@assetlaboratories.com
Subject: PG&E Topock - BCW, 30019131 (Asset Labs No. N037709)

Hi Laura,

Please kindly advise on the following issues for the attached COC:

- Sample 3: ID is MW-11-1119 on COC and MW-11-1019 on sample labels.

Thanks,

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ASSET Laboratories

WORK ORDER Summary

01-Oct-19

WorkOrder: N037709

Client ID: ARCUS02

Project: PG&E Topock - BCW, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037709-001A	MW-09-1019	9/30/2019 12:45:00 PM	10/15/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-001B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037709-001C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037709-001D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/15/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/15/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/15/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037709-002A	MW-10-1019	9/30/2019 2:30:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-002B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019			DISSOLVED MERCURY PREP	☐	☐	☐	WW

WORK ORDER Summary

01-Oct-19

WorkOrder: N037709

Client ID: ARCUS02

Project: PG&E Topock - BCW, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037709-002B	MW-10-1019	9/30/2019 2:30:00 PM	10/15/2019	Groundwater	EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N037709-002C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037709-002D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/15/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/15/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/15/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037709-003A	MW-11-1019	9/30/2019 3:20:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-003B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037709-003C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037709-003D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/15/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/15/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/15/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR

WORK ORDER Summary

01-Oct-19

WorkOrder: N037709

Client ID: ARCUS02

Project: PG&E Topock - BCW, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037709-003D	MW-11-1019	9/30/2019 3:20:00 PM	10/15/2019	Groundwater	EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/15/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037709-004A	EB-707-Q319	9/30/2019 3:35:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037709-005A	FOLDER	10/15/2019	10/15/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037709

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 2540C, SM 2320 B
Hanah Glodoviza	EPA 218.6, EPA 300.0
Diane Jetajobe	EPA 6010B_Dissolved, EPA 7470A_Dissolved

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136726 **Analyst:** LSR

ASSET #: N037709 **Date Analyzed:** 1-Oct

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 10/3/2019

2nd Level Reviewer: Nancy 10/16/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 9/27/19 1345
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CIW - 190724B	10.18 @24.7°C	% Rec: (90-110%)
1410	D	1418 @24.7°C	
9985	F	10080 @24.8°C	
99999	CIW - 190613A	100100 @24.8°C	

	Sample ID	Matrix	Reading	Comments
1	ND37666-1D	H2O	2590 @25.6°C	MB = 0.71
2	1D DUP		2600 @25.5°C	
3	2D uS/cm		3900 @25.3°C	
4	3D		12680 @25.3°C	
5	4D		12530 @25.4°C	
6	5D		3460 @25.3°C	
7	6D		6400 @25.5°C	
8	7D		6510 @25.7°C	
9				
10	1413 uS/cm	CIW - 190726A	1441 @23.9°C	
Dup	10000	190724G	10270 @24.0°C	RPD Criteria: 2%
	Std Chk: 99999	190524A	98200 @24.0°C	% Rec: (90-110%)

Julia Ramit 10/3/2019

Date: 10/1/19 1400
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CIW - 190724B	10.08 @20.1°C	% Rec: (90-110%)
1410	D	1411 @20.2°C	
9985	F	9890 @20.1°C	
99999	CIW - 190613A	101000 @20.2°C	

	Sample ID	Matrix	Reading	Comments
1	ND37709-1D	H2O	2730 @18.1°C	MB = 0.45
2	1D DUP		2770 @18.3°C	
3	2D		2420 @18.4°C	
4	3D		2190 @18.0°C	
5				
6				
7				
8				
9	1413 uS/cm	CIW - 190726A	1462 @19.2°C	
10	10000	190724G	10060 @19.6°C	
Dup	99999	190524A	102400 @19.6°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75523 **Analyst:** LSR

ASSET #: N037709 **Date Analyzed:** 1-Oct

Method: EPA 160.1 / SM 2540C

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Alicia Ramit Date: 10/3/2019

2nd Level Reviewer: Mary 10/16/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

Where:

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

For **N037709-001D,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(49.9569-49.8711)*1000000}{50}$$

= 1716 mg/L

Reporting result in two significant figures,

TDS=1700 mg/L

Sujita Ramit 10/3/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/1/2019 1:07:34 P**
Prep End Date: **10/2/2019 11:20:00**
Reviewed/ Date: 10/16/2019
Initials/ Date: Lilia Ramit 10/2/2019

Prep Batch **75523** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**
Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75523	Water		100	☐	100	1.000		
MB-75523	Water		100	☐	100	1.000		
N037679-007A	Groundwater		10	☐	100	10.000		
N037679-007A-DU	Groundwater		10	☐	100	10.000		
N037709-001D	Groundwater		50	☐	100	2.000		
N037709-002D	Groundwater		60	☐	100	1.667		
N037709-003D	Groundwater		60	☐	100	1.667		
N037713-001A	Groundwater		100	☐	100	1.000		

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

Number	Reagent Name
10418	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST191001A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/1/2019 1:07:34 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 10/2/2019

Prep Batch **75523** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75523	Water ~~[illegible]~~ WST191001A	10/1	100	☐	100	1.000		
MB-75523	Water		100	☐	100	1.000		
N037679-007A	Groundwater	9510	100 /10	☐	100	1.000		
N037679-007A-DU	Groundwater	1	100 /10	☐	100	1.000		
N037709-001D	Groundwater	2730	100 /50	☐	100	1.000		
N037709-002D	Groundwater	2420	100 /60	☐	100	1.000		
N037709-003D	Groundwater	2190	100 /60	☐	100	1.000		
N037713-001A	Groundwater	1184	100	☐	100	1.000		

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

10418

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/1/19 1307 D	MB 75523	100	120.5123 120.5126	120.5125 120.5127	VSR
YY2	LCS 75523	100	109.0074 109.0077	109.1027 109.1025	
L	NV37679--7A	10	59.5408 59.5406	59.5927 59.5925	
IG	7A DUP	10	60.9325 60.9326	60.9824 60.9825	
N	NV37709--1D	50	49.8709 49.8711	49.9572 49.9569	1
W	2D	60	49.8193 49.8190 WE 10/1	49.9110 49.9110	
LL	3D	60	75.4229 75.4232	75.5066 75.5064	
CO2	NV37713--1A	100	103.0197 103.0201	103.0943 103.0947	
	180°C TIME IN: 815 TIME OUT: 1030		49.9994	@1120 10/2/19 VSR	

Julia Ramit 10/2/2019

ASSET LABORATORIES
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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

TOTAL DISSOLVED SOLIDS, TDS

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

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

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
10/2/2019									
MB-75523	100	120.5126	120.5127	1	1	1			MBLK
LCS-75523	100	109.0077	109.1025	948	1	948			LCS
N037679-007A	10	59.5406	59.5925	519	10	5190	9510	0.546	SAMP
N037679-007ADUP	10	60.9326	60.9825	499	10	4990	9510	0.525	DUP
N037709-001D	50	49.8711	49.9569	858	2	1716	2730	0.629	SAMP
N037709-002D	60	49.819	49.911	920	1.66666667	1533.33333	2420	0.634	SAMP
N037709-003D	60	75.4232	75.5064	832	1.66666667	1386.66667	2190	0.633	SAMP
N037713-001A	100	103.0201	103.0947	746	1	746	1174	0.635	SAMP

Silvia Ramit 10/2/2019

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136743
ASSET #: N037709

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 10/2/2019

Method:

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer HSG Date: 10/14/2019

2nd Level Reviewer NS 10/14/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

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

where:

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

For Sample **N037709-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.4923 * 20$$

$$Cr^{+6}, \mu g/L = 129.8460$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 130}$$

ANALYSIS RUN LOG

INJECTION LOG: 190924A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	ICV	ICV	1	Hexavalent Chromium	09/24/19 10:59 AM	Reported
9	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/24/19 11:10 AM	Reported
10	ICB	ICB	1	Hexavalent Chromium	09/24/19 11:20 AM	Reported
11	MB-R136616	MBLK	1	Hexavalent Chromium	09/24/19 11:29 AM	Reported
12	LCS-R136616	LCS	1	Hexavalent Chromium	09/24/19 11:38 AM	Reported
13	N037597-001AMS	MS	5	Hexavalent Chromium	09/24/19 12:09 PM	Reported
14	N037597-002AMS	MS	1	Hexavalent Chromium	09/24/19 12:21 PM	Reported
15	N037597-003AMS	MS	1	Hexavalent Chromium	09/24/19 12:30 PM	Reported
16	N037597-004AMS	MS	1	Hexavalent Chromium	09/24/19 12:40 PM	Reported
17	N037597-001A	SAMP	5	Hexavalent Chromium	09/24/19 1:57 PM	Reported
18	N037597-002A	SAMP	1	Hexavalent Chromium	09/24/19 2:08 PM	Reported
19	N037597-003A	SAMP	1	Hexavalent Chromium	09/24/19 2:18 PM	Reported
20	N037597-004A	SAMP	1	Hexavalent Chromium	09/24/19 2:27 PM	Reported
21	CCV-1	CCV1	1	Hexavalent Chromium	09/24/19 2:37 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	09/24/19 2:46 PM	Reported
23	N037599-001A	SAMP	20	Hexavalent Chromium	09/24/19 3:01 PM	Not Reported
24	N037597-002ADUP	DUP	1	Hexavalent Chromium	09/24/19 3:13 PM	Reported
25	N037597-003AMSD	MSD	1	Hexavalent Chromium	09/24/19 3:22 PM	Reported
26	N037599-001A	SAMP	500	Hexavalent Chromium	09/24/19 4:01 PM	Reported
27	N037599-001AMS	MS	500	Hexavalent Chromium	09/24/19 4:12 PM	Reported
28	CCV-2	CCV	1	Hexavalent Chromium	09/24/19 4:22 PM	Reported
29	CCB-2	CCB	1	Hexavalent Chromium	09/24/19 4:31 PM	Reported
30	BLANK	BLANK	1	Hexavalent Chromium	09/24/19 4:41 PM	Not Reported

10/1/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190924A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Sep/19 17:11:38**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	ICV,ICV,1,	9	1000	Unknown		09/24/2019 10:59	Finished	ICV @5ppb, IWST-190702B
9	PQL@0.2ppb,CCV2,1	10	1000	Unknown		09/24/2019 11:10	Finished	PQL @ 0.2ppb
10	ICB,ICB,1,	11	1000	Unknown		09/24/2019 11:20	Finished	CCB R190830A
11	MB-H2O,MBLK,1,	12	1000	Unknown		09/24/2019 11:29	Finished	MB R190830A
12	LCS-H2O,LCS,1,	13	1000	Unknown		09/24/2019 11:38	Finished	LCS @5ppb, IWST-190702B
13	N037597-001AMS,MS	14	1000	Unknown		09/24/2019 12:09	Finished	MS (1ppb), IWST-190702B,2>1
14	N037597-002AMS,MS	15	1000	Unknown		09/24/2019 12:21	Finished	MS (1ppb), IWST-190702B,10
15	N037597-003AMS,MS	16	1000	Unknown		09/24/2019 12:30	Finished	MS (1ppb), IWST-190702B,10
16	N037597-004AMS,MS	17	1000	Unknown		09/24/2019 12:40	Finished	MS (1ppb), IWST-190702B,10
17	N037597-001A,SAMP	19	1000	Unknown		09/24/2019 13:57	Finished	SAMP,2>10mL
18	N037597-002A,SAMP	20	1000	Unknown		09/24/2019 14:08	Finished	SAMP,10mL
19	N037597-003A,SAMP	21	1000	Unknown		09/24/2019 14:18	Finished	SAMP,10mL
20	N037597-004A,SAMP	22	1000	Unknown		09/24/2019 14:27	Finished	SAMP,10mL
21	CCV-2,CCV1,1,	23	1000	Unknown		09/24/2019 14:37	Finished	CCV @10ppb, IWST-190702A
22	CCB-2,CCB,1,	24	1000	Unknown		09/24/2019 14:46	Finished	CCB R190830A
23	N037599-001A,SAMP	26	1000	Unknown		09/24/2019 15:01	Finished	SAMP,0.5>10mL
24	N037597-002ADUP,D	27	1000	Unknown		09/24/2019 15:13	Finished	DUP,10mL
25	N037597-003AMSD,M	28	1000	Unknown		09/24/2019 15:22	Finished	
26	N037599-001A,SAMP	30	1000	Unknown		09/24/2019 16:01	Finished	SAMP,0.02>10mL
27	N037599-001AMS,MS	31	1000	Unknown		09/24/2019 16:12	Finished	MS (1ppb), IWST-190702B,0.0
28	CCV-3,CCV,1,	32	1000	Unknown		09/24/2019 16:22	Finished	CCV @5ppb, IWST-190702A
29	CCB-3,CCB,1,	33	1000	Unknown		09/24/2019 16:31	Finished	CCB R190830A
30	BLANK	34	1000	Unknown		09/24/2019 16:41	Finished	BLANK
31	SHUTDOWN	35	1000	Unknown		09/24/2019 16:50	Finished	
32	Eluent: R190924B	36	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190920B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

10/1/2019

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 9:43 AM	Not Reported
9	CCV-1	CCV	1	Hexavalent Chromium	10/02/19 9:54 AM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/19 10:03 AM	Reported
11	CCB-1	CCB	1	Hexavalent Chromium	10/02/19 10:13 AM	Reported
12	MB-R136743	MBLK	1	Hexavalent Chromium	10/02/19 10:22 AM	Reported
13	LCS-R136743	LCS	1	Hexavalent Chromium	10/02/19 10:32 AM	Reported
14	N037645-001AMS	MS	1	Hexavalent Chromium	10/02/19 10:46 AM	Not Reported
15	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 10:57 AM	Not Reported
16	N037646-001AMS	MS	1	Hexavalent Chromium	10/02/19 11:06 AM	Reported
17	N037646-002AMS	MS	1	Hexavalent Chromium	10/02/19 11:16 AM	Not Reported
18	N037645-001A	SAMP	5	Hexavalent Chromium	10/02/19 11:31 AM	Reported
19	N037645-001AMS	MS	5	Hexavalent Chromium	10/02/19 11:42 AM	Reported
20	N037645-002A	SAMP	1	Hexavalent Chromium	10/02/19 11:52 AM	Reported
21	N037646-001A	SAMP	1	Hexavalent Chromium	10/02/19 12:01 PM	Reported
22	CCV-2	CCV1	1	Hexavalent Chromium	10/02/19 12:11 PM	Reported
23	CCB-2	CCB	1	Hexavalent Chromium	10/02/19 12:20 PM	Reported
24	N037646-002A	SAMP	5	Hexavalent Chromium	10/02/19 12:32 PM	Reported
25	N037646-002AMS	MS	5	Hexavalent Chromium	10/02/19 12:43 PM	Reported
26	N037666-001A	SAMP	50	Hexavalent Chromium	10/02/19 12:52 PM	Not Reported
27	N037666-001AMS	MS	50	Hexavalent Chromium	10/02/19 1:02 PM	Not Reported
28	N037666-002A	SAMP	20	Hexavalent Chromium	10/02/19 1:11 PM	Reported
29	N037666-002AMS	MS	20	Hexavalent Chromium	10/02/19 1:21 PM	Reported
30	N037666-003A	SAMP	50	Hexavalent Chromium	10/02/19 1:30 PM	Reported
31	N037666-003AMS	MS	50	Hexavalent Chromium	10/02/19 1:40 PM	Reported
32	N037666-004A	SAMP	50	Hexavalent Chromium	10/02/19 1:49 PM	Reported
33	N037666-004AMS	MS	50	Hexavalent Chromium	10/02/19 1:59 PM	Reported
34	CCV-3	CCV	1	Hexavalent Chromium	10/02/19 2:08 PM	Reported
35	CCB-3	CCB	1	Hexavalent Chromium	10/02/19 2:18 PM	Reported
36	N037666-005A	SAMP	1000	Hexavalent Chromium	10/02/19 2:27 PM	Reported
37	N037666-005AMS	MS	1000	Hexavalent Chromium	10/02/19 2:36 PM	Reported
38	N037666-006A	SAMP	1	Hexavalent Chromium	10/02/19 2:46 PM	Reported
39	N037666-006AMS	MS	1	Hexavalent Chromium	10/02/19 2:55 PM	Reported
40	N037666-007A	SAMP	1	Hexavalent Chromium	10/02/19 3:05 PM	Reported
41	N037666-007AMS	MS	1	Hexavalent Chromium	10/02/19 3:14 PM	Reported
42	N037666-001A	SAMP	10	Hexavalent Chromium	10/02/19 3:24 PM	Reported

10/14/2019

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037666-001AMS	MS	10	Hexavalent Chromium	10/02/19 3:33 PM	Reported
44	N037666-002AMSD	MSD	20	Hexavalent Chromium	10/02/19 3:43 PM	Reported
45	N037666-001ADUP	DUP	10	Hexavalent Chromium	10/02/19 3:52 PM	Reported
46	CCV-4	CCV1	1	Hexavalent Chromium	10/02/19 4:02 PM	Reported
47	CCB-4	CCB	1	Hexavalent Chromium	10/02/19 4:11 PM	Reported
48	N037572-001A	SAMP	5	Hexavalent Chromium	10/02/19 4:21 PM	Not Reported
49	N037572-001AMS	MS	5	Hexavalent Chromium	10/02/19 4:30 PM	Not Reported
50	N037709-001AMS	MS	1	Hexavalent Chromium	10/02/19 4:40 PM	Not Reported
51	N037709-002AMS	MS	1	Hexavalent Chromium	10/02/19 4:49 PM	Not Reported
52	N037709-003AMS	MS	1	Hexavalent Chromium	10/02/19 4:58 PM	Not Reported
53	N037709-004AMS	MS	1	Hexavalent Chromium	10/02/19 5:08 PM	Reported
54	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 5:17 PM	Reported
55	N037709-001A	SAMP	20	Hexavalent Chromium	10/02/19 5:35 PM	Reported
56	N037709-001AMS	MS	20	Hexavalent Chromium	10/02/19 5:46 PM	Reported
57	N037709-002A	SAMP	10	Hexavalent Chromium	10/02/19 5:55 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	10/02/19 6:05 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	10/02/19 6:14 PM	Reported
60	N037709-002AMS	MS	10	Hexavalent Chromium	10/02/19 6:24 PM	Reported
61	N037709-003A	SAMP	5	Hexavalent Chromium	10/02/19 6:33 PM	Reported
62	N037709-003AMS	MS	5	Hexavalent Chromium	10/02/19 6:42 PM	Reported
63	N037709-004A	SAMP	1	Hexavalent Chromium	10/02/19 6:52 PM	Reported
64	CCV-6	CCV	1	Hexavalent Chromium	10/02/19 7:01 PM	Reported
65	CCB-6	CCB	1	Hexavalent Chromium	10/02/19 7:11 PM	Reported
66	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 7:20 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Oct/19 19:51:09**
No. of Injections:	**69**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	BLANK	1	1000	Unknown		10/02/2019 09:43	Finished	BLANK
9	CCV1,CCV,1,	2	1000	Unknown		10/02/2019 09:54	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/02/2019 10:03	Finished	PQL @ 0.2ppb
11	CCB1,CCB,1,	4	1000	Unknown		10/02/2019 10:13	Finished	CCB R190830A
12	MB-H2O,MBLK,1,	5	1000	Unknown		10/02/2019 10:22	Finished	MB R190830A
13	LCS-H2O,LCS,1,	6	1000	Unknown		10/02/2019 10:32	Finished	LCS @5ppb, IWST-190702B
14	N037645-001AMS,MS	8	1000	Unknown		10/02/2019 10:46	Finished	MS (1ppb), IWST-190702B,10
15	N037645-002AMS,MS	9	1000	Unknown		10/02/2019 10:57	Finished	MS (1ppb), IWST-190702B,10
16	N037646-001AMS,MS	10	1000	Unknown		10/02/2019 11:06	Finished	MS (5ppb), IWST-190702B,10
17	N037646-002AMS,MS	11	1000	Unknown		10/02/2019 11:16	Finished	MS (1ppb), IWST-190702B,10
18	N037645-001A,SAMP	13	1000	Unknown		10/02/2019 11:31	Finished	SAMP, 2>10 mL
19	N037645-001AMS,MS	14	1000	Unknown		10/02/2019 11:42	Finished	MS (1ppb), IWST-190702B,2>1
20	N037645-002A,SAMP	15	1000	Unknown		10/02/2019 11:52	Finished	
21	N037646-001A,SAMP	16	1000	Unknown		10/02/2019 12:01	Finished	
22	CCV-2,CCV1,1,	17	1000	Unknown		10/02/2019 12:11	Finished	CCV @10ppb, IWST-190702A
23	CCB-2,CCB,1,	18	1000	Unknown		10/02/2019 12:20	Finished	CCB R190830A
24	N037646-002A,SAMP	19	1000	Unknown		10/02/2019 12:32	Finished	
25	N037646-002AMS,MS	20	1000	Unknown		10/02/2019 12:43	Finished	
26	N037666-001A,SAMP	21	1000	Unknown		10/02/2019 12:52	Finished	
27	N037666-001AMS,MS	22	1000	Unknown		10/02/2019 13:02	Finished	
28	N037666-002A,SAMP	23	1000	Unknown		10/02/2019 13:11	Finished	
29	N037666-002AMS,MS	24	1000	Unknown		10/02/2019 13:21	Finished	
30	N037666-003A,SAMP	25	1000	Unknown		10/02/2019 13:30	Finished	
31	N037666-003AMS,MS	26	1000	Unknown		10/02/2019 13:40	Finished	
32	N037666-004A,SAMP	27	1000	Unknown		10/02/2019 13:49	Finished	
33	N037666-004AMS,MS	28	1000	Unknown		10/02/2019 13:59	Finished	
34	CCV-3,CCV,1,	29	1000	Unknown		10/02/2019 14:08	Finished	CCV @5ppb, IWST-190702A
35	CCB-3,CCB,1,	30	1000	Unknown		10/02/2019 14:18	Finished	CCB R190830A
36	N037666-005A,SAMP	31	1000	Unknown		10/02/2019 14:27	Finished	
37	N037666-005AMS,MS	32	1000	Unknown		10/02/2019 14:36	Finished	
38	N037666-006A,SAMP	33	1000	Unknown		10/02/2019 14:46	Finished	
39	N037666-006AMS,MS	34	1000	Unknown		10/02/2019 14:55	Finished	
40	N037666-007A,SAMP	35	1000	Unknown		10/02/2019 15:05	Finished	
41	N037666-007AMS,MS	36	1000	Unknown		10/02/2019 15:14	Finished	
42	N037666-001A,SAMP	37	1000	Unknown		10/02/2019 15:24	Finished	
43	N037666-001AMS,MS	38	1000	Unknown		10/02/2019 15:33	Finished	
44	N037666-002AMSD,M	39	1000	Unknown		10/02/2019 15:43	Finished	
45	N037666-001ADUP,D	40	1000	Unknown		10/02/2019 15:52	Finished	
46	CCV-4,CCV1,1,	41	1000	Unknown		10/02/2019 16:02	Finished	CCV @10ppb, IWST-190702A
47	CCB-4,CCB,1,	42	1000	Unknown		10/02/2019 16:11	Finished	CCB R190830A
48	N037572-001A,SAMP	43	1000	Unknown		10/02/2019 16:21	Finished	
49	N037572-001AMS,MS	44	1000	Unknown		10/02/2019 16:30	Finished	
50	N037709-001AMS,MS	45	1000	Unknown		10/02/2019 16:40	Finished	
51	N037709-002AMS,MS	46	1000	Unknown		10/02/2019 16:49	Finished	
52	N037709-003AMS,MS	47	1000	Unknown		10/02/2019 16:58	Finished	
53	N037709-004AMS,MS	48	1000	Unknown		10/02/2019 17:08	Finished	
54	N037645-002AMS,MS	49	1000	Unknown		10/02/2019 17:17	Finished	
55	N037709-001A,SAMP	1	1000	Unknown		10/02/2019 17:35	Finished	
56	N037709-001AMS,MS	2	1000	Unknown		10/02/2019 17:46	Finished	
57	N037709-002A,SAMP	3	1000	Unknown		10/02/2019 17:55	Finished	
58	CCV-5,CCV,1,	4	1000	Unknown		10/02/2019 18:05	Finished	CCV @5ppb, IWST-190702A
59	CCB-5,CCB,1,	5	1000	Unknown		10/02/2019 18:14	Finished	CCB R190830A
60	N037709-002AMS,MS	6	1000	Unknown		10/02/2019 18:24	Finished	

61	N037709-003A,SAMP	7	1000	Unknown		10/02/2019 18:33	Finished	
62	N037709-003AMS,MS	8	1000	Unknown		10/02/2019 18:42	Finished	
63	N037709-004A,SAMP	9	1000	Unknown		10/02/2019 18:52	Finished	
64	CCV-6,CCV,1,	10	1000	Unknown		10/02/2019 19:01	Finished	CCV @10ppb, IWST-190702A
65	CCB-6,CCB,1,	11	1000	Unknown		10/02/2019 19:11	Finished	CCB R190830A
66	BLANK	12	1000	Unknown		10/02/2019 19:20	Finished	BLANK
67	SHUTDOWN	13	1000	Unknown		10/02/2019 19:30	Finished	
68	Eluent: R190930D	14	1000	Unknown		n.a.	Finished	Eluent
69	PCR: R190930E	15	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Sample Preparation

Date Prepared: 10/01/19
Time Prepared: 1400
Prepared By: HG

SLOPE: 97.5%
pH 4: 4.02
7: 7.04
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R1909300
NH4OH + NH4SO4 buffer: R190830A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037709-1A	9.48	–	~250mL	~250mL		
2)	-2A	9.52	–	"	"		
3)	-3A	9.50	–	"	"		
4)	-4A	9.64	–	"	"		
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 10/02/19
Time Prepared: 1535
Prepared By: HG

SLOPE: 97.3%
pH 4: 4.01
7: 7.03
10: 10.02

Reagent ID: 6N NaOH: R190722A
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R1909300
NH4OH + NH4SO4 buffer: R190701B, R190830A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037721-1B	9.22	9.32	~250mL	~250mL	+1 DROP 6N	NaOH
2)	N037722-1A	9.51	–	"	"		
3)	2A	9.41	–	"	"		
4)	N037723-1A	9.36	–	"	"		
5)	2A	9.47	–	"	"		
6)	3A	9.26	9.31	"	"	+1 DROP 6N NaOH	
7)	4A	8.95	9.70	"	"	+4 DROPS 6N NaOH	
8)	5A	9.60	–	"	"		
9)	N037718-1F	7.54	–	~1000mL	~1000mL (HS)		UNFILTERED / UNPRESERVED
10)	-1C	–	9.48	~250mL	~250mL		LAB FILTERED / PRESERVED
11)	-2F	7.10	–	~1000mL			UNFILTERED / UNPRESERVED
12)	-2C	–	9.50	~250mL	~250mL		LAB FILTERED / PRESERVED
13)	-3D	7.80	–	~1000mL			UNFILTERED / UNPRESERVED
14)	-3B	–	9.30	~250mL	~250mL		LAB FILTERED / PRESERVED
15)							

Logbook No. 17

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 9/24/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0583	0.2636	1.3281	2.6480	4.1596	5.4105	0.9995

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ICV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.889	0.20	5.000	0	97.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.194	0.20	0.2000	0	96.9	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.061	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.221	0.20	0.2000	0	110	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.987	0.20	10.00	0	99.9	95	105				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.016	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.830	0.20	10.00	0	98.3	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.992	0.20	5.000	0	99.8	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.859	0.20	10.00	0	98.6	95	105				

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ICB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525204**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525207**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525216**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525226**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525238**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525245**

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

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525251**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	

Average	4.747
Actual RT Window	4.667 - 4.827
Applied RT Window	4.547 - 4.947

MB-R136743	N.A.	N.A.
LCS-R136743	4.731	PASS
N037645-001AMS	N.A.	N.A.
N037645-002AMS	4.731	PASS
N037646-001AMS	4.698	PASS
N037646-002AMS	4.506	FAIL
N037645-001A	N.A.	N.A.
N037645-001AMS	4.665	PASS
N037645-002A	N.A.	N.A.
N037646-001A	4.715	PASS
N037646-002A	N.A.	N.A.
N037646-002AMS	4.698	PASS
N037666-001A	4.731	PASS
N037666-001AMS	4.731	PASS
N037666-002A	4.731	PASS
N037666-002AMS	4.731	PASS
N037666-003A	4.731	PASS
N037666-003AMS	4.731	PASS
N037666-004A	4.731	PASS
N037666-004AMS	4.731	PASS
N037666-005A	4.731	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	
Average	4.747	
Actual RT Window	4.667 - 4.827	
Applied RT Window	4.547 - 4.947	
N037666-005AMS	4.731	PASS
N037666-006A	4.648	PASS
N037666-006AMS	4.648	PASS
N037666-007A	4.640	PASS
N037666-007AMS	4.648	PASS
N037666-001A	4.731	PASS
N037666-001AMS	4.731	PASS
N037666-002AMSD	4.731	PASS
N037666-001ADUP	4.731	PASS
N037572-001A	4.706	PASS
N037572-001AMS	4.715	PASS
N037709-001AMS	4.698	PASS
N037709-002AMS	4.706	PASS
N037709-003AMS	4.715	PASS
N037709-004AMS	4.748	PASS
N037645-002AMS	4.748	PASS
N037709-001A	4.756	PASS
N037709-001AMS	4.756	PASS
N037709-002A	4.756	PASS
N037709-002AMS	4.773	PASS
N037709-003A	4.773	PASS
N037709-003AMS	4.781	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	
Average	4.747	
Actual RT Window	4.667 - 4.827	
Applied RT Window	4.547 - 4.947	
N037709-004A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190924A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	ICV	ICV	1	Hexavalent Chromium	09/24/19 10:59 AM	Reported
9	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/24/19 11:10 AM	Reported
10	ICB	ICB	1	Hexavalent Chromium	09/24/19 11:20 AM	Reported
11	MB-R136616	MBLK	1	Hexavalent Chromium	09/24/19 11:29 AM	Reported
12	LCS-R136616	LCS	1	Hexavalent Chromium	09/24/19 11:38 AM	Reported
13	N037597-001AMS	MS	5	Hexavalent Chromium	09/24/19 12:09 PM	Reported
14	N037597-002AMS	MS	1	Hexavalent Chromium	09/24/19 12:21 PM	Reported
15	N037597-003AMS	MS	1	Hexavalent Chromium	09/24/19 12:30 PM	Reported
16	N037597-004AMS	MS	1	Hexavalent Chromium	09/24/19 12:40 PM	Reported
17	N037597-001A	SAMP	5	Hexavalent Chromium	09/24/19 1:57 PM	Reported
18	N037597-002A	SAMP	1	Hexavalent Chromium	09/24/19 2:08 PM	Reported
19	N037597-003A	SAMP	1	Hexavalent Chromium	09/24/19 2:18 PM	Reported
20	N037597-004A	SAMP	1	Hexavalent Chromium	09/24/19 2:27 PM	Reported
21	CCV-1	CCV1	1	Hexavalent Chromium	09/24/19 2:37 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	09/24/19 2:46 PM	Reported
23	N037599-001A	SAMP	20	Hexavalent Chromium	09/24/19 3:01 PM	Not Reported
24	N037597-002ADUP	DUP	1	Hexavalent Chromium	09/24/19 3:13 PM	Reported
25	N037597-003AMSD	MSD	1	Hexavalent Chromium	09/24/19 3:22 PM	Reported
26	N037599-001A	SAMP	500	Hexavalent Chromium	09/24/19 4:01 PM	Reported
27	N037599-001AMS	MS	500	Hexavalent Chromium	09/24/19 4:12 PM	Reported
28	CCV-2	CCV	1	Hexavalent Chromium	09/24/19 4:22 PM	Reported
29	CCB-2	CCB	1	Hexavalent Chromium	09/24/19 4:31 PM	Reported
30	BLANK	BLANK	1	Hexavalent Chromium	09/24/19 4:41 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190924A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Sep/19 17:11:38**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

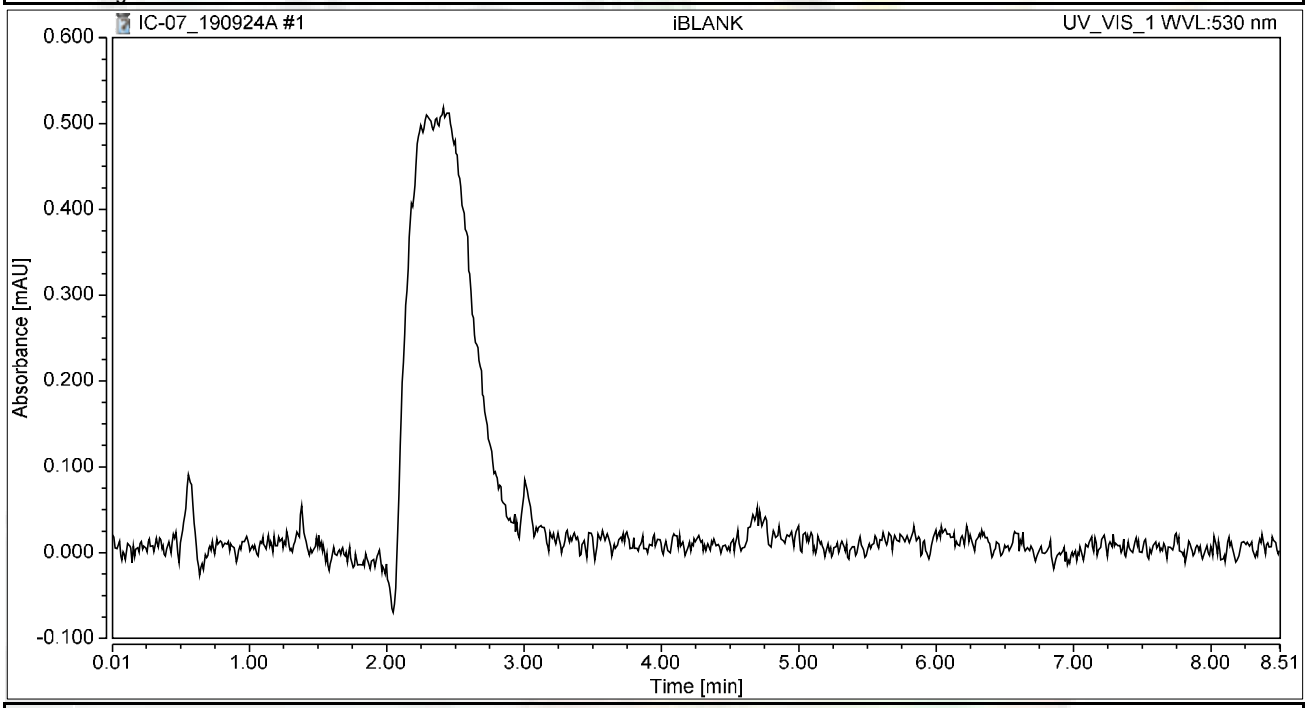
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	ICV,ICV,1,	9	1000	Unknown		09/24/2019 10:59	Finished	ICV @5ppb, IWST-190702B
9	PQL@0.2ppb,CCV2,1	10	1000	Unknown		09/24/2019 11:10	Finished	PQL @ 0.2ppb
10	ICB,ICB,1,	11	1000	Unknown		09/24/2019 11:20	Finished	CCB R190830A
11	MB-H2O,MBLK,1,	12	1000	Unknown		09/24/2019 11:29	Finished	MB R190830A
12	LCS-H2O,LCS,1,	13	1000	Unknown		09/24/2019 11:38	Finished	LCS @5ppb, IWST-190702B
13	N037597-001AMS,MS	14	1000	Unknown		09/24/2019 12:09	Finished	MS (1ppb), IWST-190702B,2>1
14	N037597-002AMS,MS	15	1000	Unknown		09/24/2019 12:21	Finished	MS (1ppb), IWST-190702B,10
15	N037597-003AMS,MS	16	1000	Unknown		09/24/2019 12:30	Finished	MS (1ppb), IWST-190702B,10
16	N037597-004AMS,MS	17	1000	Unknown		09/24/2019 12:40	Finished	MS (1ppb), IWST-190702B,10
17	N037597-001A,SAMP	19	1000	Unknown		09/24/2019 13:57	Finished	SAMP,2>10mL
18	N037597-002A,SAMP	20	1000	Unknown		09/24/2019 14:08	Finished	SAMP,10mL
19	N037597-003A,SAMP	21	1000	Unknown		09/24/2019 14:18	Finished	SAMP,10mL
20	N037597-004A,SAMP	22	1000	Unknown		09/24/2019 14:27	Finished	SAMP,10mL
21	CCV-2,CCV1,1,	23	1000	Unknown		09/24/2019 14:37	Finished	CCV @10ppb, IWST-190702A
22	CCB-2,CCB,1,	24	1000	Unknown		09/24/2019 14:46	Finished	CCB R190830A
23	N037599-001A,SAMP	26	1000	Unknown		09/24/2019 15:01	Finished	SAMP,0.5>10mL
24	N037597-002ADUP,D	27	1000	Unknown		09/24/2019 15:13	Finished	DUP,10mL
25	N037597-003AMSD,M	28	1000	Unknown		09/24/2019 15:22	Finished	
26	N037599-001A,SAMP	30	1000	Unknown		09/24/2019 16:01	Finished	SAMP,0.02>10mL
27	N037599-001AMS,MS	31	1000	Unknown		09/24/2019 16:12	Finished	MS (1ppb), IWST-190702B,0.0
28	CCV-3,CCV,1,	32	1000	Unknown		09/24/2019 16:22	Finished	CCV @5ppb, IWST-190702A
29	CCB-3,CCB,1,	33	1000	Unknown		09/24/2019 16:31	Finished	CCB R190830A
30	BLANK	34	1000	Unknown		09/24/2019 16:41	Finished	BLANK
31	SHUTDOWN	35	1000	Unknown		09/24/2019 16:50	Finished	
32	Eluent: R190924B	36	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190920B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

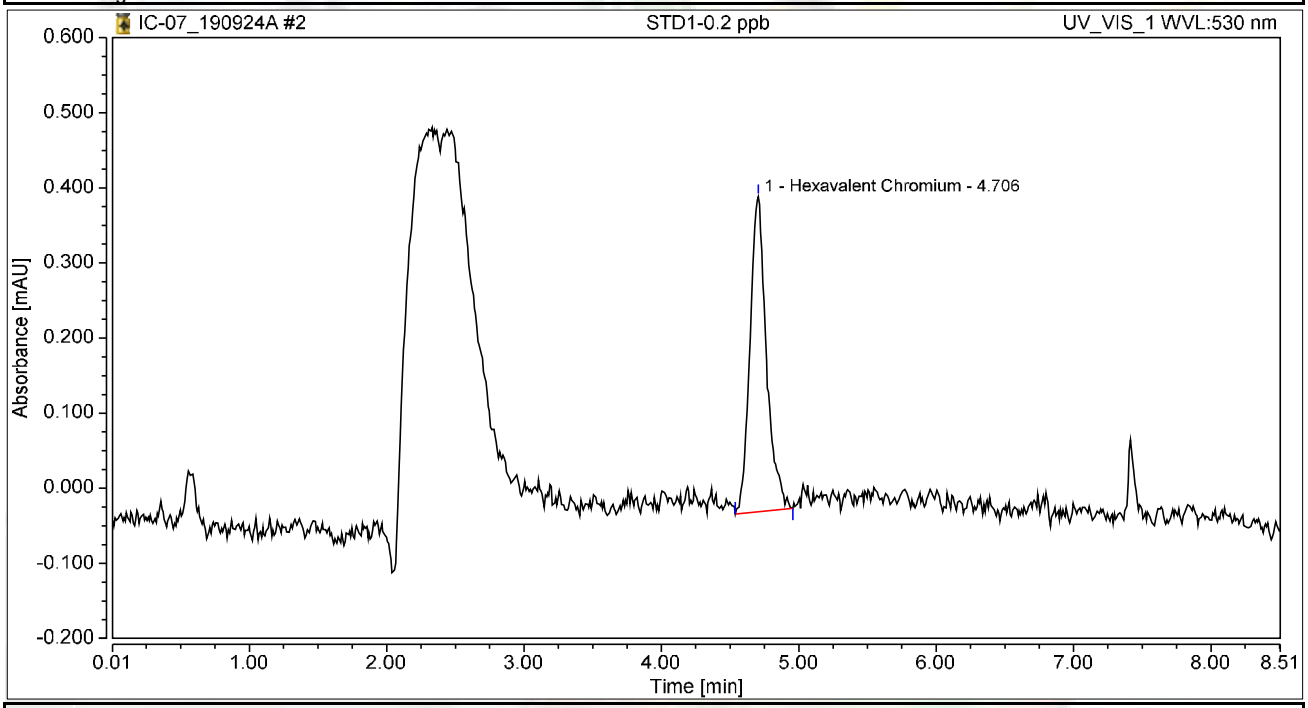
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

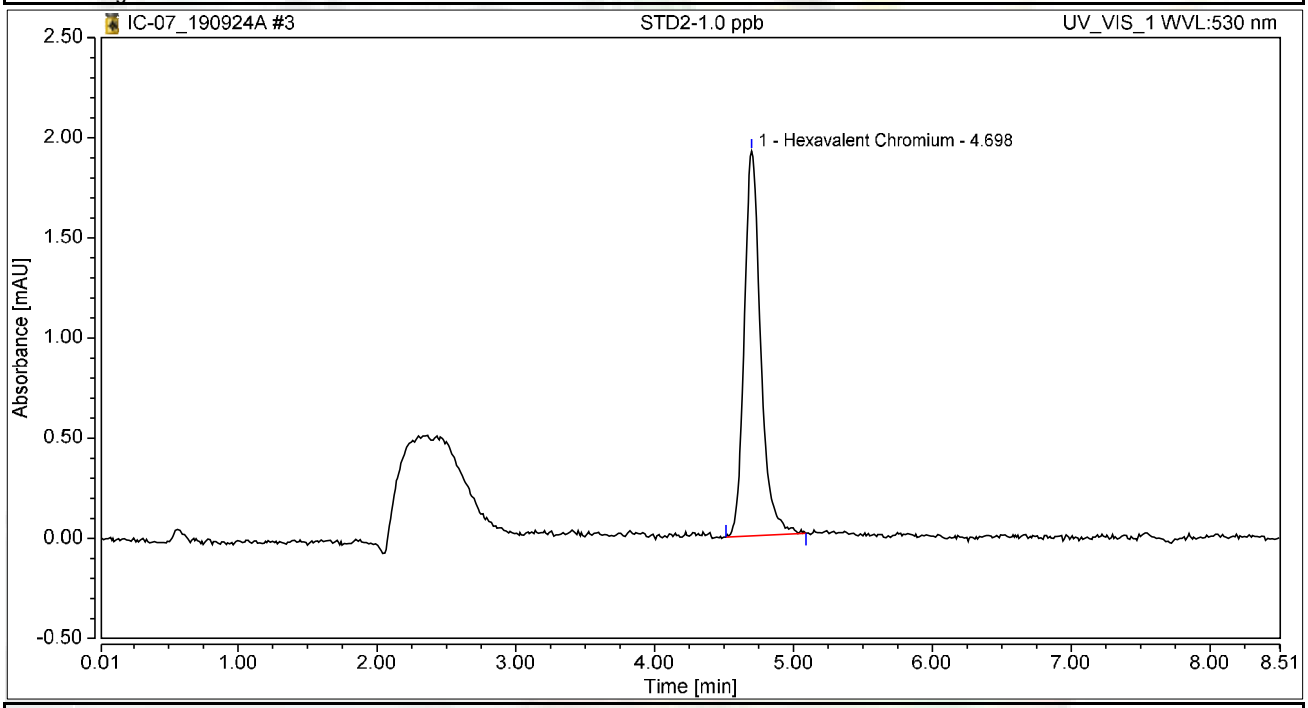
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.058	0.419	100.00	100.00	0.2147
Total:			**0.058**	**0.419**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

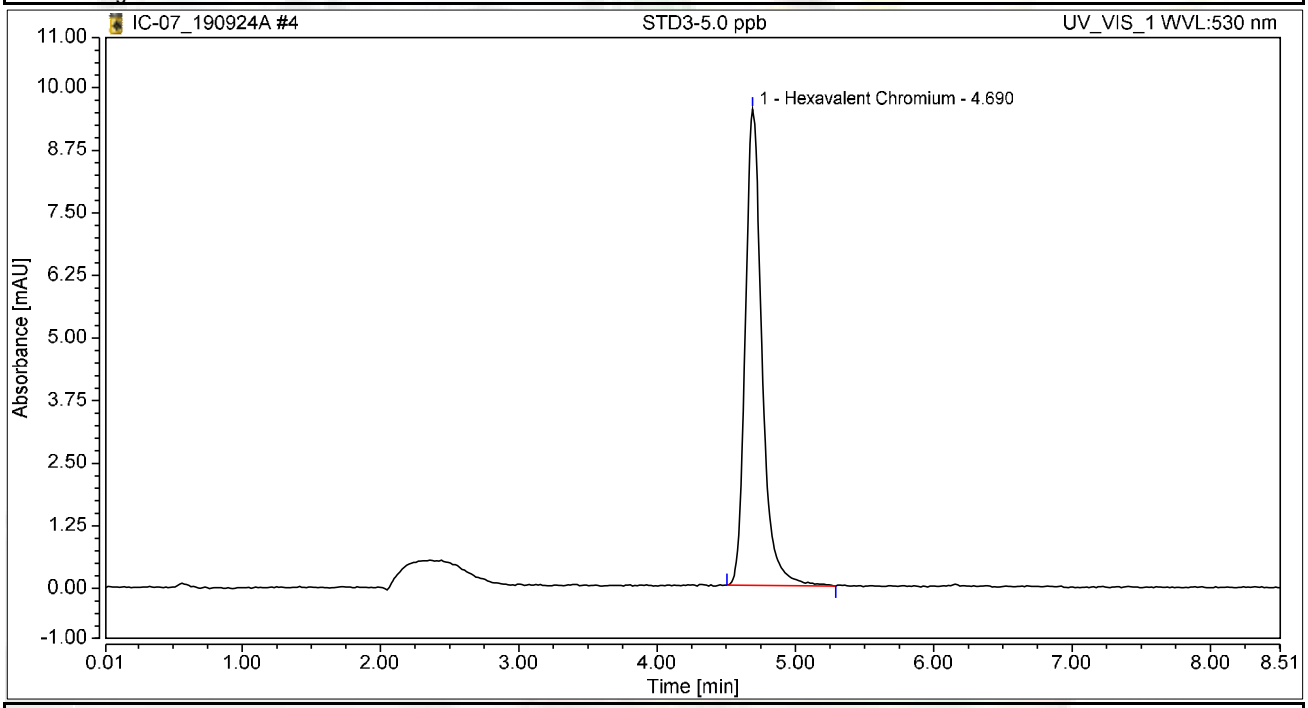
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.264	1.921	100.00	100.00	0.9706
Total:			**0.264**	**1.921**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

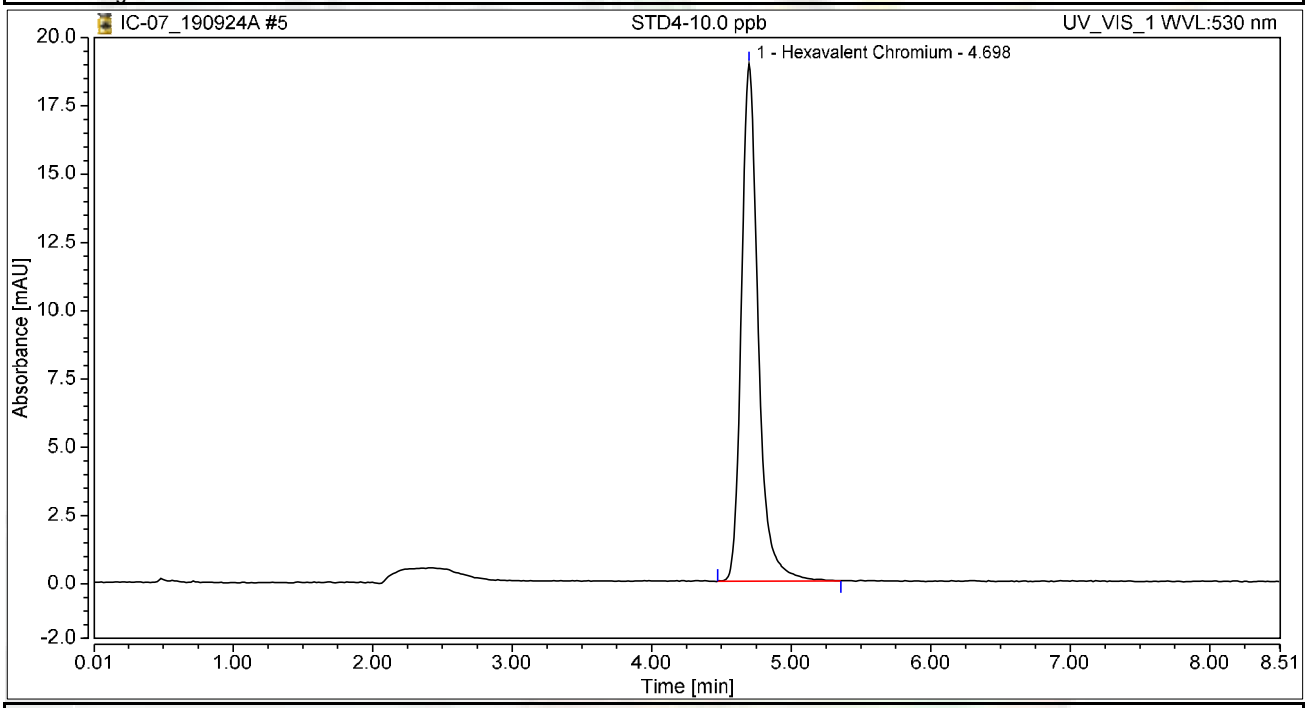
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.328	9.510	100.00	100.00	4.8896
Total:			**1.328**	**9.510**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

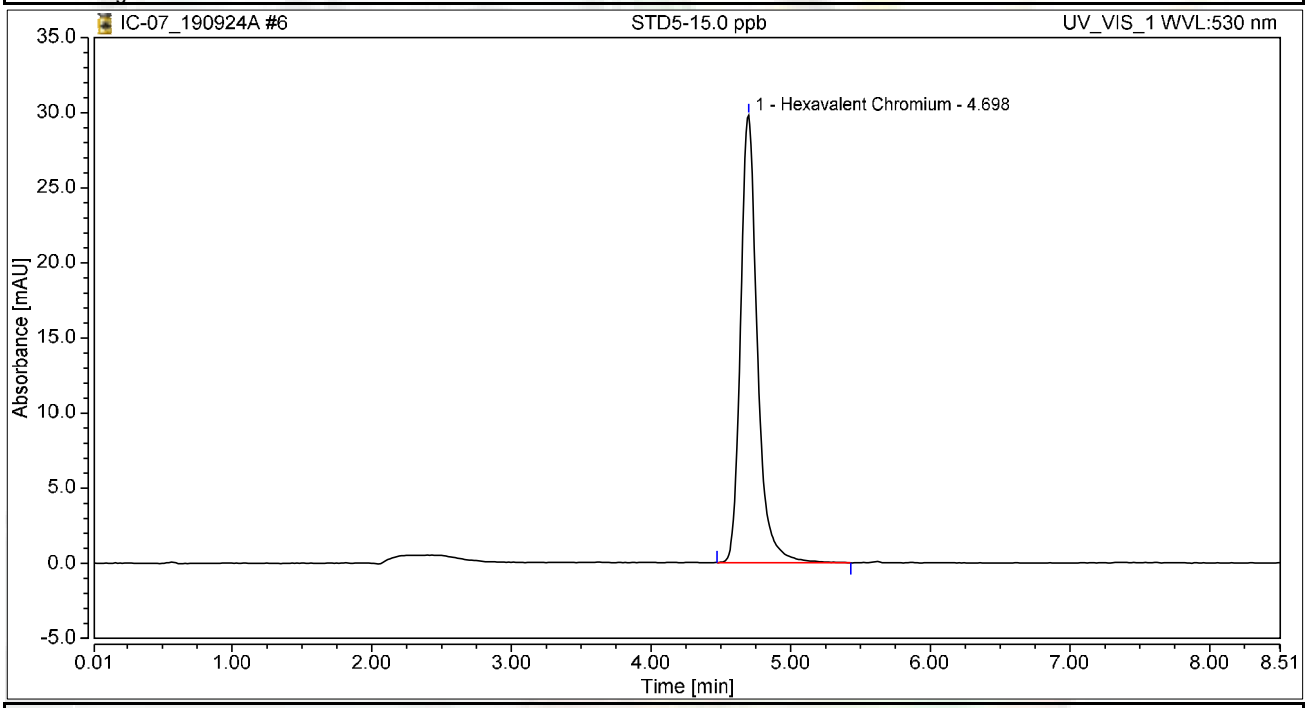
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.648	18.938	100.00	100.00	9.7487
Total:			**2.648**	**18.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

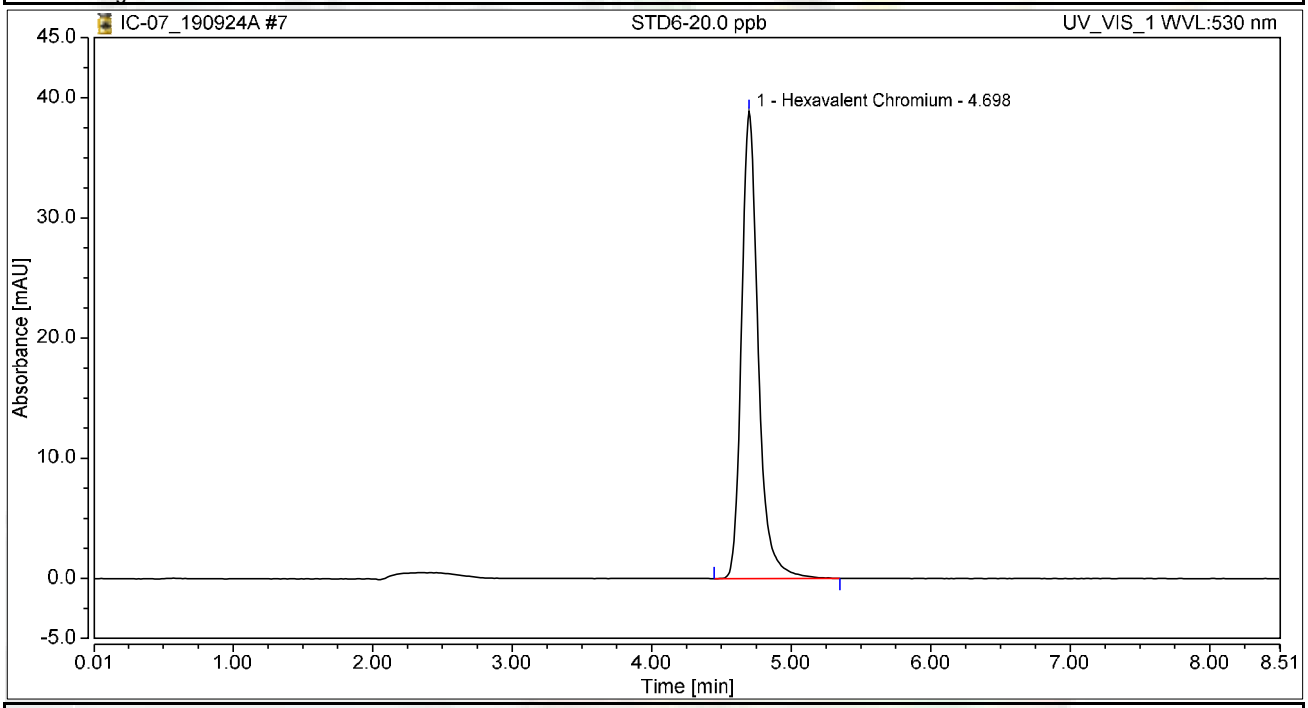
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	4.160	29.761	100.00	100.00	15.3139
Total:			**4.160**	**29.761**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:42**	*Sample Weight:*	**1.0000**

Chromatogram



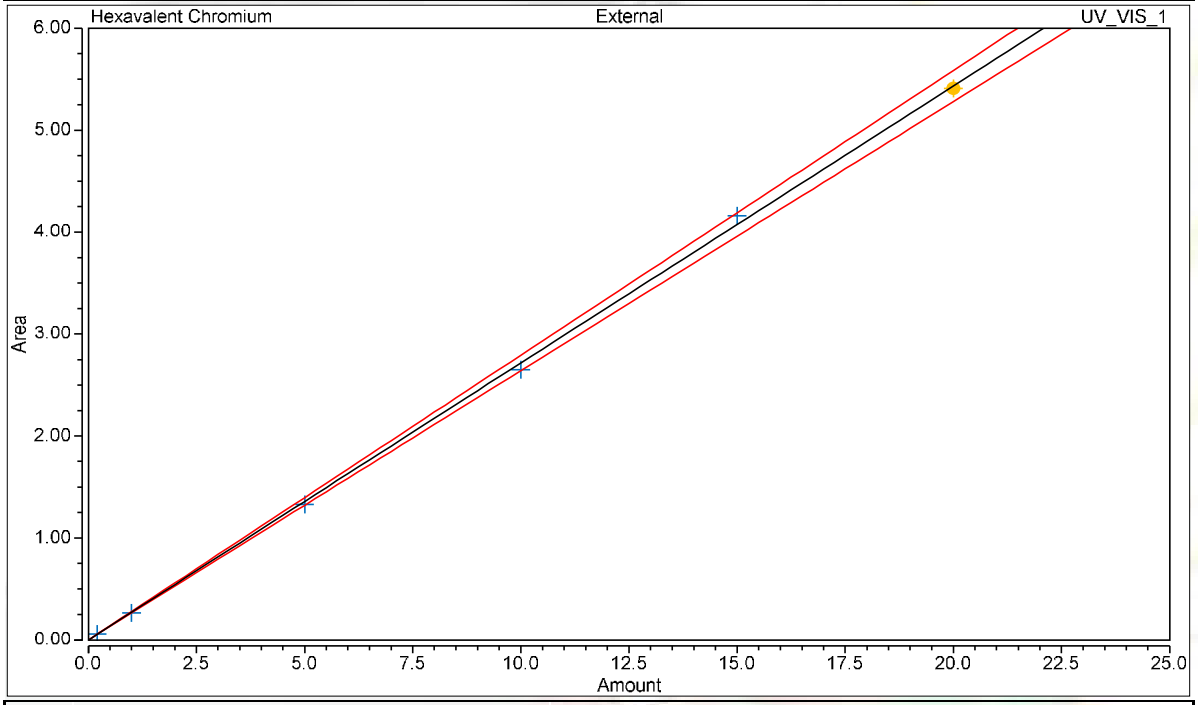
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.411	38.871	100.00	100.00	19.9192
Total:			**5.411**	**38.871**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2716
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99943

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

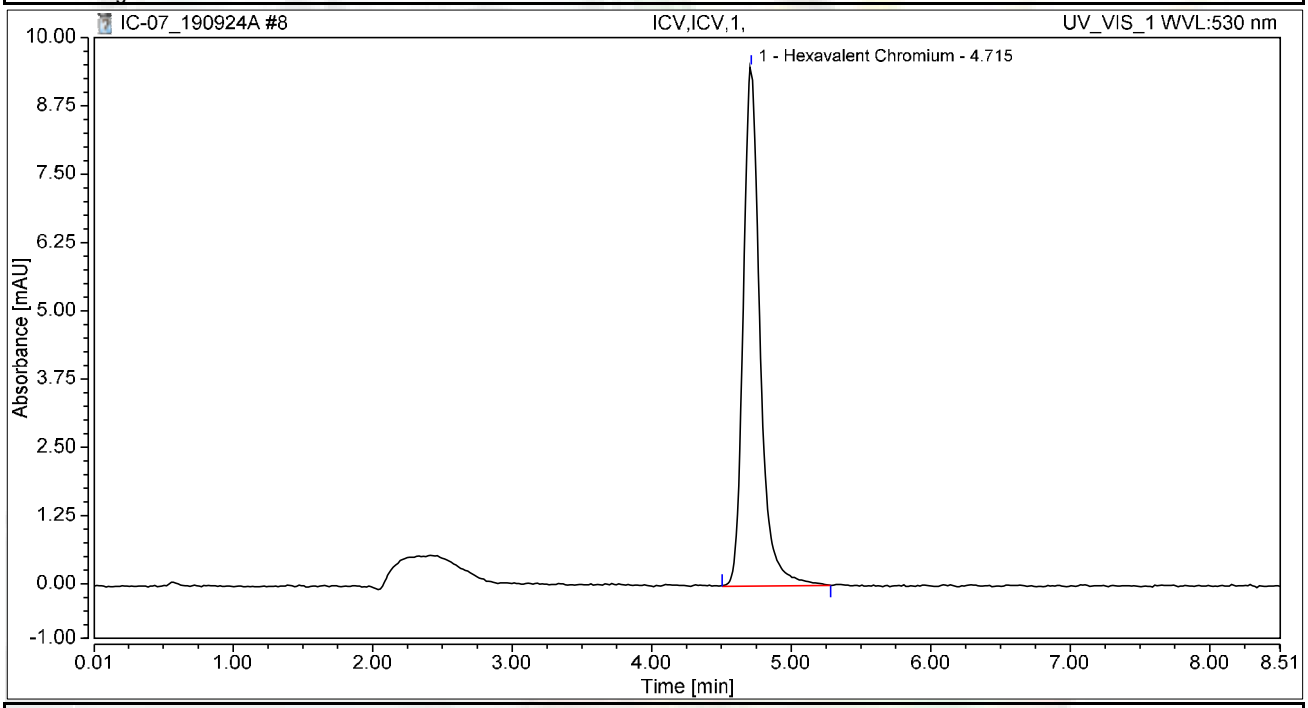
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
2	STD1-0.2 ppb	01	0.2000	0.0583	0.058	0.419
3	STD2-1.0 ppb	02	1.0000	0.2636	0.264	1.921
4	STD3-5.0 ppb	03	5.0000	1.3281	1.328	9.510
5	STD4-10.0 ppb	04	10.0000	2.6480	2.648	18.938
6	STD5-15.0 ppb	05	15.0000	4.1596	4.160	29.761
7	STD6-20.0 ppb	06	20.0000	5.4105	5.411	38.871

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

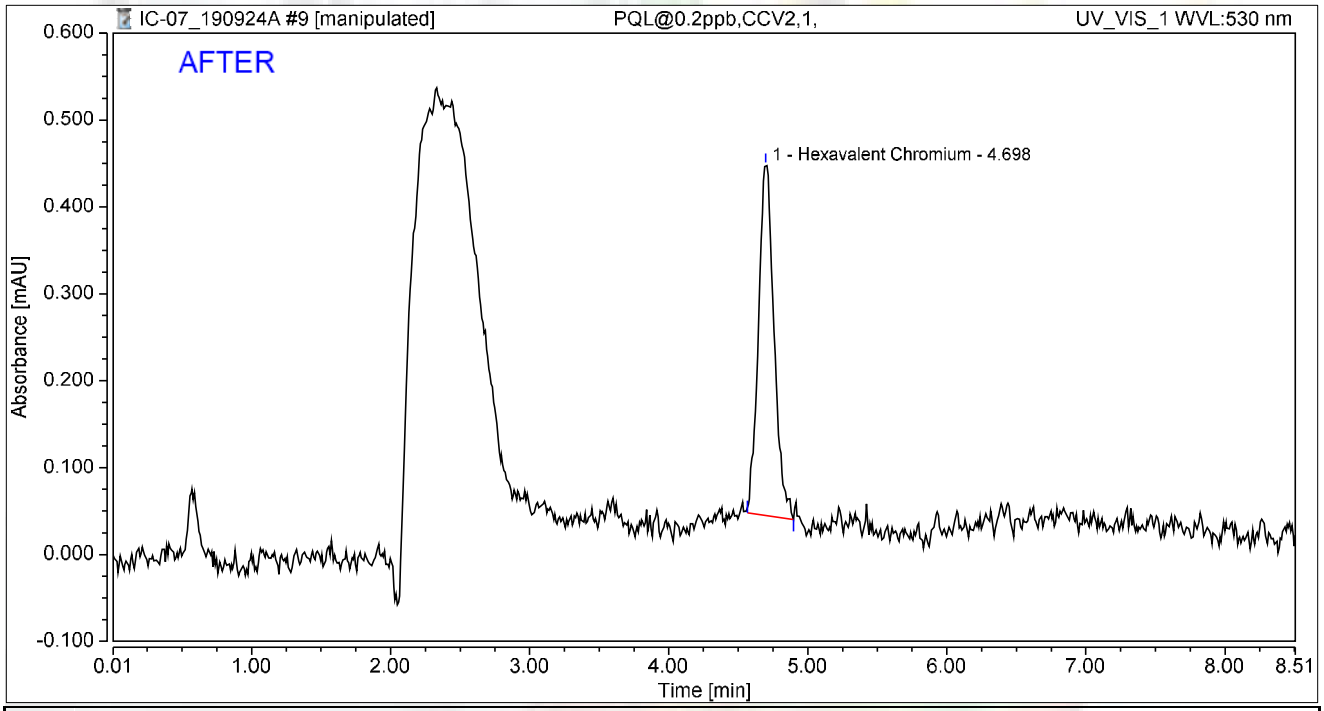
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.328	9.497	100.00	100.00	4.8891
Total:			**1.328**	**9.497**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.053	0.403	100.00	100.00	0.1937
Total:			**0.053**	**0.403**	**100.00**	**100.00**	

Reviewed by:
Nancy 9/26/2019

My first report/Integration

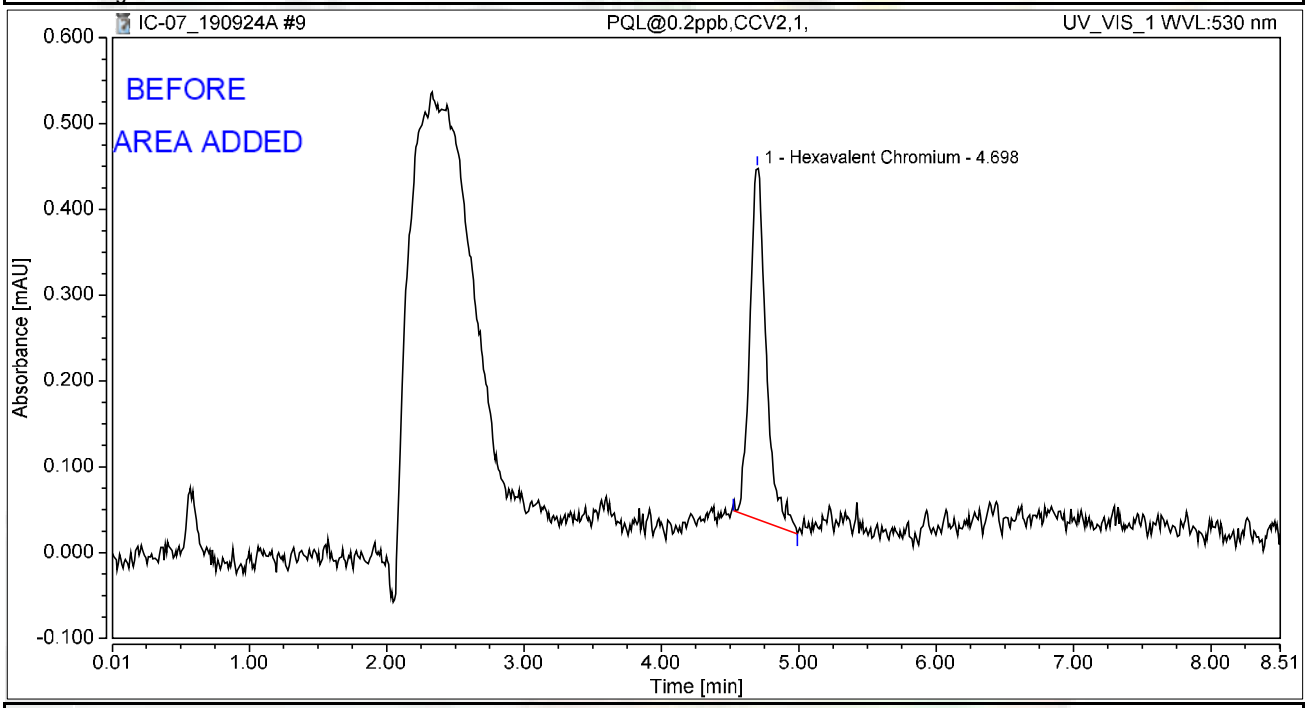
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

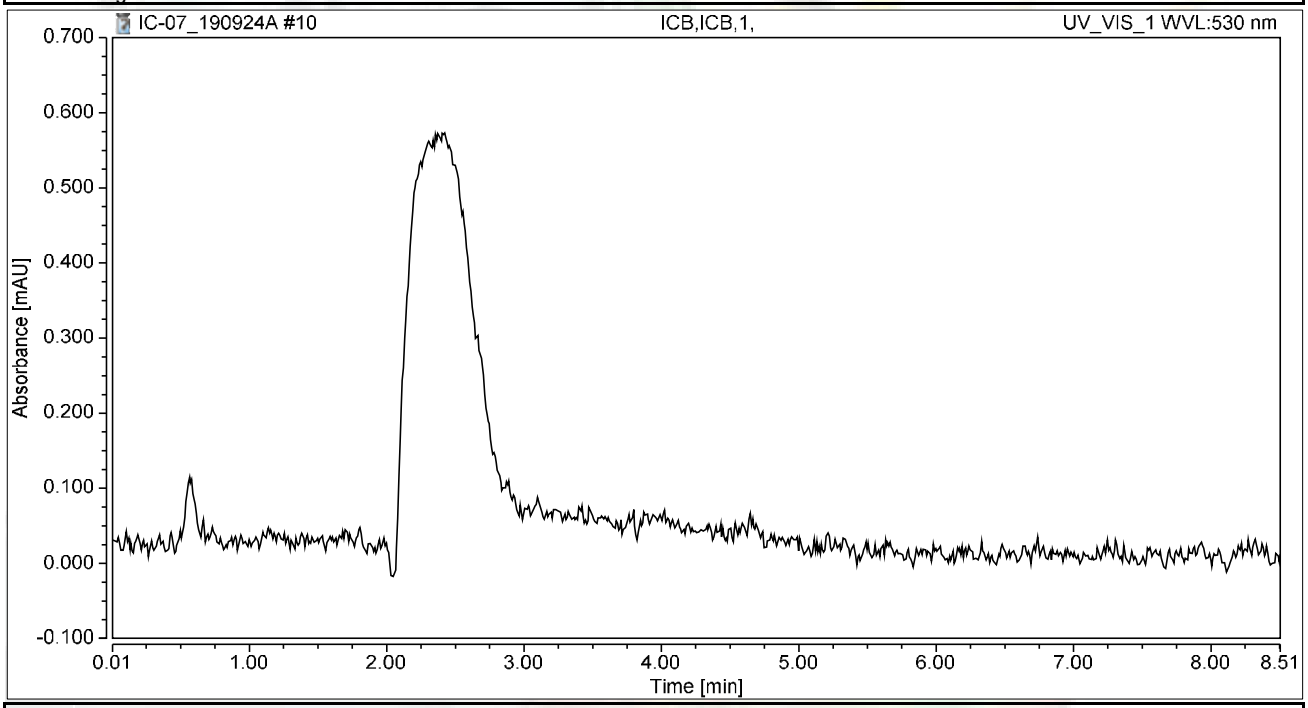
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.057	0.409	100.00	100.00	0.2088
Total:			**0.057**	**0.409**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 9:43 AM	Not Reported
9	CCV-1	CCV	1	Hexavalent Chromium	10/02/19 9:54 AM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/19 10:03 AM	Reported
11	CCB-1	CCB	1	Hexavalent Chromium	10/02/19 10:13 AM	Reported
12	MB-R136743	MBLK	1	Hexavalent Chromium	10/02/19 10:22 AM	Reported
13	LCS-R136743	LCS	1	Hexavalent Chromium	10/02/19 10:32 AM	Reported
14	N037645-001AMS	MS	1	Hexavalent Chromium	10/02/19 10:46 AM	Not Reported
15	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 10:57 AM	Not Reported
16	N037646-001AMS	MS	1	Hexavalent Chromium	10/02/19 11:06 AM	Reported
17	N037646-002AMS	MS	1	Hexavalent Chromium	10/02/19 11:16 AM	Not Reported
18	N037645-001A	SAMP	5	Hexavalent Chromium	10/02/19 11:31 AM	Reported
19	N037645-001AMS	MS	5	Hexavalent Chromium	10/02/19 11:42 AM	Reported
20	N037645-002A	SAMP	1	Hexavalent Chromium	10/02/19 11:52 AM	Reported
21	N037646-001A	SAMP	1	Hexavalent Chromium	10/02/19 12:01 PM	Reported
22	CCV-2	CCV1	1	Hexavalent Chromium	10/02/19 12:11 PM	Reported
23	CCB-2	CCB	1	Hexavalent Chromium	10/02/19 12:20 PM	Reported
24	N037646-002A	SAMP	5	Hexavalent Chromium	10/02/19 12:32 PM	Reported
25	N037646-002AMS	MS	5	Hexavalent Chromium	10/02/19 12:43 PM	Reported
26	N037666-001A	SAMP	50	Hexavalent Chromium	10/02/19 12:52 PM	Not Reported
27	N037666-001AMS	MS	50	Hexavalent Chromium	10/02/19 1:02 PM	Not Reported
28	N037666-002A	SAMP	20	Hexavalent Chromium	10/02/19 1:11 PM	Reported
29	N037666-002AMS	MS	20	Hexavalent Chromium	10/02/19 1:21 PM	Reported
30	N037666-003A	SAMP	50	Hexavalent Chromium	10/02/19 1:30 PM	Reported
31	N037666-003AMS	MS	50	Hexavalent Chromium	10/02/19 1:40 PM	Reported
32	N037666-004A	SAMP	50	Hexavalent Chromium	10/02/19 1:49 PM	Reported
33	N037666-004AMS	MS	50	Hexavalent Chromium	10/02/19 1:59 PM	Reported
34	CCV-3	CCV	1	Hexavalent Chromium	10/02/19 2:08 PM	Reported
35	CCB-3	CCB	1	Hexavalent Chromium	10/02/19 2:18 PM	Reported
36	N037666-005A	SAMP	1000	Hexavalent Chromium	10/02/19 2:27 PM	Reported
37	N037666-005AMS	MS	1000	Hexavalent Chromium	10/02/19 2:36 PM	Reported
38	N037666-006A	SAMP	1	Hexavalent Chromium	10/02/19 2:46 PM	Reported
39	N037666-006AMS	MS	1	Hexavalent Chromium	10/02/19 2:55 PM	Reported
40	N037666-007A	SAMP	1	Hexavalent Chromium	10/02/19 3:05 PM	Reported
41	N037666-007AMS	MS	1	Hexavalent Chromium	10/02/19 3:14 PM	Reported
42	N037666-001A	SAMP	10	Hexavalent Chromium	10/02/19 3:24 PM	Reported

10/14/2019

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037666-001AMS	MS	10	Hexavalent Chromium	10/02/19 3:33 PM	Reported
44	N037666-002AMSD	MSD	20	Hexavalent Chromium	10/02/19 3:43 PM	Reported
45	N037666-001ADUP	DUP	10	Hexavalent Chromium	10/02/19 3:52 PM	Reported
46	CCV-4	CCV1	1	Hexavalent Chromium	10/02/19 4:02 PM	Reported
47	CCB-4	CCB	1	Hexavalent Chromium	10/02/19 4:11 PM	Reported
48	N037572-001A	SAMP	5	Hexavalent Chromium	10/02/19 4:21 PM	Not Reported
49	N037572-001AMS	MS	5	Hexavalent Chromium	10/02/19 4:30 PM	Not Reported
50	N037709-001AMS	MS	1	Hexavalent Chromium	10/02/19 4:40 PM	Not Reported
51	N037709-002AMS	MS	1	Hexavalent Chromium	10/02/19 4:49 PM	Not Reported
52	N037709-003AMS	MS	1	Hexavalent Chromium	10/02/19 4:58 PM	Not Reported
53	N037709-004AMS	MS	1	Hexavalent Chromium	10/02/19 5:08 PM	Reported
54	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 5:17 PM	Reported
55	N037709-001A	SAMP	20	Hexavalent Chromium	10/02/19 5:35 PM	Reported
56	N037709-001AMS	MS	20	Hexavalent Chromium	10/02/19 5:46 PM	Reported
57	N037709-002A	SAMP	10	Hexavalent Chromium	10/02/19 5:55 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	10/02/19 6:05 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	10/02/19 6:14 PM	Reported
60	N037709-002AMS	MS	10	Hexavalent Chromium	10/02/19 6:24 PM	Reported
61	N037709-003A	SAMP	5	Hexavalent Chromium	10/02/19 6:33 PM	Reported
62	N037709-003AMS	MS	5	Hexavalent Chromium	10/02/19 6:42 PM	Reported
63	N037709-004A	SAMP	1	Hexavalent Chromium	10/02/19 6:52 PM	Reported
64	CCV-6	CCV	1	Hexavalent Chromium	10/02/19 7:01 PM	Reported
65	CCB-6	CCB	1	Hexavalent Chromium	10/02/19 7:11 PM	Reported
66	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 7:20 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Oct/19 19:51:09**
No. of Injections:	**69**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	BLANK	1	1000	Unknown		10/02/2019 09:43	Finished	BLANK
9	CCV1,CCV,1,	2	1000	Unknown		10/02/2019 09:54	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/02/2019 10:03	Finished	PQL @ 0.2ppb
11	CCB1,CCB,1,	4	1000	Unknown		10/02/2019 10:13	Finished	CCB R190830A
12	MB-H2O,MBLK,1,	5	1000	Unknown		10/02/2019 10:22	Finished	MB R190830A
13	LCS-H2O,LCS,1,	6	1000	Unknown		10/02/2019 10:32	Finished	LCS @5ppb, IWST-190702B
14	N037645-001AMS,MS	8	1000	Unknown		10/02/2019 10:46	Finished	MS (1ppb), IWST-190702B,10
15	N037645-002AMS,MS	9	1000	Unknown		10/02/2019 10:57	Finished	MS (1ppb), IWST-190702B,10
16	N037646-001AMS,MS	10	1000	Unknown		10/02/2019 11:06	Finished	MS (5ppb), IWST-190702B,10
17	N037646-002AMS,MS	11	1000	Unknown		10/02/2019 11:16	Finished	MS (1ppb), IWST-190702B,10
18	N037645-001A,SAMP	13	1000	Unknown		10/02/2019 11:31	Finished	SAMP, 2>10 mL
19	N037645-001AMS,MS	14	1000	Unknown		10/02/2019 11:42	Finished	MS (1ppb), IWST-190702B,2>1
20	N037645-002A,SAMP	15	1000	Unknown		10/02/2019 11:52	Finished	
21	N037646-001A,SAMP	16	1000	Unknown		10/02/2019 12:01	Finished	
22	CCV-2,CCV1,1,	17	1000	Unknown		10/02/2019 12:11	Finished	CCV @10ppb, IWST-190702A
23	CCB-2,CCB,1,	18	1000	Unknown		10/02/2019 12:20	Finished	CCB R190830A
24	N037646-002A,SAMP	19	1000	Unknown		10/02/2019 12:32	Finished	
25	N037646-002AMS,MS	20	1000	Unknown		10/02/2019 12:43	Finished	
26	N037666-001A,SAMP	21	1000	Unknown		10/02/2019 12:52	Finished	
27	N037666-001AMS,MS	22	1000	Unknown		10/02/2019 13:02	Finished	
28	N037666-002A,SAMP	23	1000	Unknown		10/02/2019 13:11	Finished	
29	N037666-002AMS,MS	24	1000	Unknown		10/02/2019 13:21	Finished	
30	N037666-003A,SAMP	25	1000	Unknown		10/02/2019 13:30	Finished	
31	N037666-003AMS,MS	26	1000	Unknown		10/02/2019 13:40	Finished	
32	N037666-004A,SAMP	27	1000	Unknown		10/02/2019 13:49	Finished	
33	N037666-004AMS,MS	28	1000	Unknown		10/02/2019 13:59	Finished	
34	CCV-3,CCV,1,	29	1000	Unknown		10/02/2019 14:08	Finished	CCV @5ppb, IWST-190702A
35	CCB-3,CCB,1,	30	1000	Unknown		10/02/2019 14:18	Finished	CCB R190830A
36	N037666-005A,SAMP	31	1000	Unknown		10/02/2019 14:27	Finished	
37	N037666-005AMS,MS	32	1000	Unknown		10/02/2019 14:36	Finished	
38	N037666-006A,SAMP	33	1000	Unknown		10/02/2019 14:46	Finished	
39	N037666-006AMS,MS	34	1000	Unknown		10/02/2019 14:55	Finished	
40	N037666-007A,SAMP	35	1000	Unknown		10/02/2019 15:05	Finished	
41	N037666-007AMS,MS	36	1000	Unknown		10/02/2019 15:14	Finished	
42	N037666-001A,SAMP	37	1000	Unknown		10/02/2019 15:24	Finished	
43	N037666-001AMS,MS	38	1000	Unknown		10/02/2019 15:33	Finished	
44	N037666-002AMSD,M	39	1000	Unknown		10/02/2019 15:43	Finished	
45	N037666-001ADUP,D	40	1000	Unknown		10/02/2019 15:52	Finished	
46	CCV-4,CCV1,1,	41	1000	Unknown		10/02/2019 16:02	Finished	CCV @10ppb, IWST-190702A
47	CCB-4,CCB,1,	42	1000	Unknown		10/02/2019 16:11	Finished	CCB R190830A
48	N037572-001A,SAMP	43	1000	Unknown		10/02/2019 16:21	Finished	
49	N037572-001AMS,MS	44	1000	Unknown		10/02/2019 16:30	Finished	
50	N037709-001AMS,MS	45	1000	Unknown		10/02/2019 16:40	Finished	
51	N037709-002AMS,MS	46	1000	Unknown		10/02/2019 16:49	Finished	
52	N037709-003AMS,MS	47	1000	Unknown		10/02/2019 16:58	Finished	
53	N037709-004AMS,MS	48	1000	Unknown		10/02/2019 17:08	Finished	
54	N037645-002AMS,MS	49	1000	Unknown		10/02/2019 17:17	Finished	
55	N037709-001A,SAMP	1	1000	Unknown		10/02/2019 17:35	Finished	
56	N037709-001AMS,MS	2	1000	Unknown		10/02/2019 17:46	Finished	
57	N037709-002A,SAMP	3	1000	Unknown		10/02/2019 17:55	Finished	
58	CCV-5,CCV,1,	4	1000	Unknown		10/02/2019 18:05	Finished	CCV @5ppb, IWST-190702A
59	CCB-5,CCB,1,	5	1000	Unknown		10/02/2019 18:14	Finished	CCB R190830A
60	N037709-002AMS,MS	6	1000	Unknown		10/02/2019 18:24	Finished	

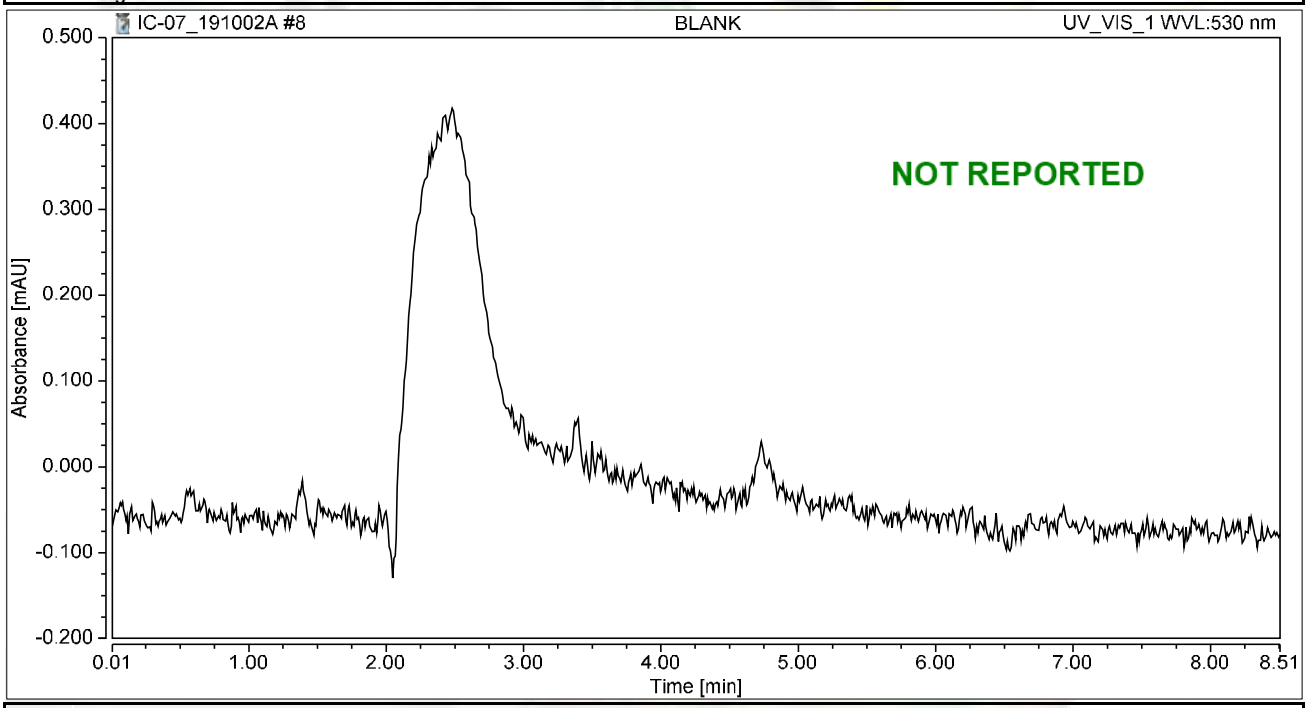
61	N037709-003A,SAMP	7	1000	Unknown		10/02/2019 18:33	Finished	
62	N037709-003AMS,MS	8	1000	Unknown		10/02/2019 18:42	Finished	
63	N037709-004A,SAMP	9	1000	Unknown		10/02/2019 18:52	Finished	
64	CCV-6,CCV,1,	10	1000	Unknown		10/02/2019 19:01	Finished	CCV @10ppb, IWST-190702A
65	CCB-6,CCB,1,	11	1000	Unknown		10/02/2019 19:11	Finished	CCB R190830A
66	BLANK	12	1000	Unknown		10/02/2019 19:20	Finished	BLANK
67	SHUTDOWN	13	1000	Unknown		10/02/2019 19:30	Finished	
68	Eluent: R190930D	14	1000	Unknown		n.a.	Finished	Eluent
69	PCR: R190930E	15	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 09:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

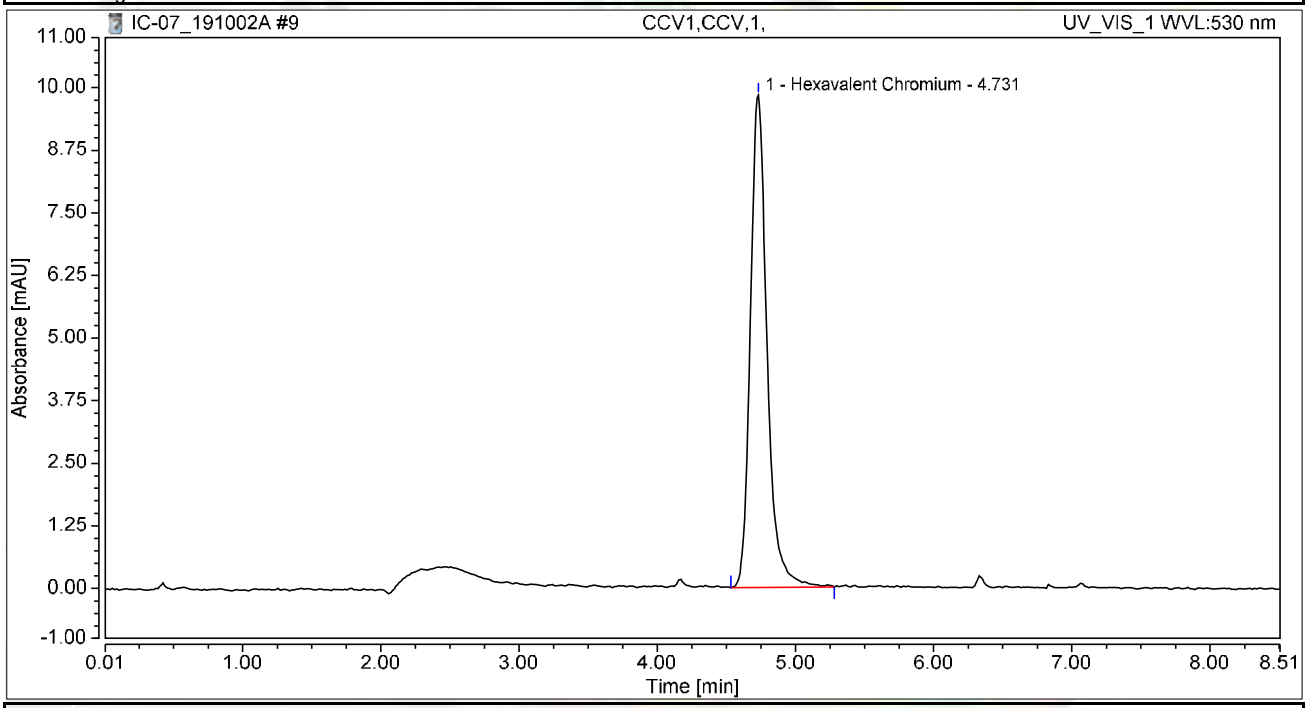
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 09:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

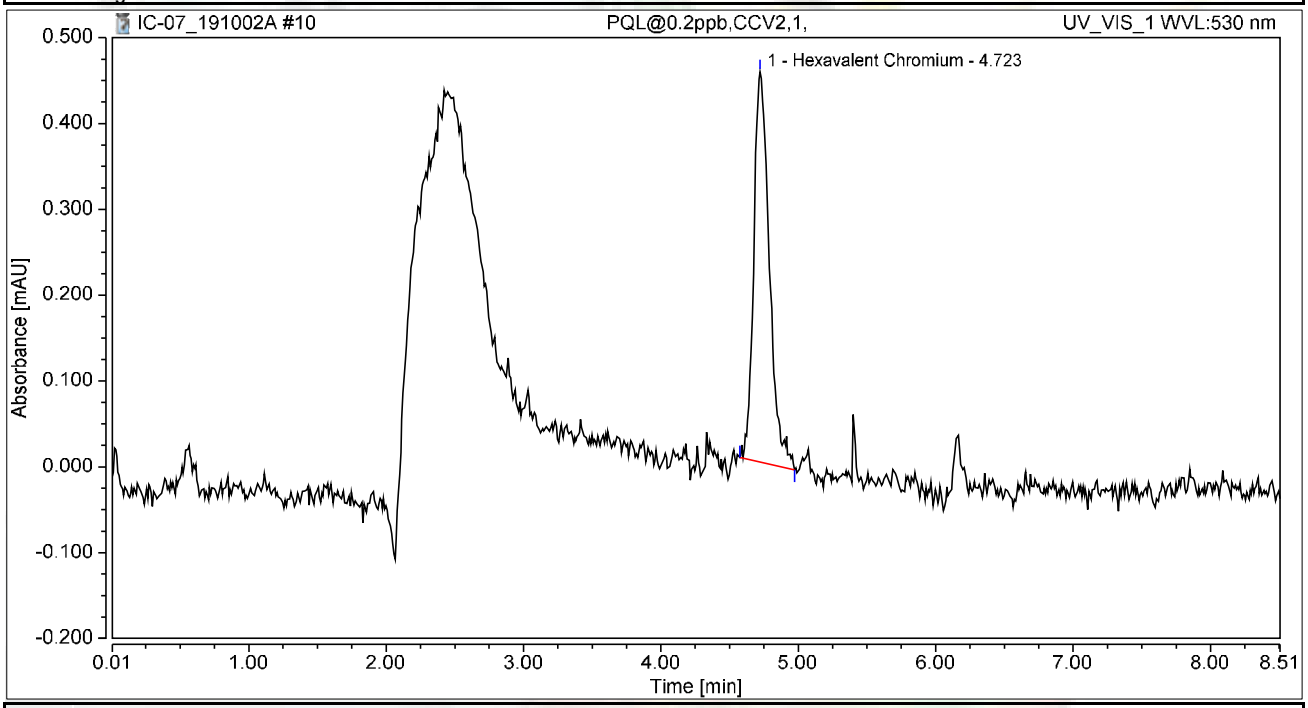
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.375	9.831	100.00	100.00	5.0614
Total:			**1.375**	**9.831**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

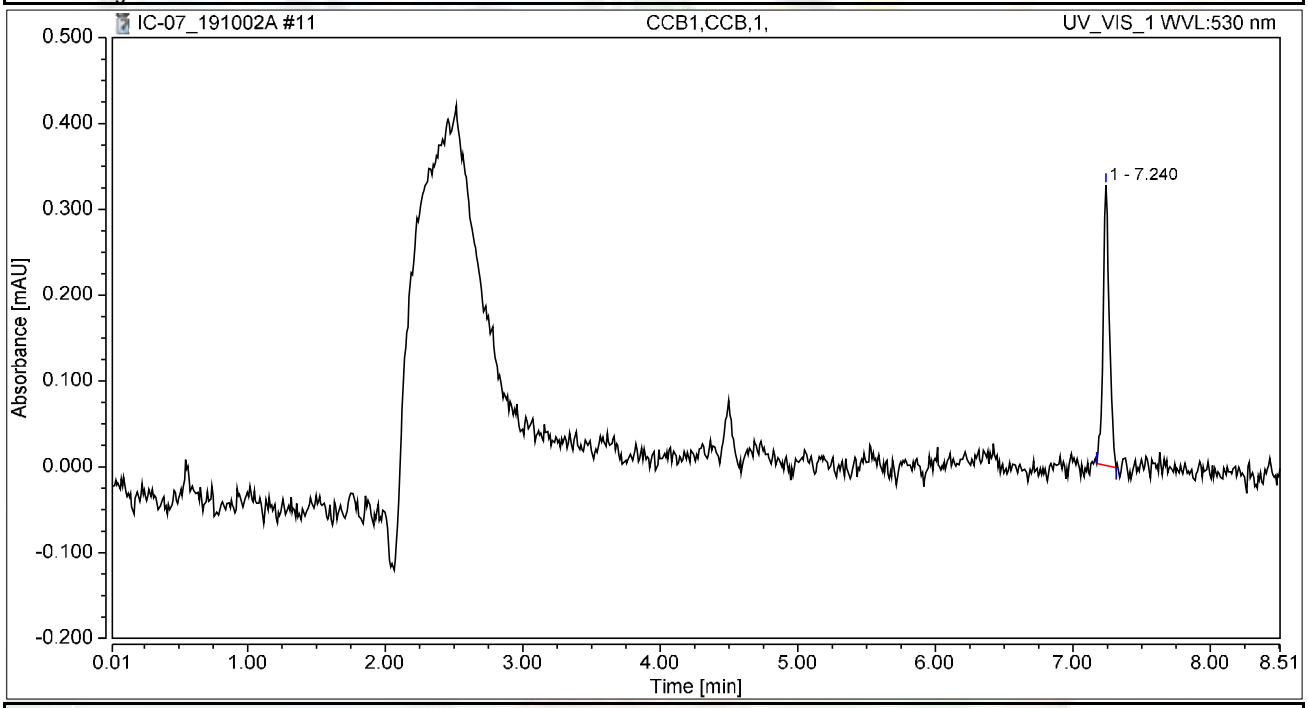
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.060	0.455	100.00	100.00	0.2206
Total:			**0.060**	**0.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

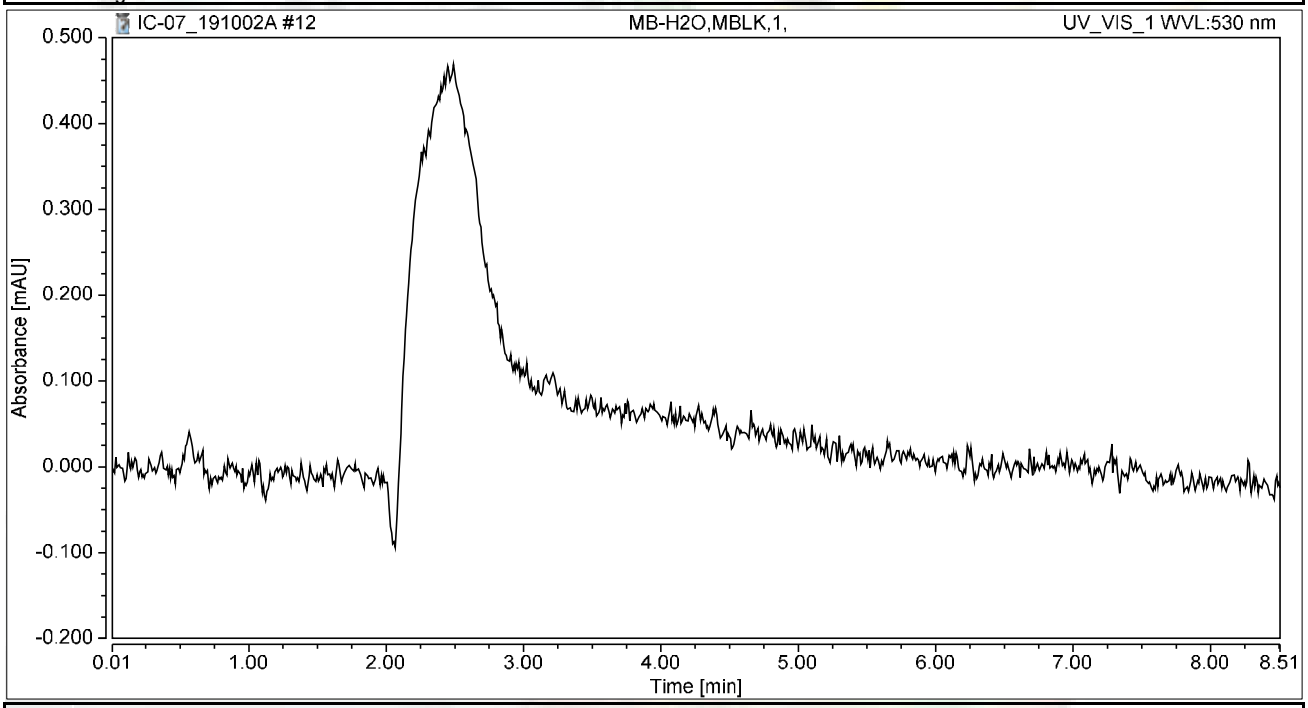
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.240	0.017	0.327	100.00	100.00	n.a.
Total:			**0.017**	**0.327**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

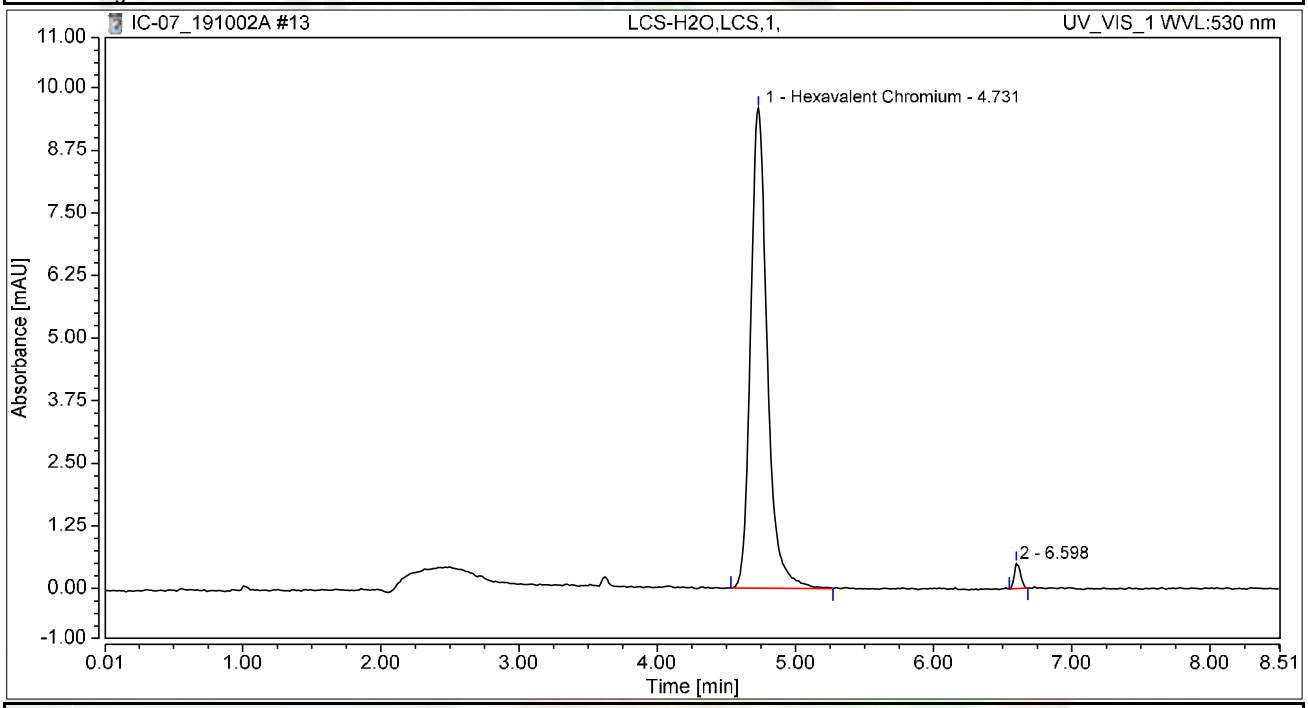
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

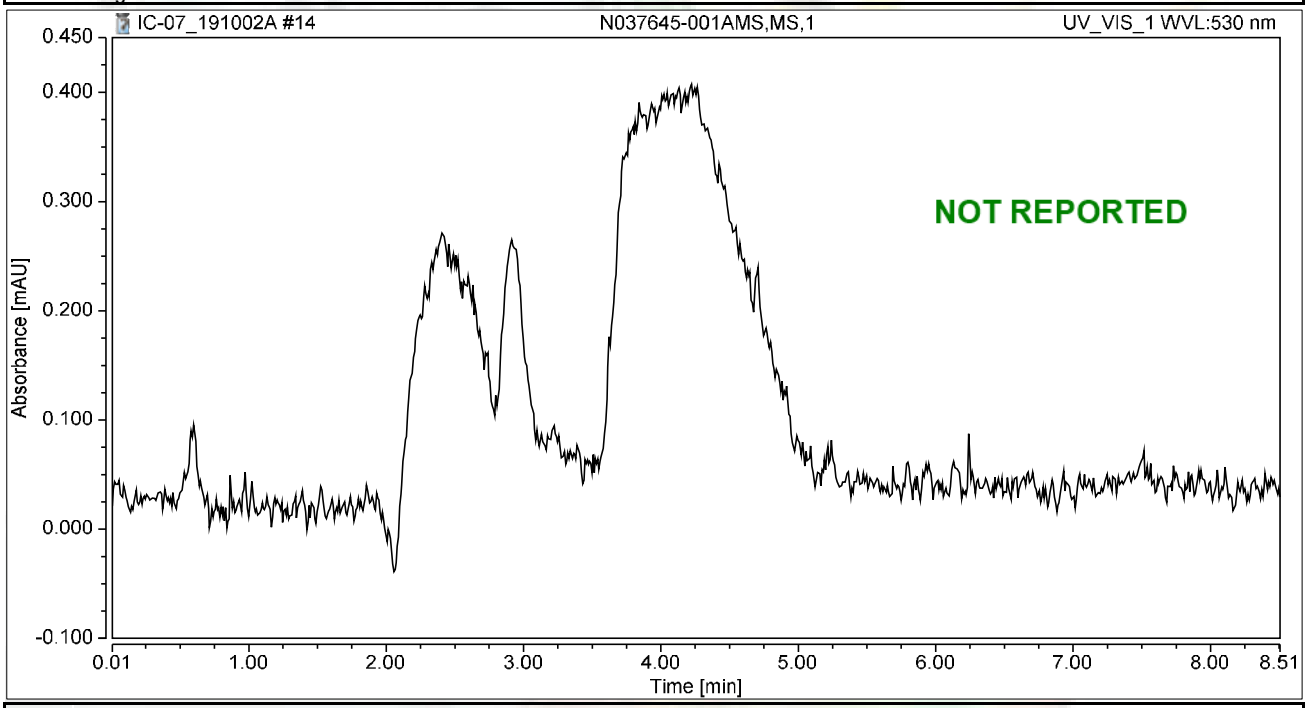
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.338	9.593	98.03	95.05	4.9254
2		6.598	0.027	0.500	1.97	4.95	n.a.
Total:			**1.365**	**10.093**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

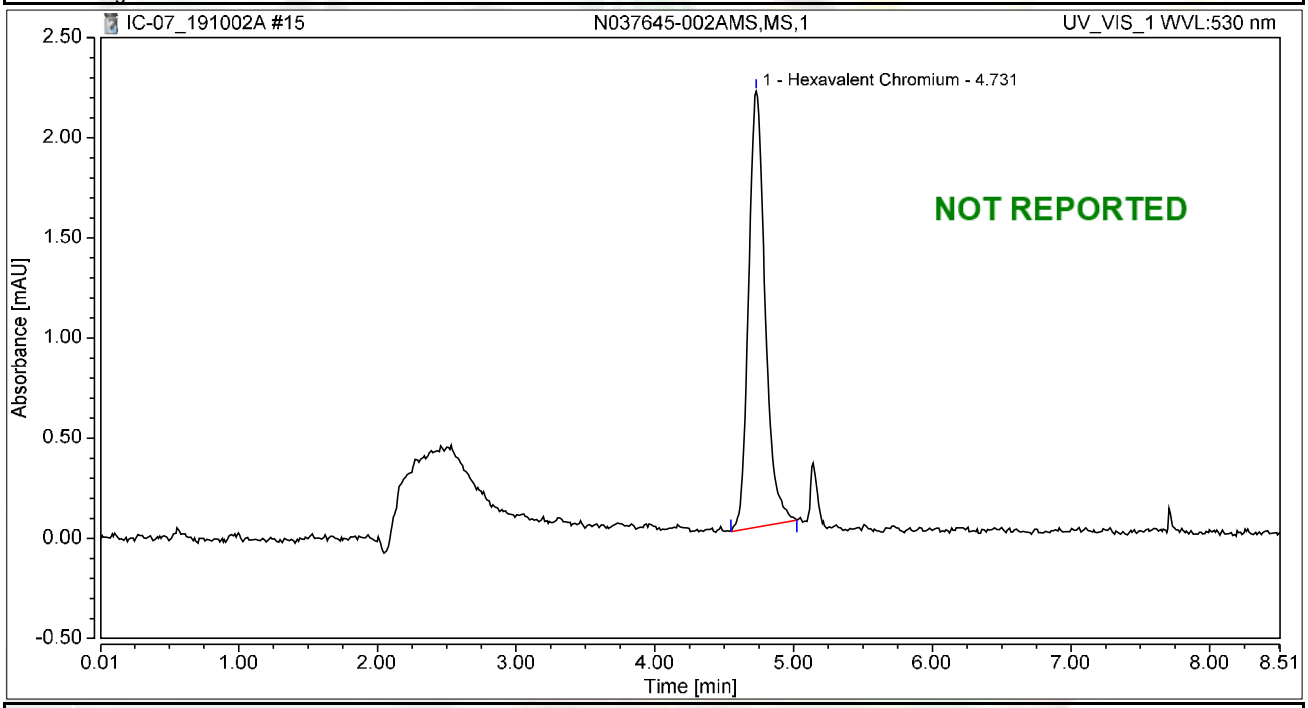
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

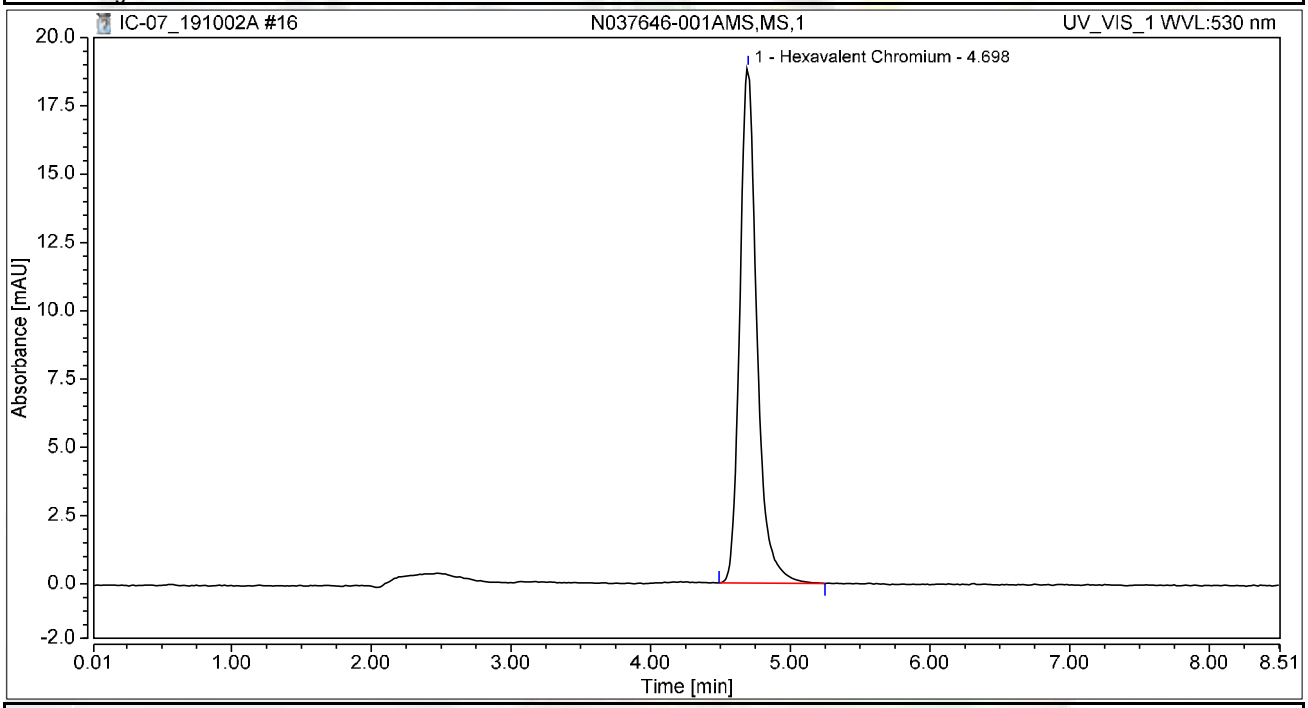
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.301	2.177	100.00	100.00	1.1084
Total:			**0.301**	**2.177**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

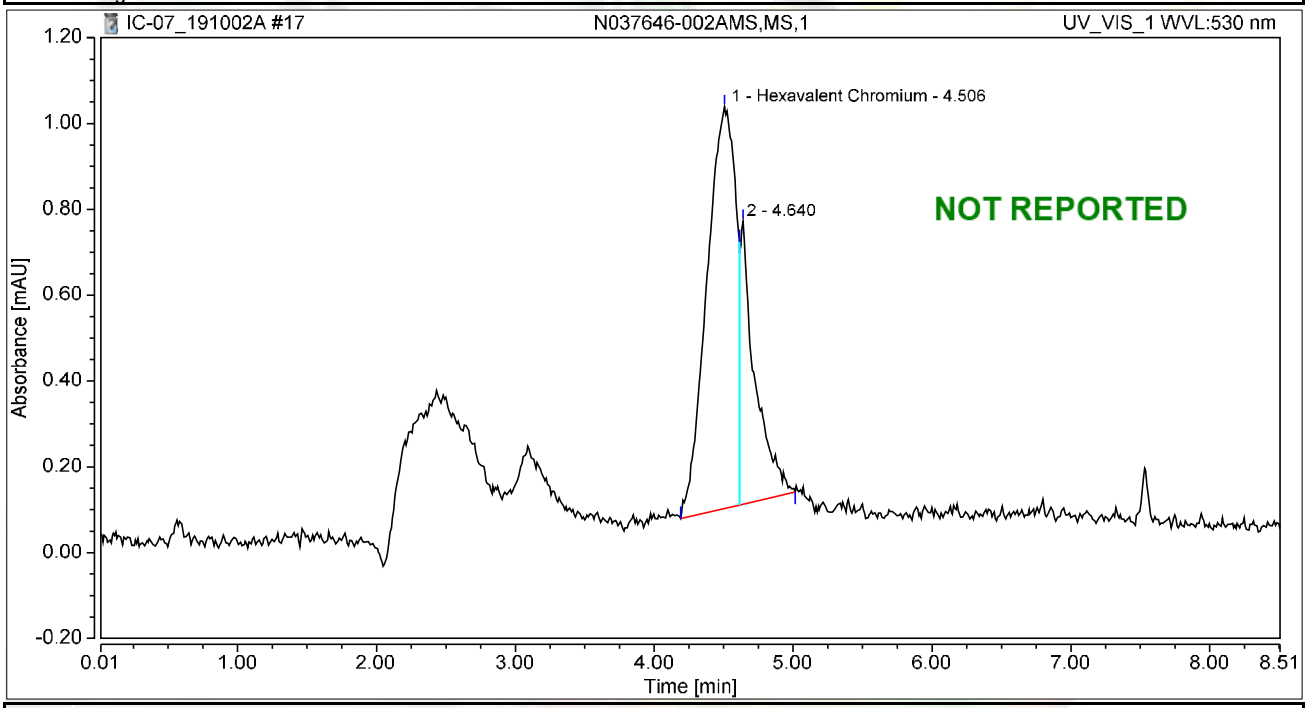
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.693	18.865	100.00	100.00	9.9133
Total:			**2.693**	**18.865**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

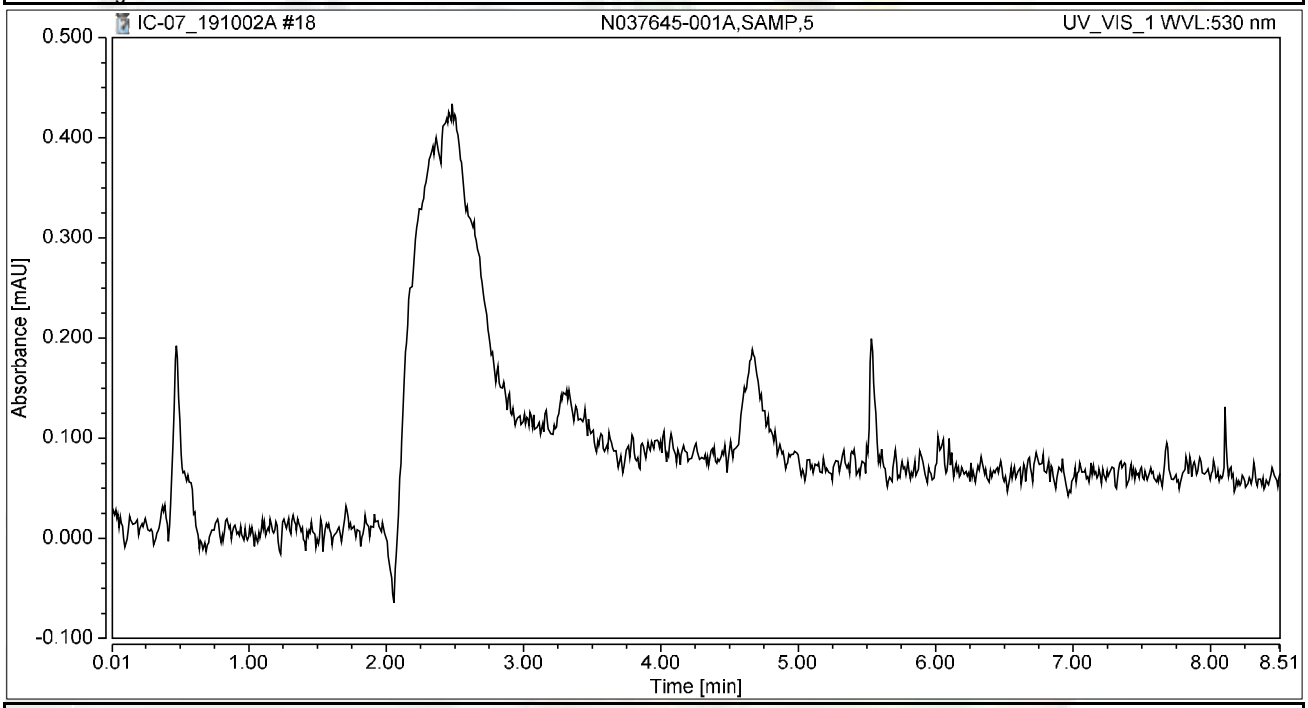
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.225	0.936	73.16	58.68	0.8272
2		4.640	0.082	0.659	26.84	41.32	n.a.
Total:			**0.307**	**1.594**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

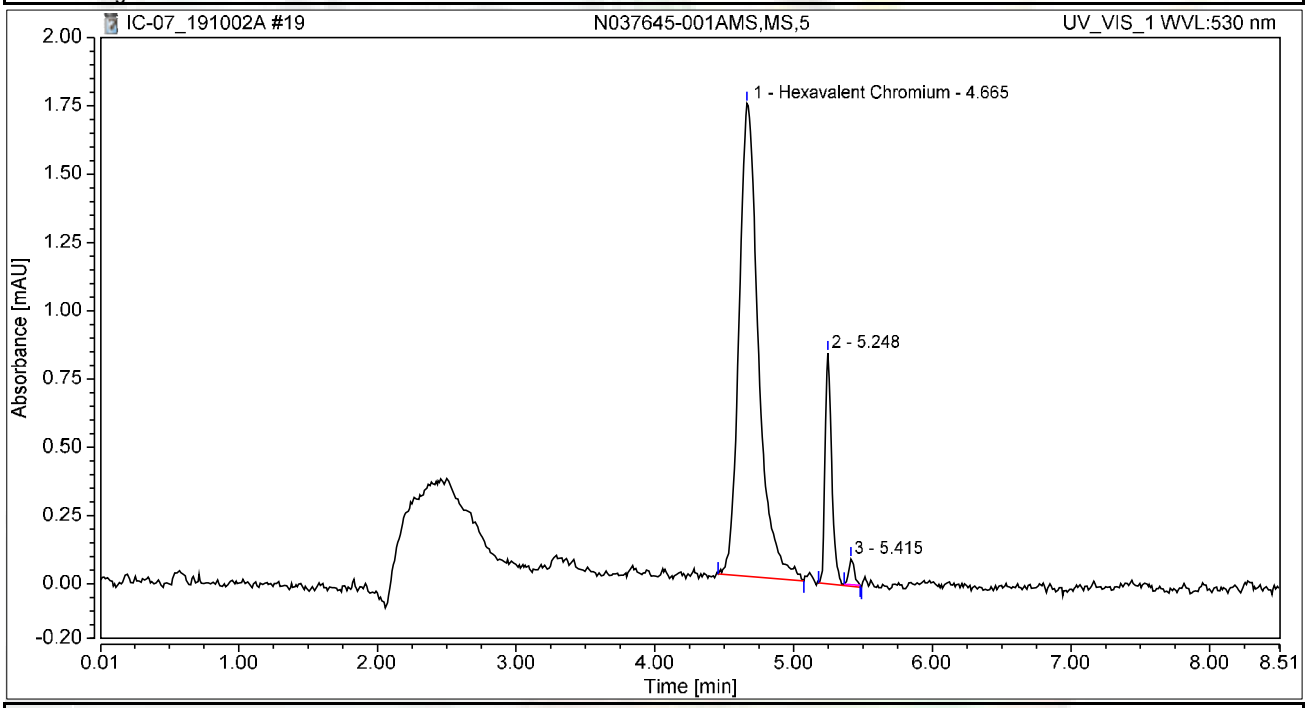
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

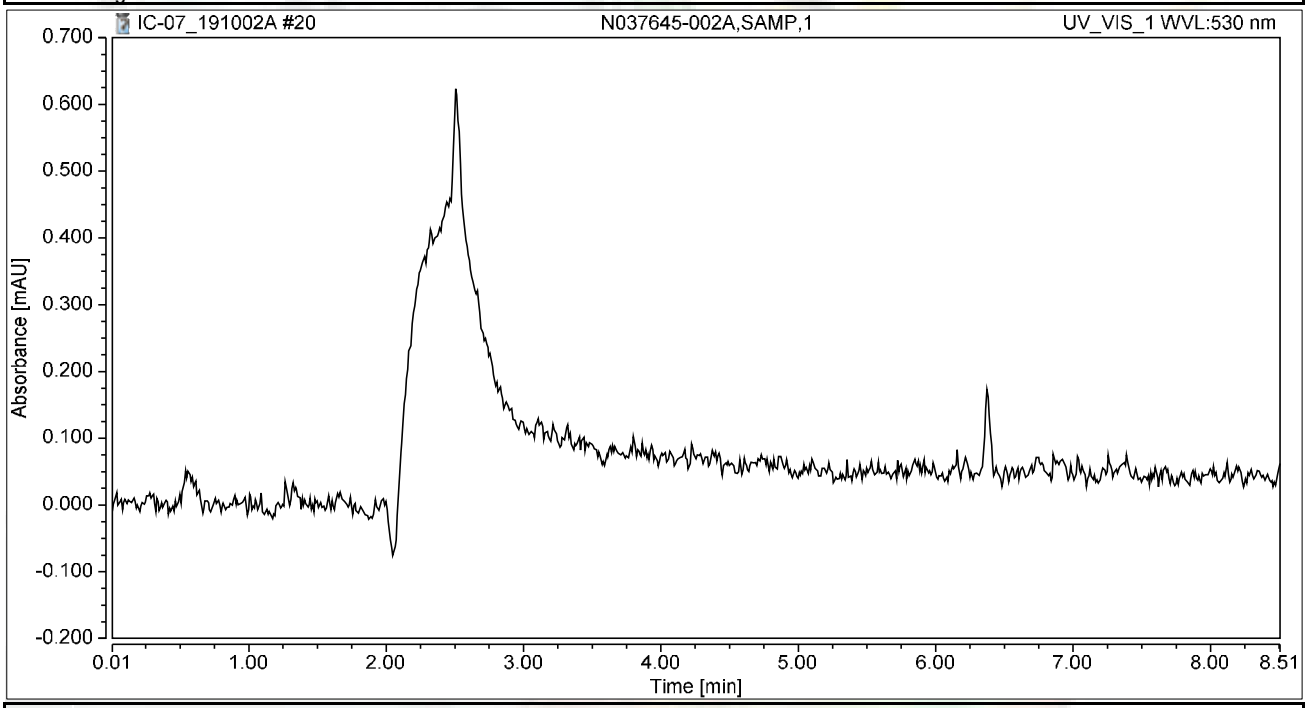
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.282	1.732	84.47	64.81	1.0370
2		5.248	0.047	0.846	14.22	31.67	n.a.
3		5.415	0.004	0.094	1.30	3.52	n.a.
Total:			**0.333**	**2.672**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

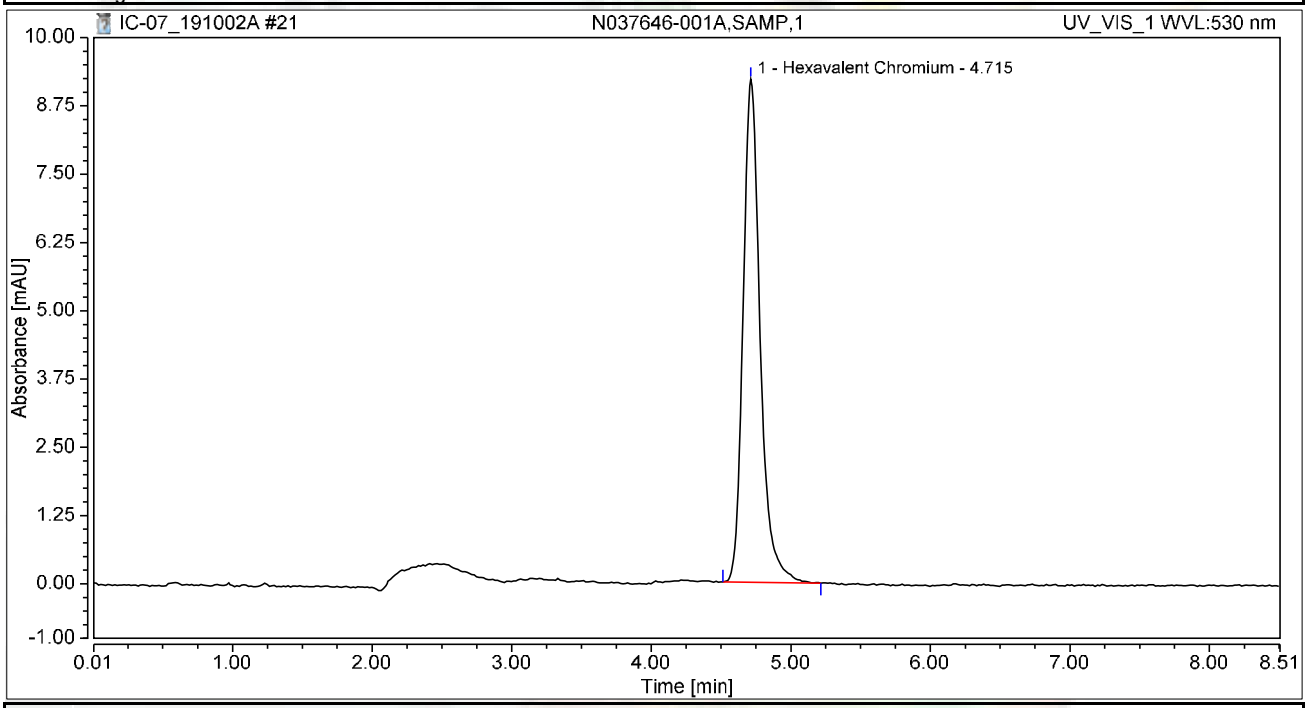
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

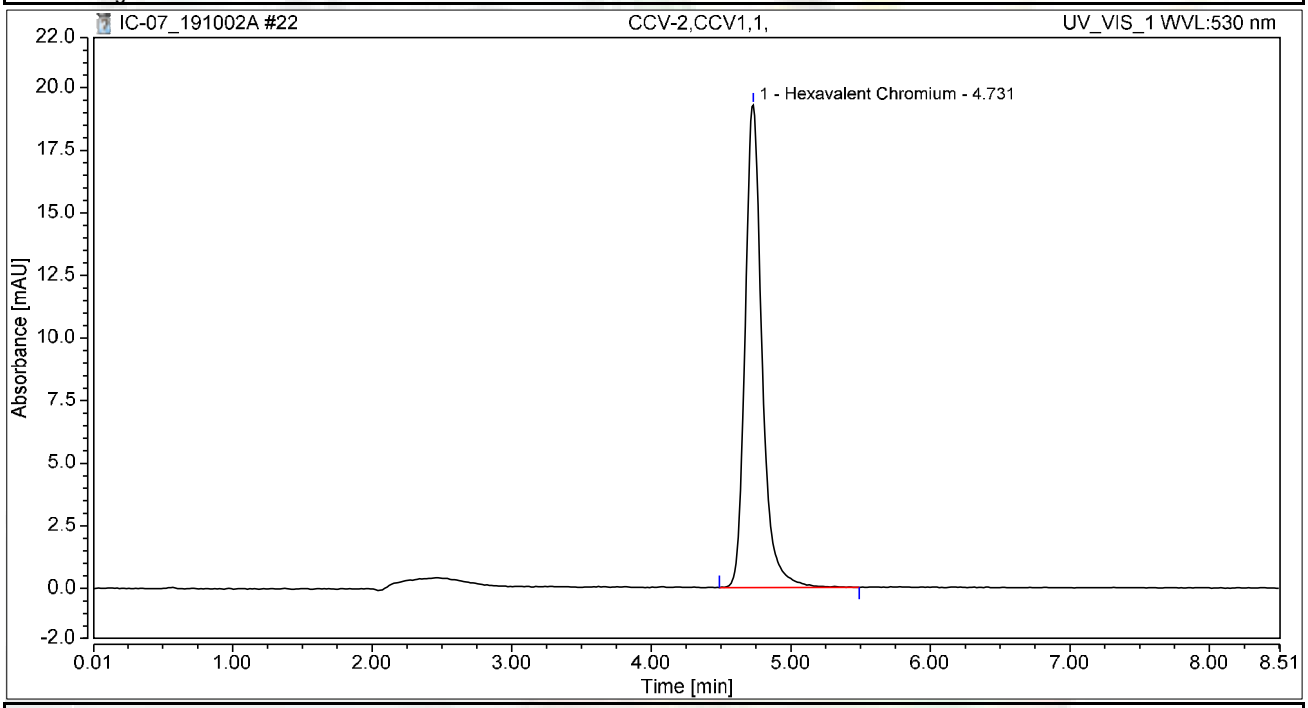
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.307	9.206	100.00	100.00	4.8128
Total:			**1.307**	**9.206**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

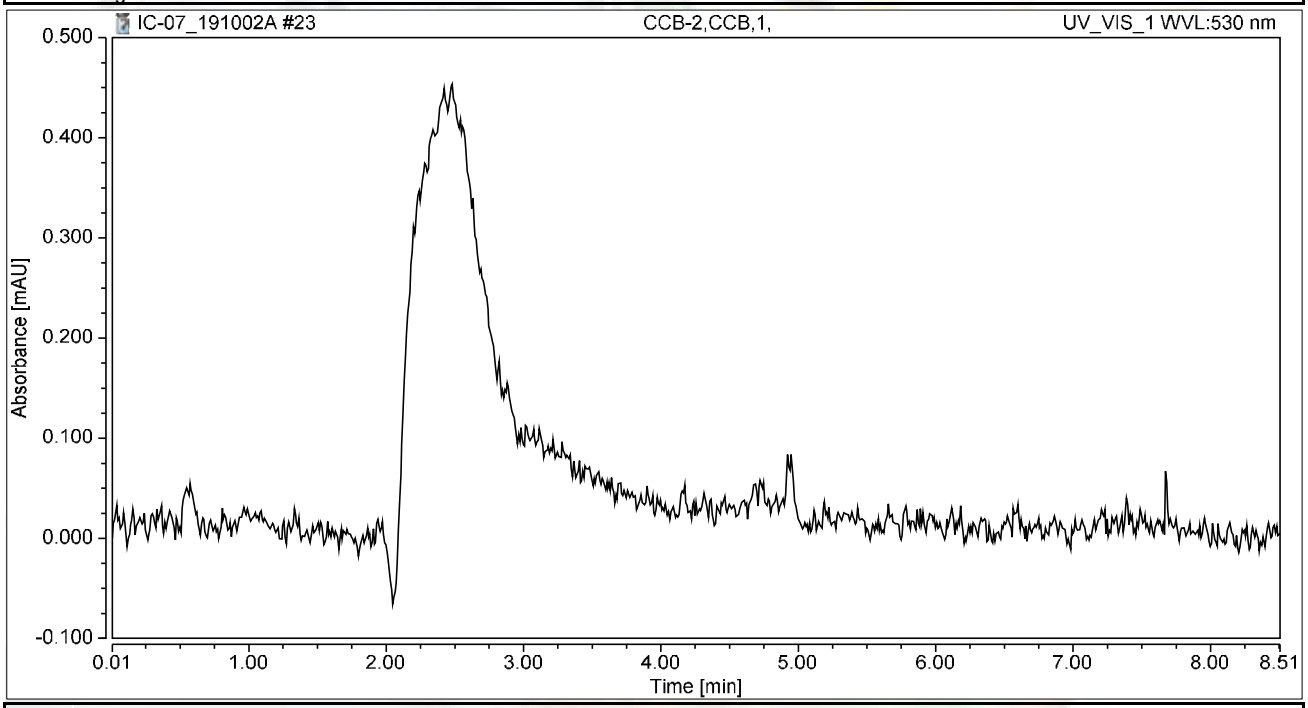
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.713	19.267	100.00	100.00	9.9871
Total:			**2.713**	**19.267**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

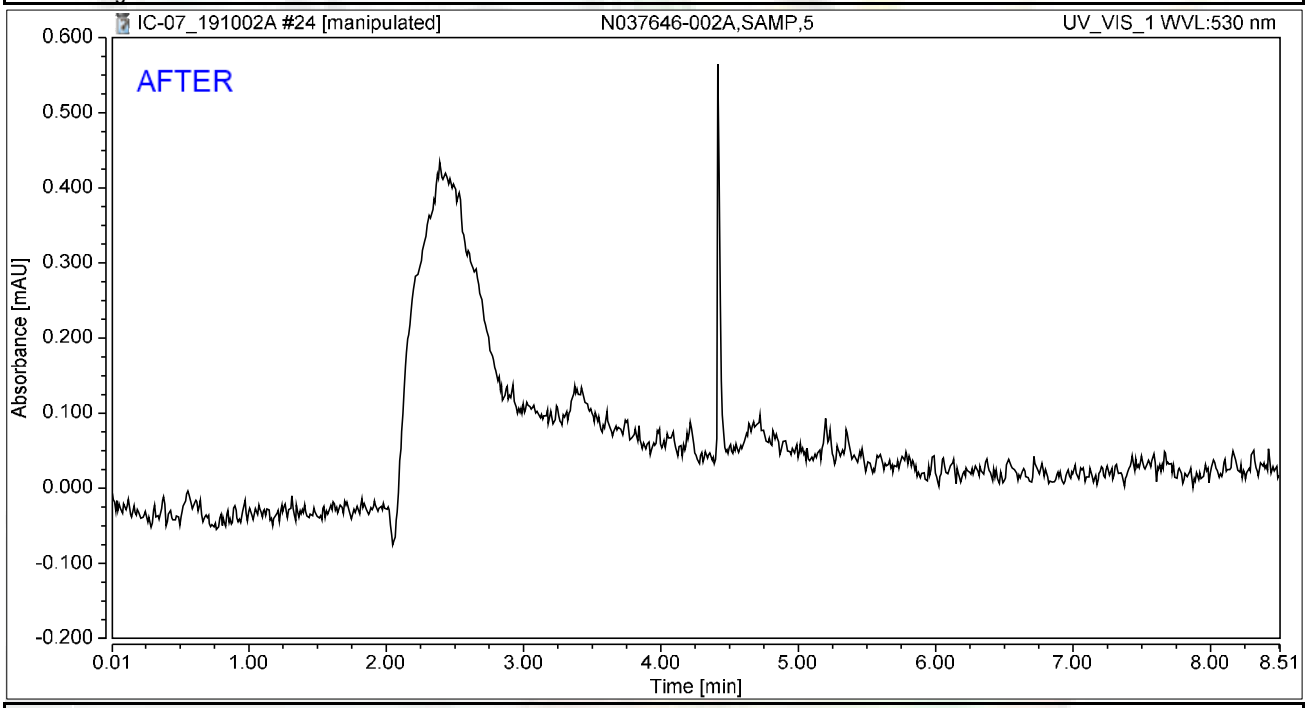
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

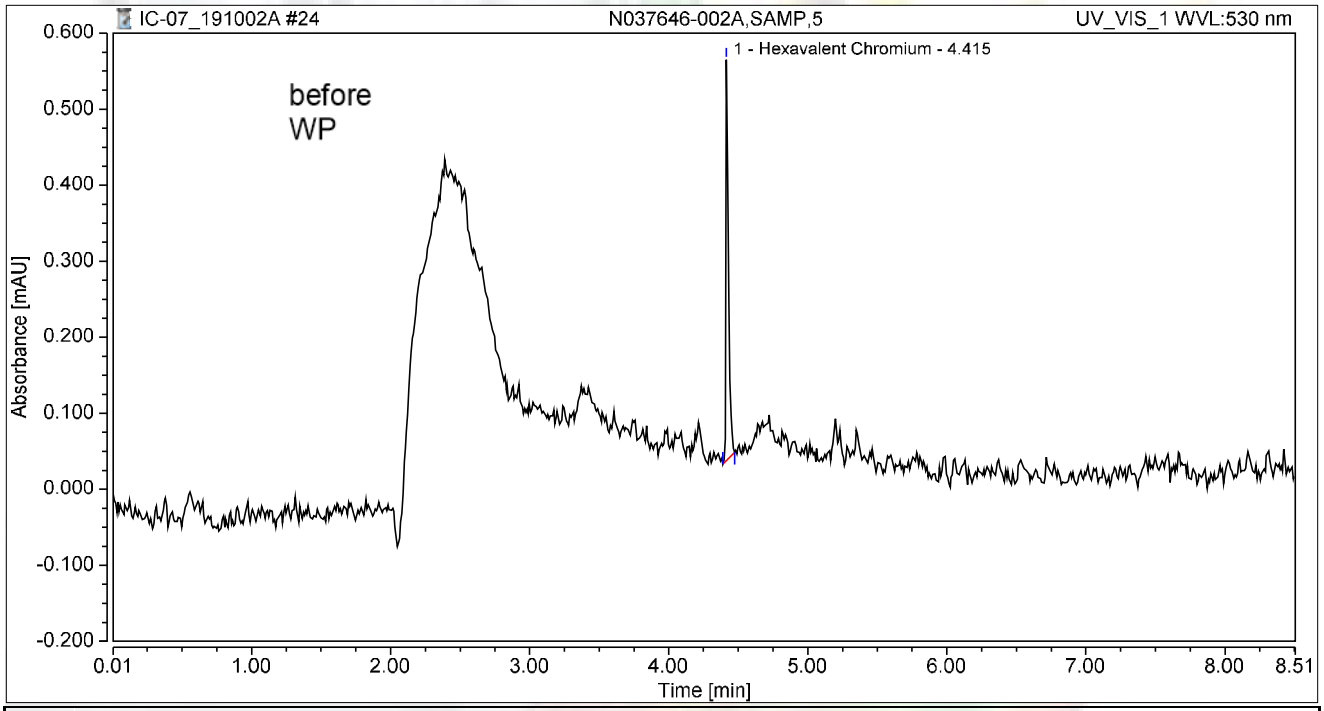
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

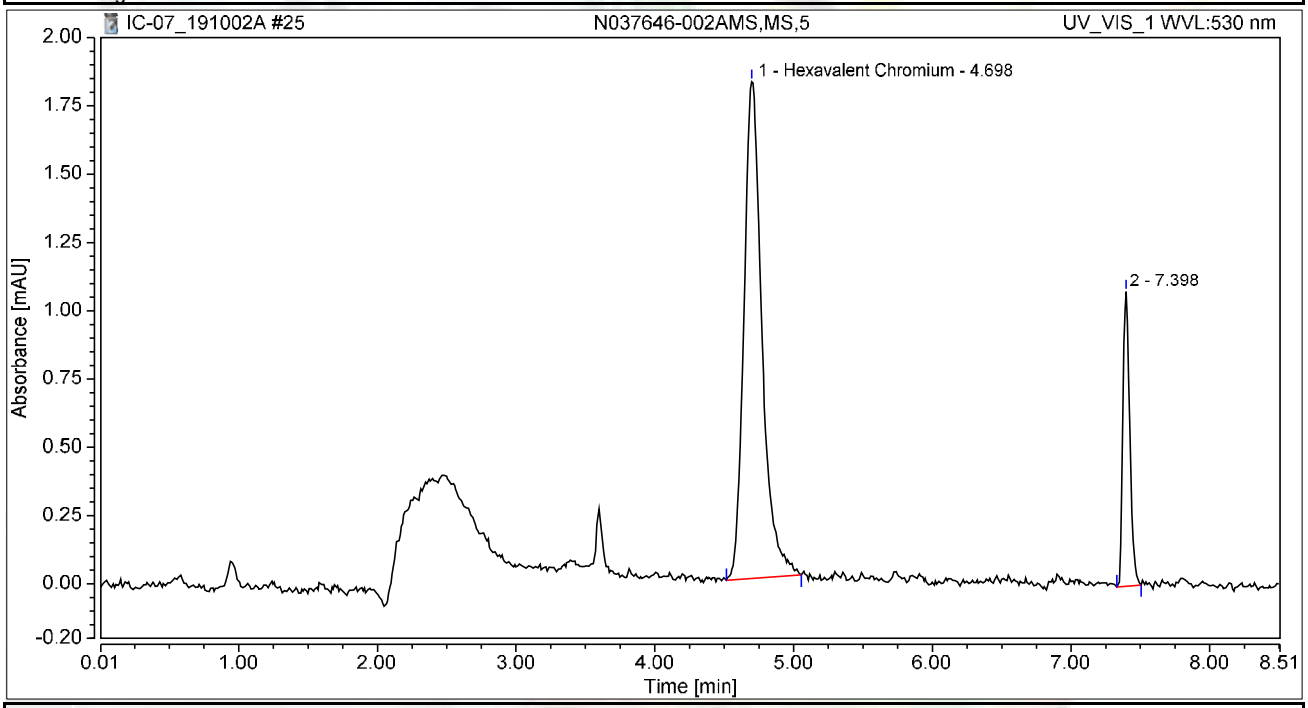
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.415	0.011	0.527	100.00	100.00	0.0411
Total:			**0.011**	**0.527**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

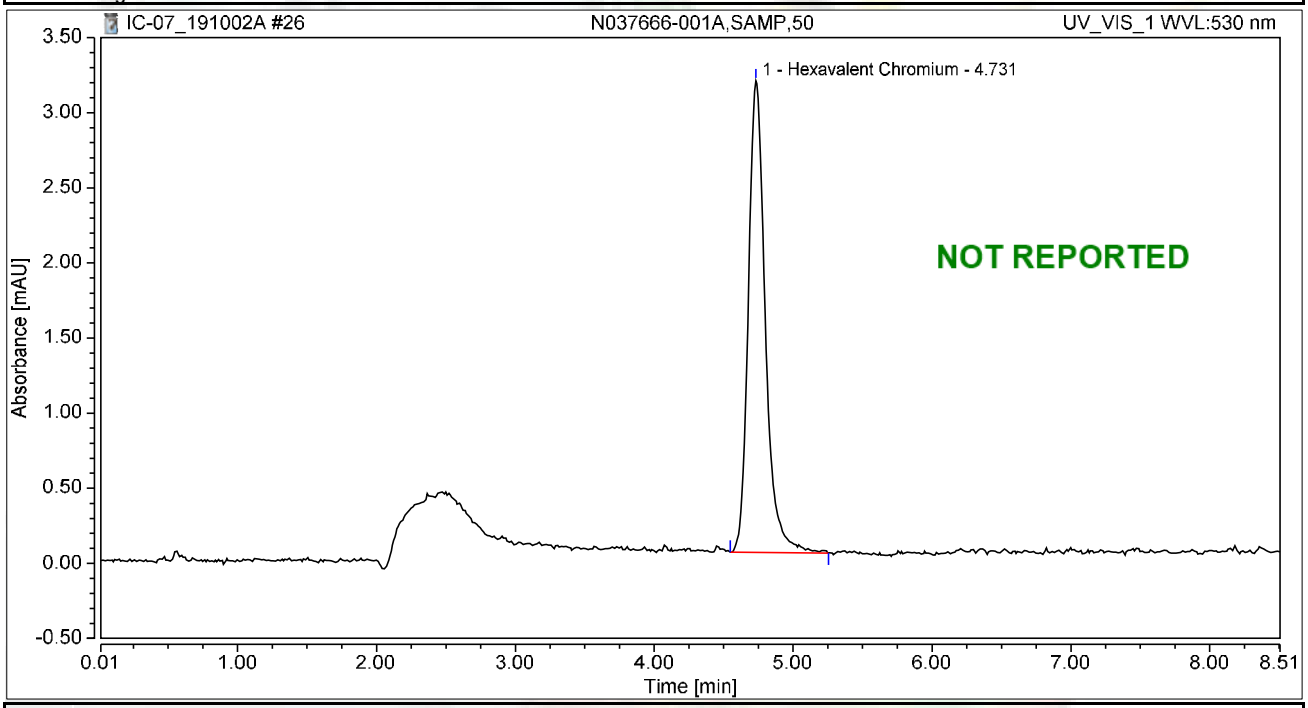
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.274	1.820	81.40	62.80	1.0106
2		7.398	0.063	1.078	18.60	37.20	n.a.
Total:			**0.337**	**2.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

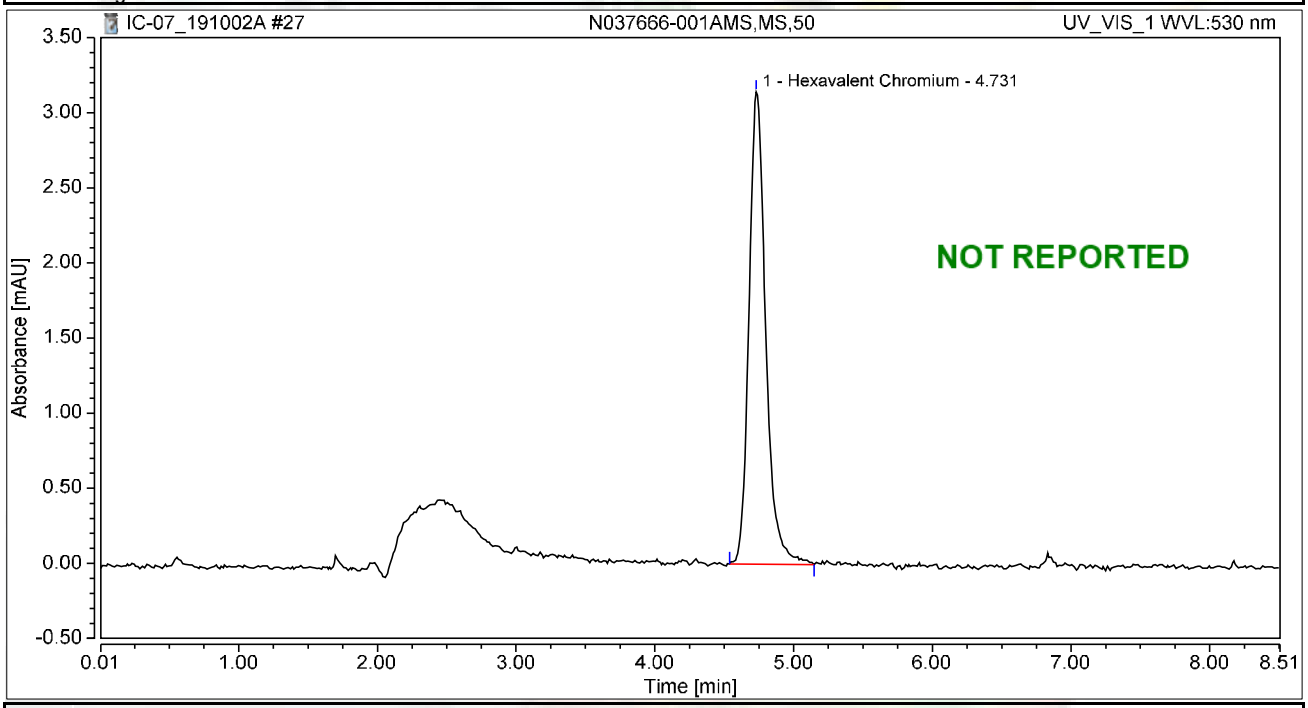
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.445	3.140	100.00	100.00	1.6398
Total:			**0.445**	**3.140**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

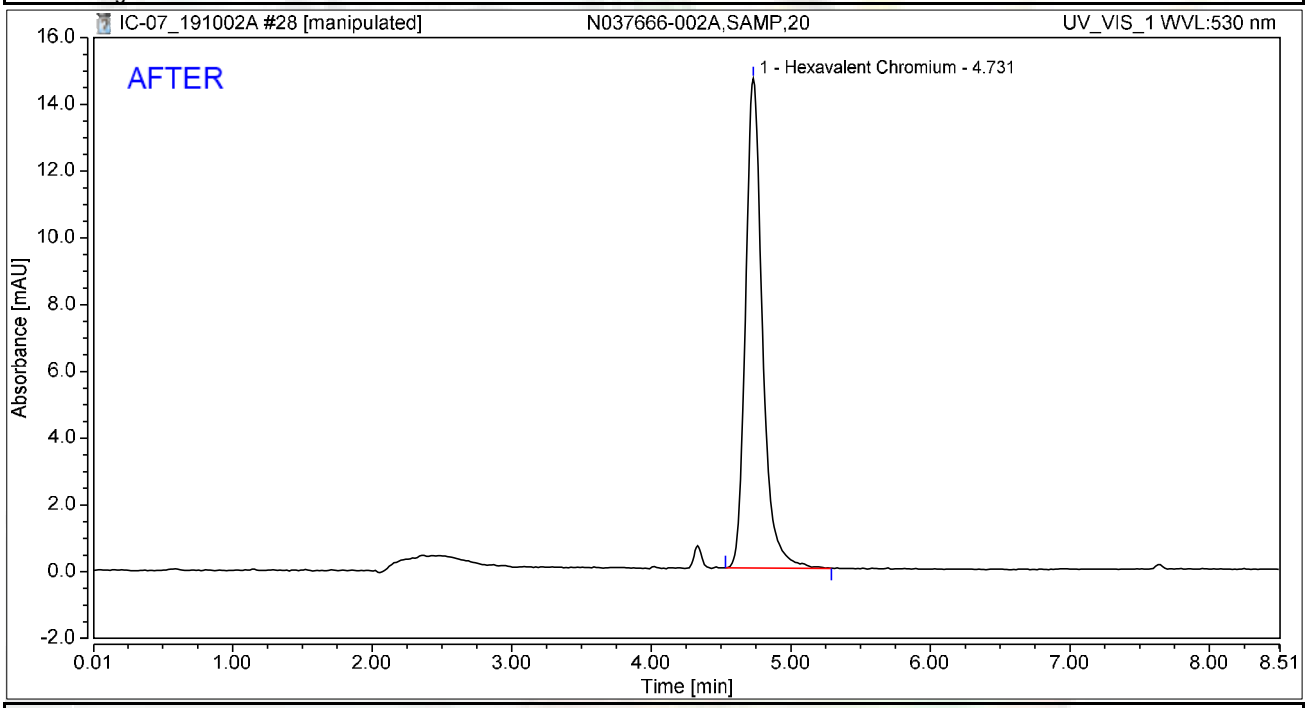
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.439	3.143	100.00	100.00	1.6171
Total:			**0.439**	**3.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.059	14.662	100.00	100.00	7.5806
Total:			**2.059**	**14.662**	**100.00**	**100.00**	

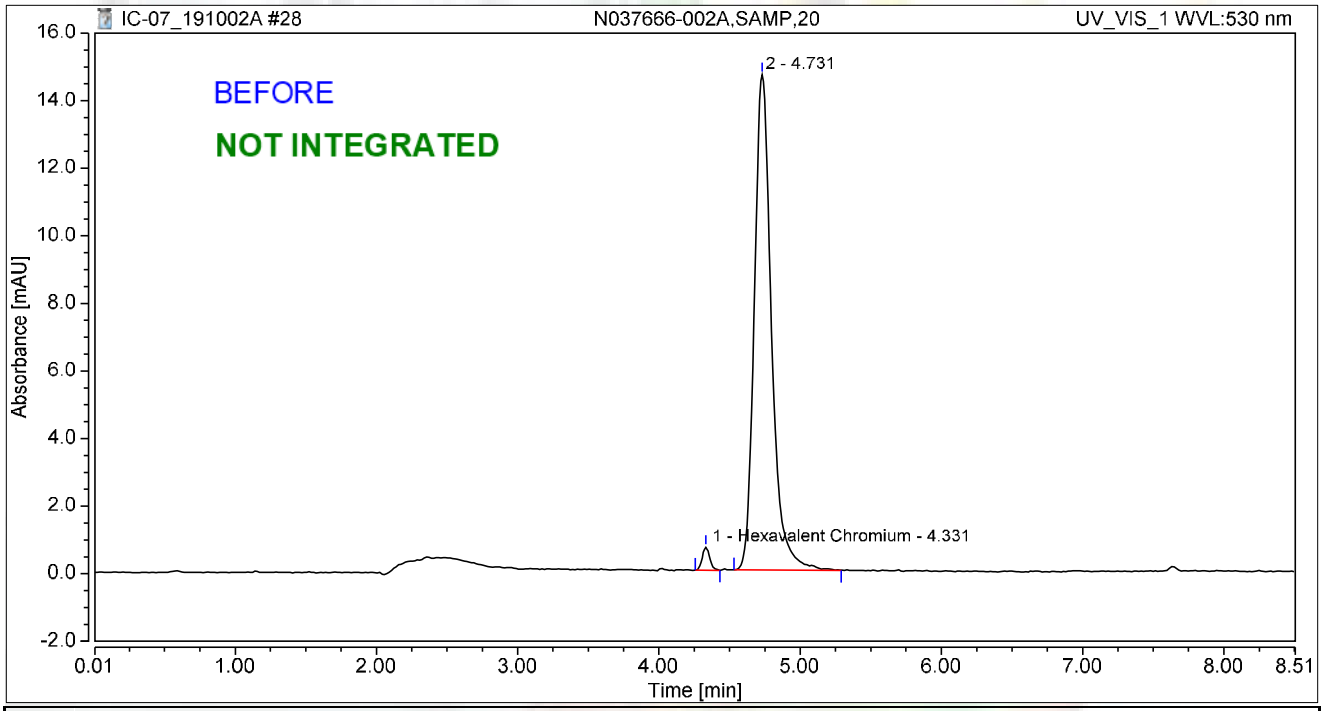
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

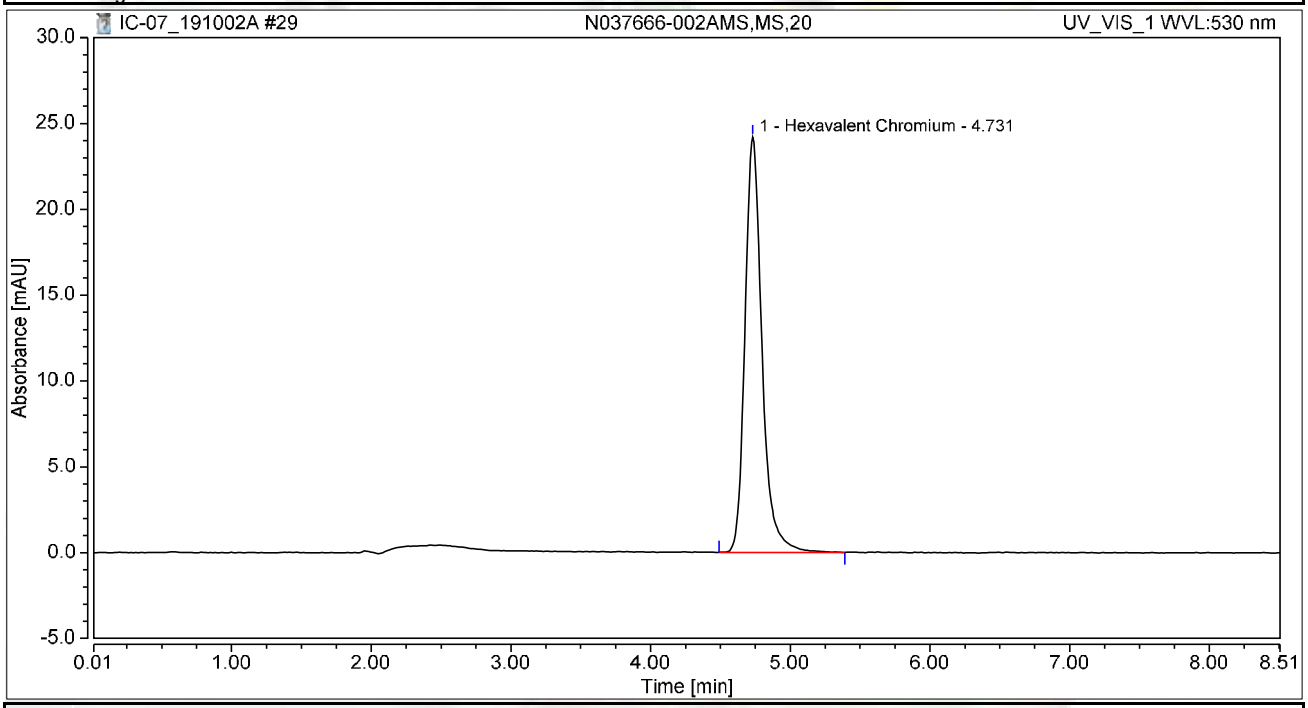
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.331	0.042	0.676	1.98	4.41	0.1530
2		4.731	2.059	14.662	98.02	95.59	n.a.
Total:			**2.101**	**15.338**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002AMS,MS,20**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

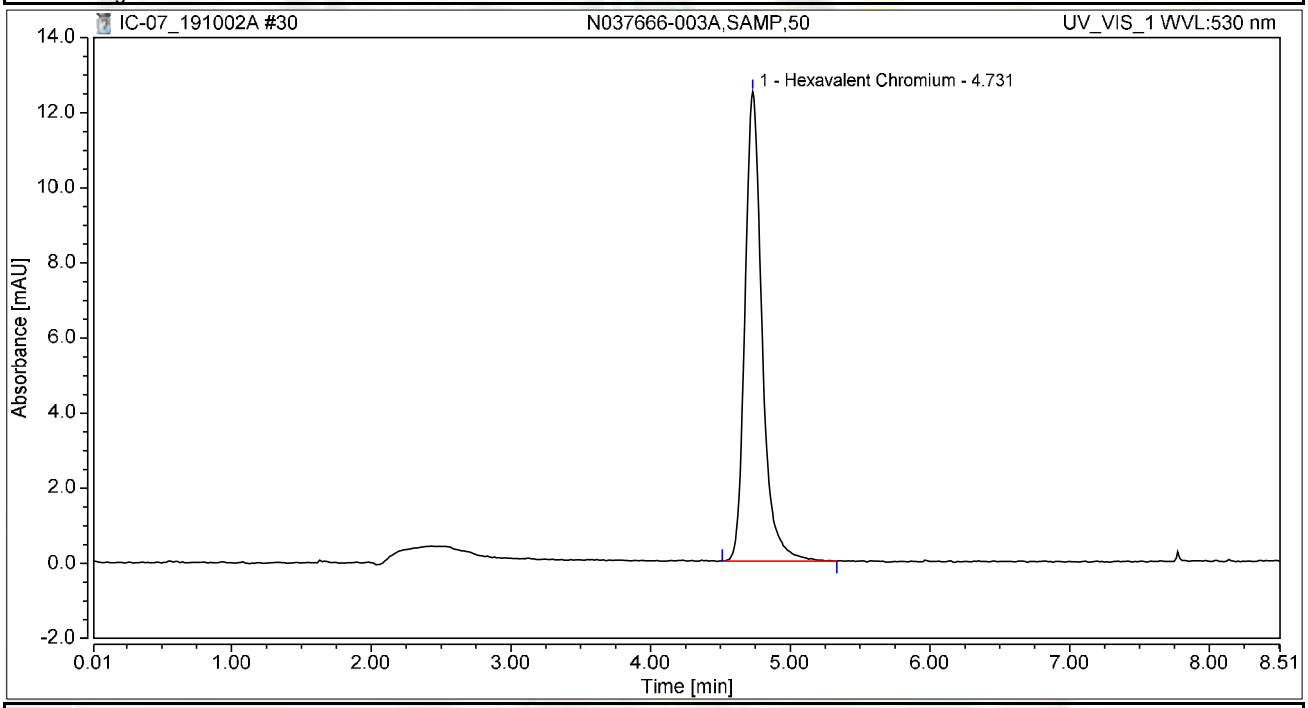
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.418	24.193	100.00	100.00	12.5838
Total:			**3.418**	**24.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-003A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

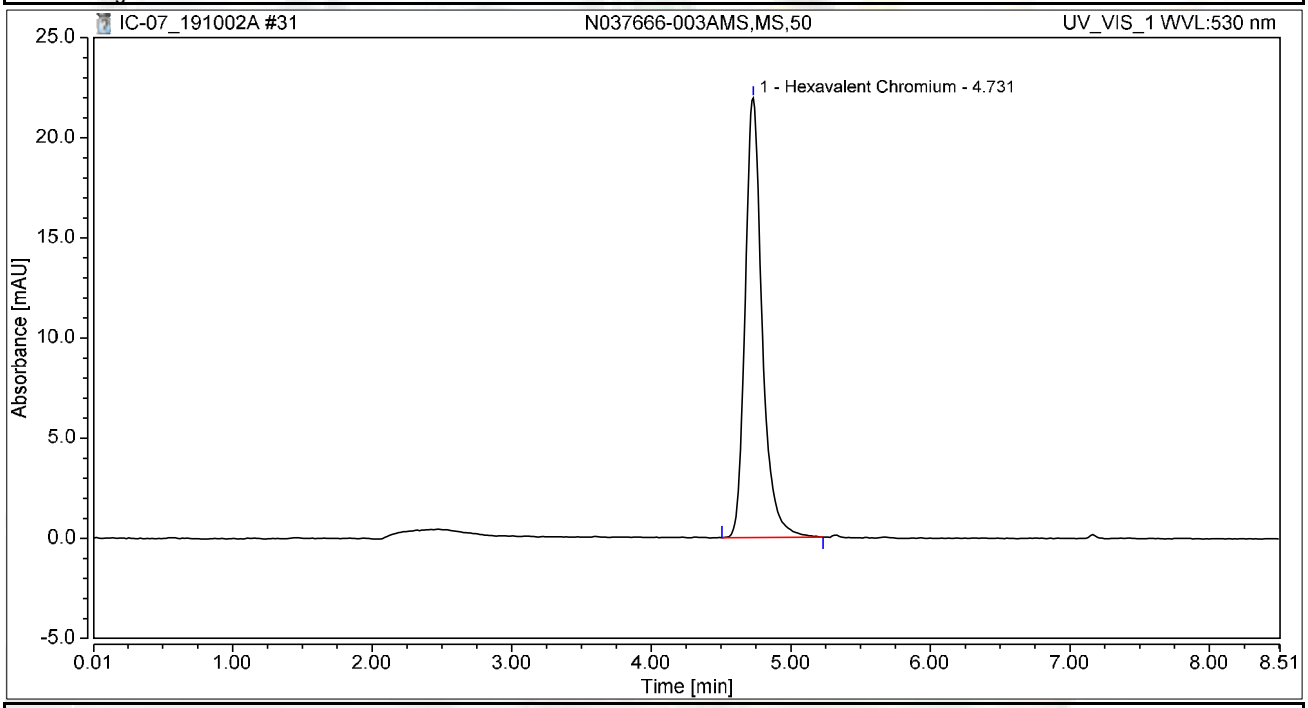
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.771	12.504	100.00	100.00	6.5195
Total:			**1.771**	**12.504**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-003AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

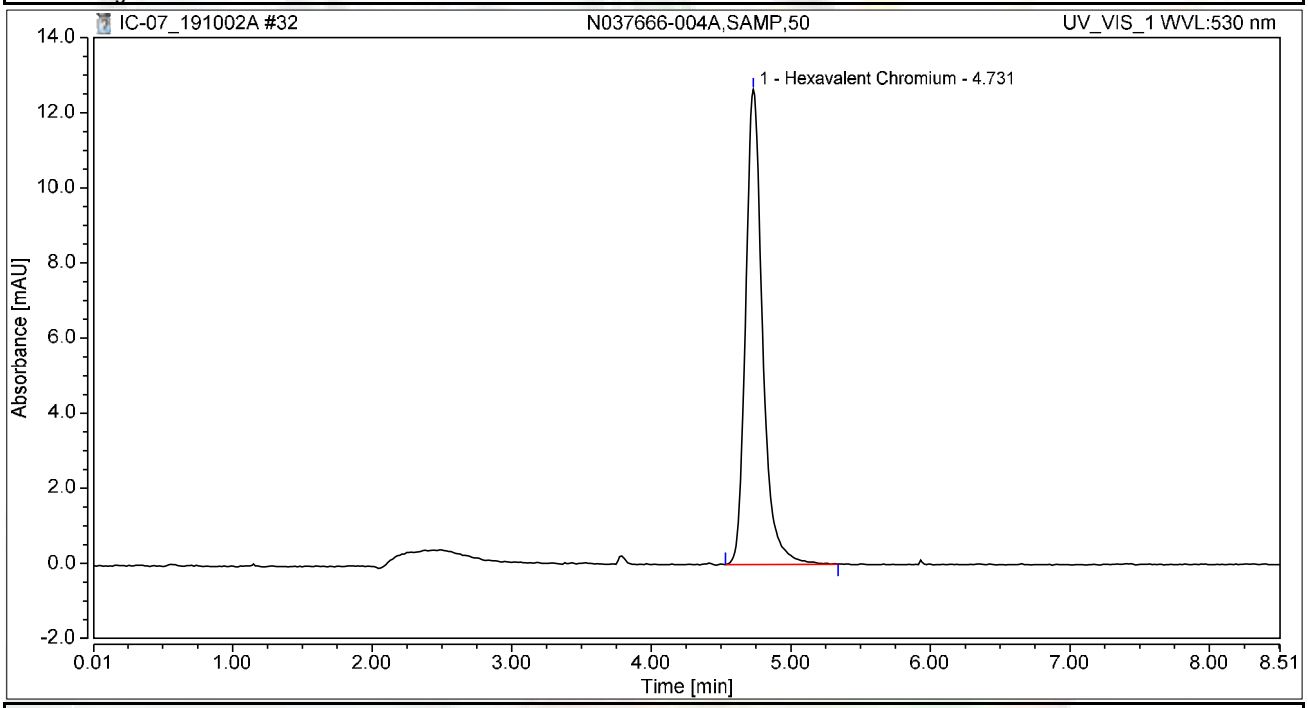
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.110	21.939	100.00	100.00	11.4508
Total:			**3.110**	**21.939**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-004A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

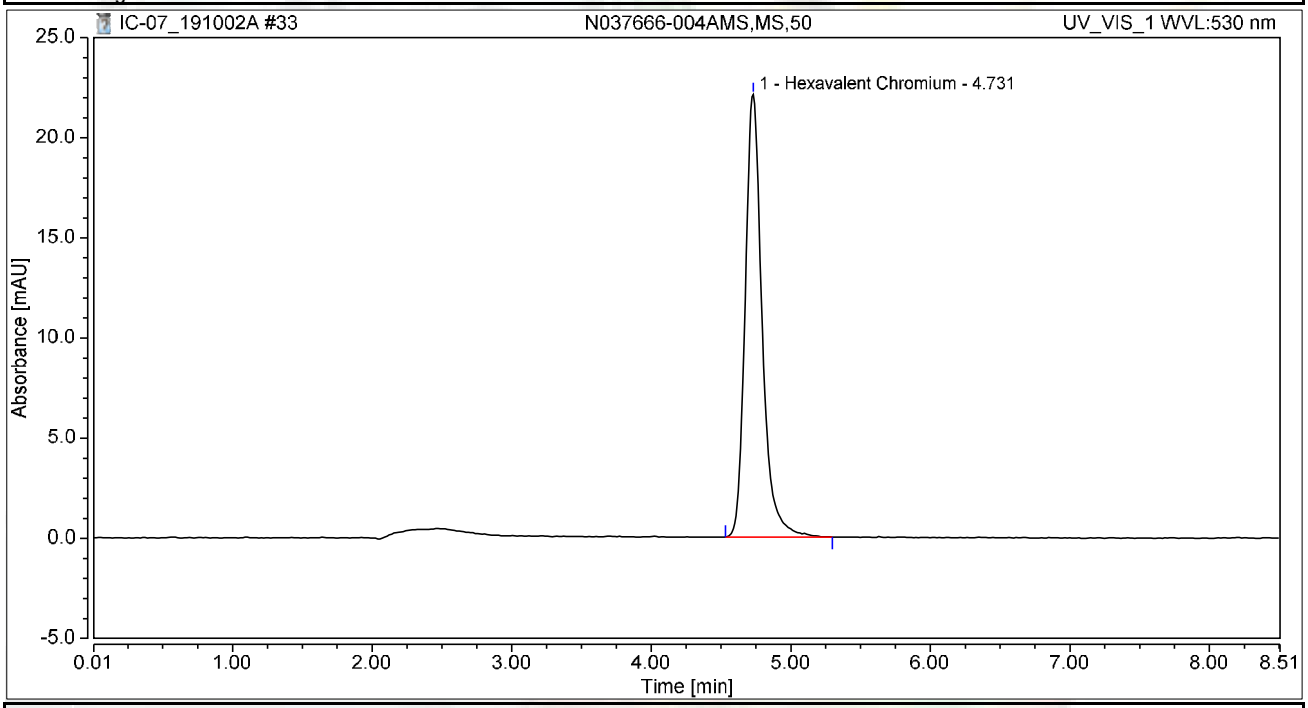
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.782	12.644	100.00	100.00	6.5603
Total:			**1.782**	**12.644**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-004AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

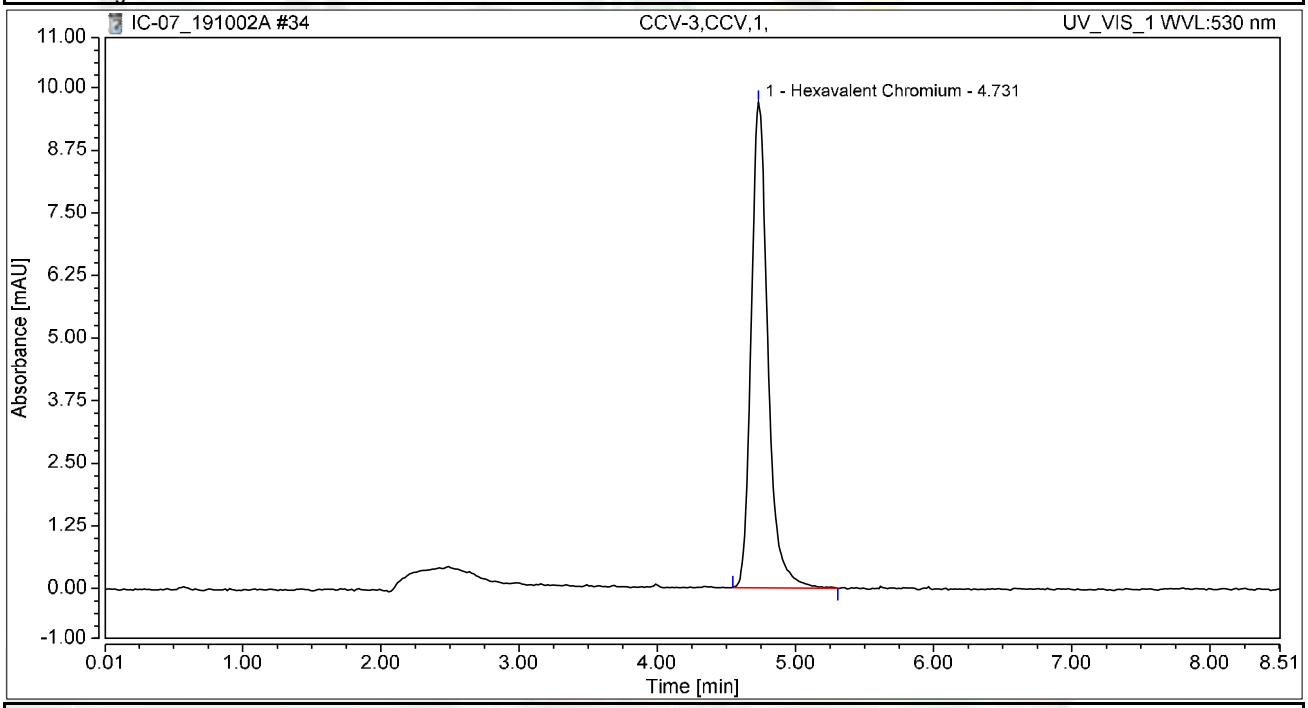
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.124	22.104	100.00	100.00	11.5007
Total:			**3.124**	**22.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

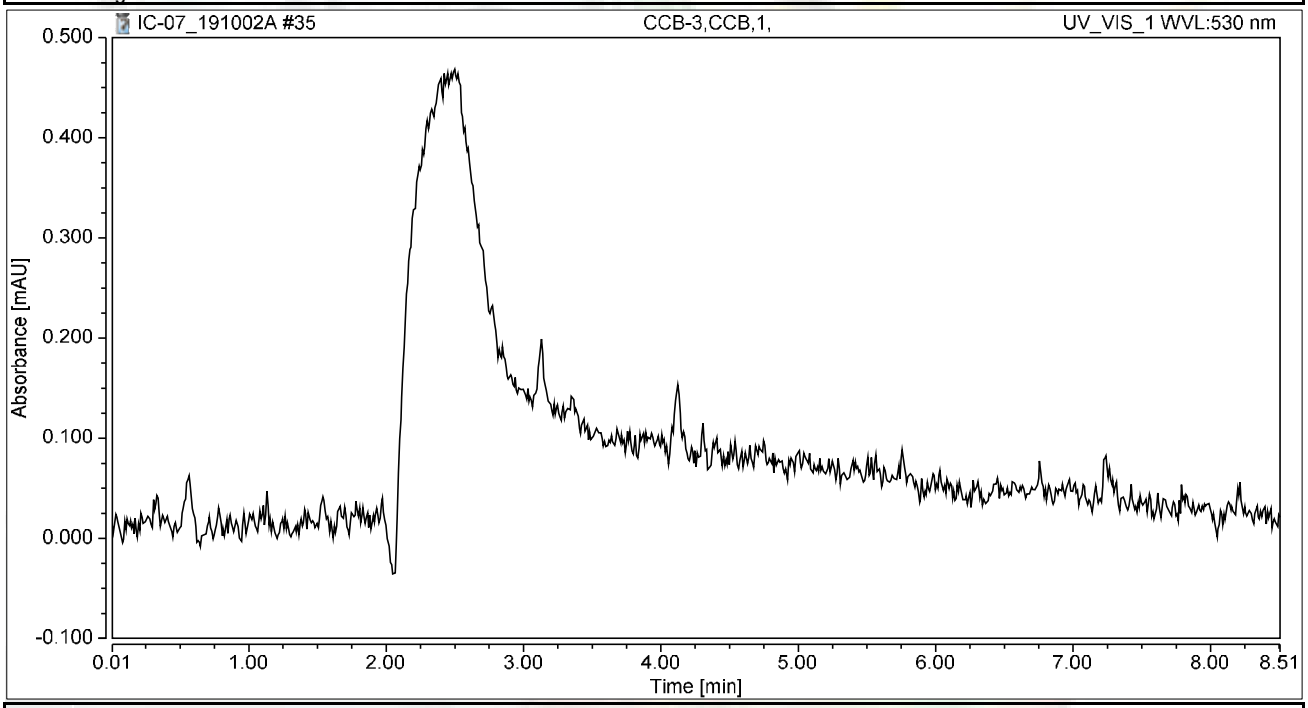
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.362	9.703	100.00	100.00	5.0157
Total:			**1.362**	**9.703**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

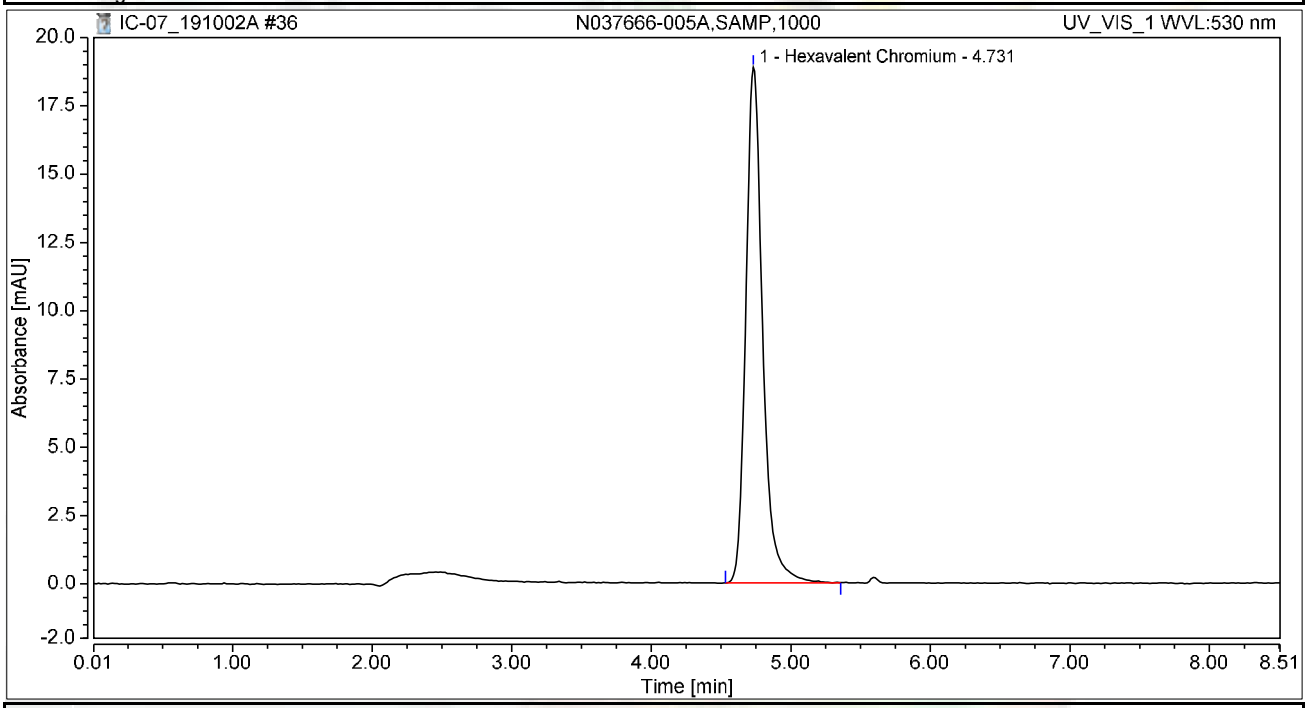
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-005A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

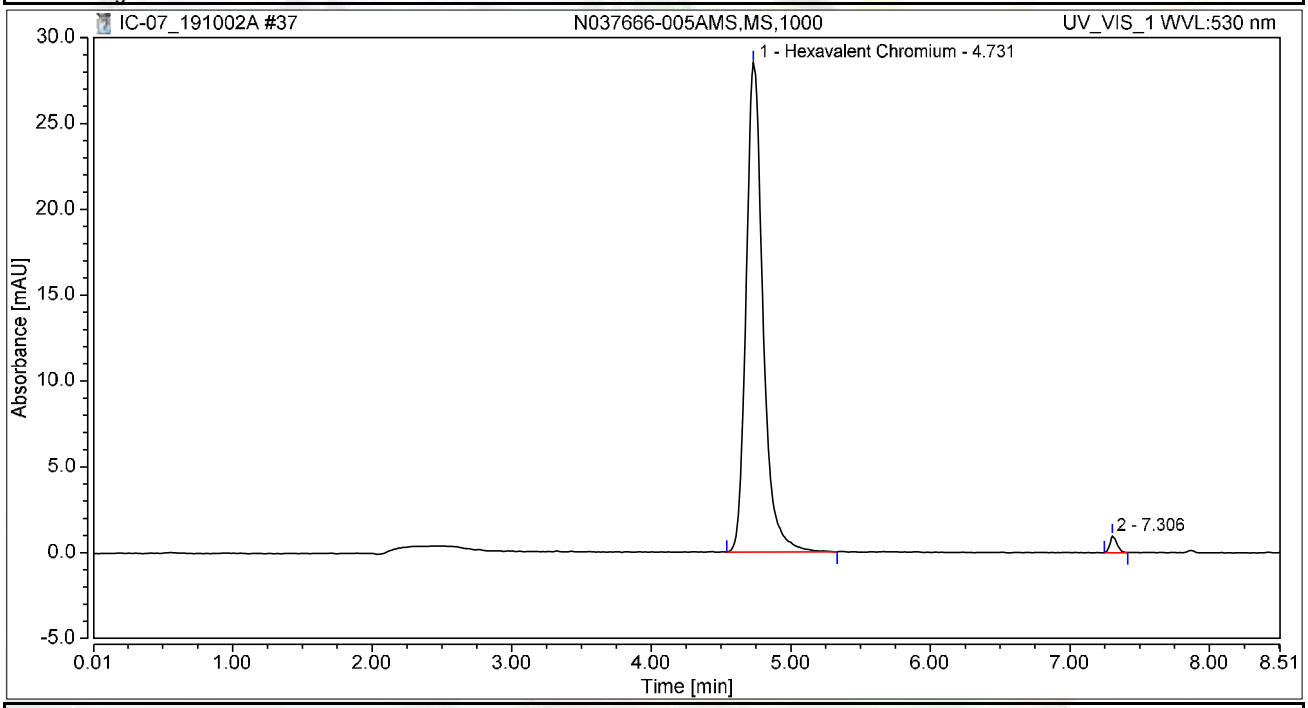
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.645	18.873	100.00	100.00	9.7364
Total:			**2.645**	**18.873**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-005AMS,MS,1000**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

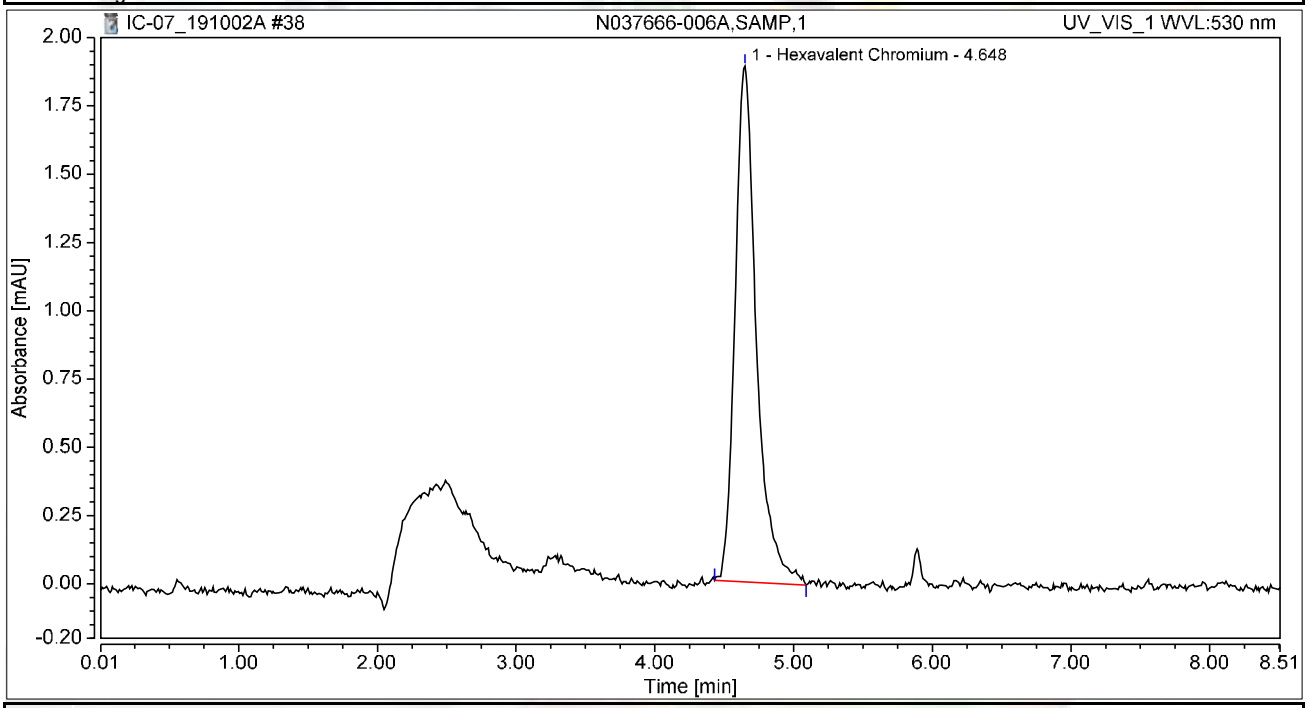
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.994	28.524	98.56	96.68	14.7051
2		7.306	0.058	0.980	1.44	3.32	n.a.
Total:			**4.053**	**29.504**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

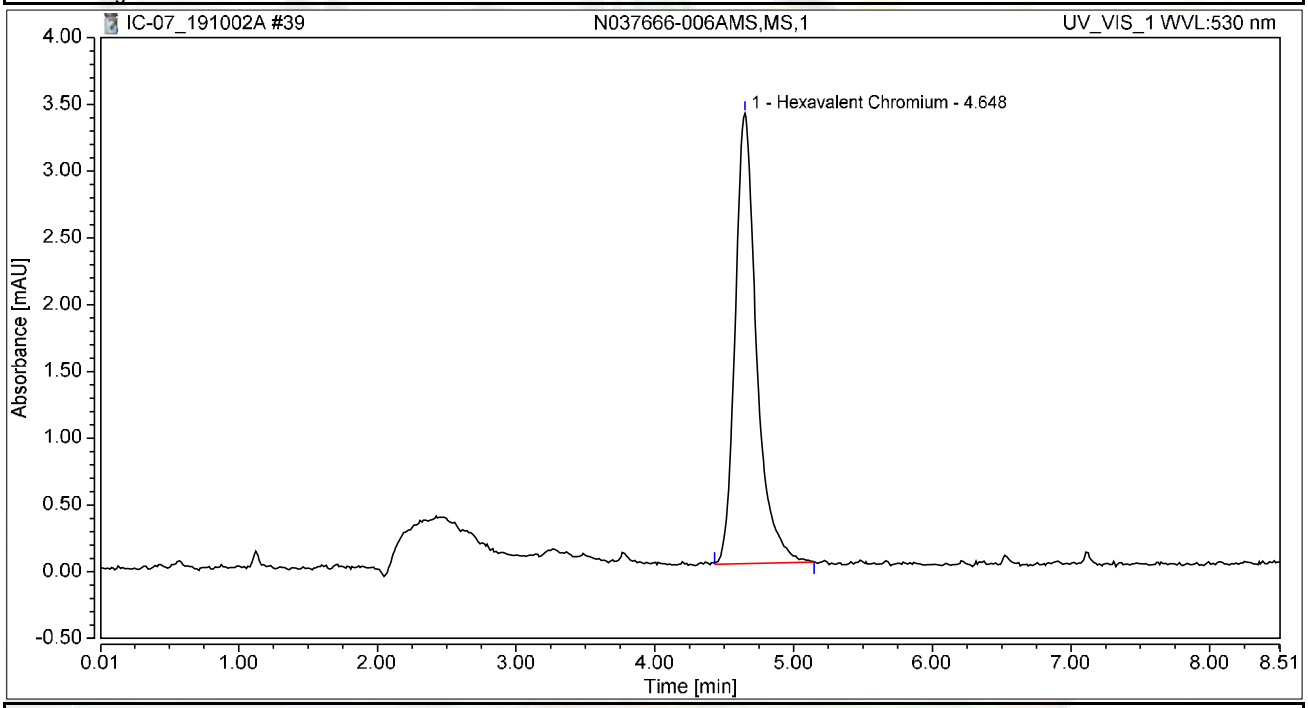
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.338	1.889	100.00	100.00	1.2452
Total:			**0.338**	**1.889**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

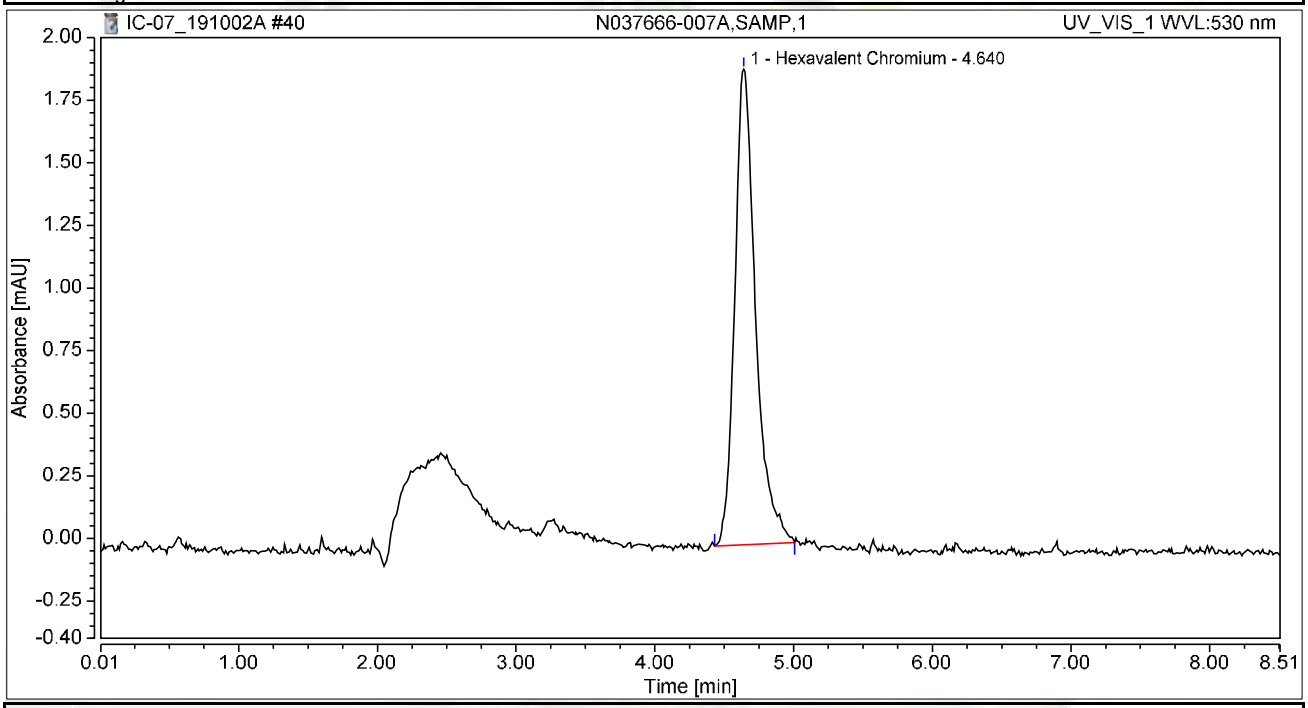
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.601	3.371	100.00	100.00	2.2141
Total:			**0.601**	**3.371**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

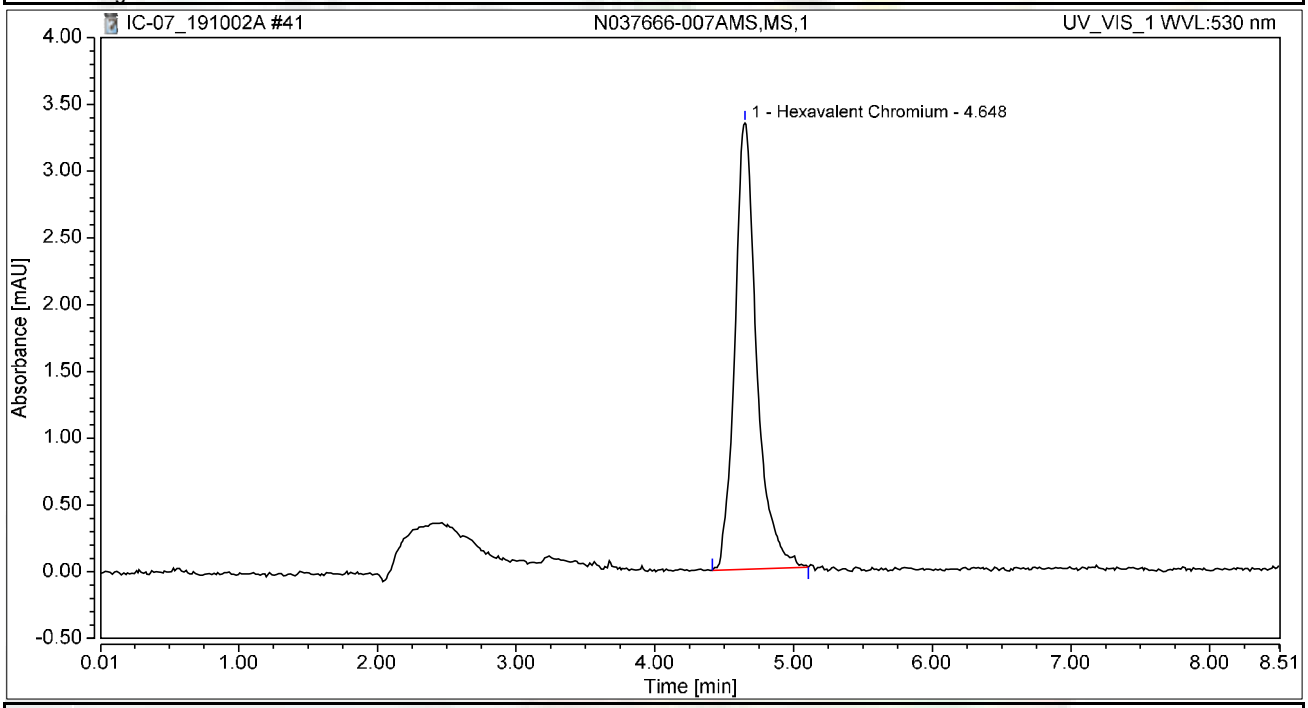
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.640	0.330	1.899	100.00	100.00	1.2148
Total:			**0.330**	**1.899**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

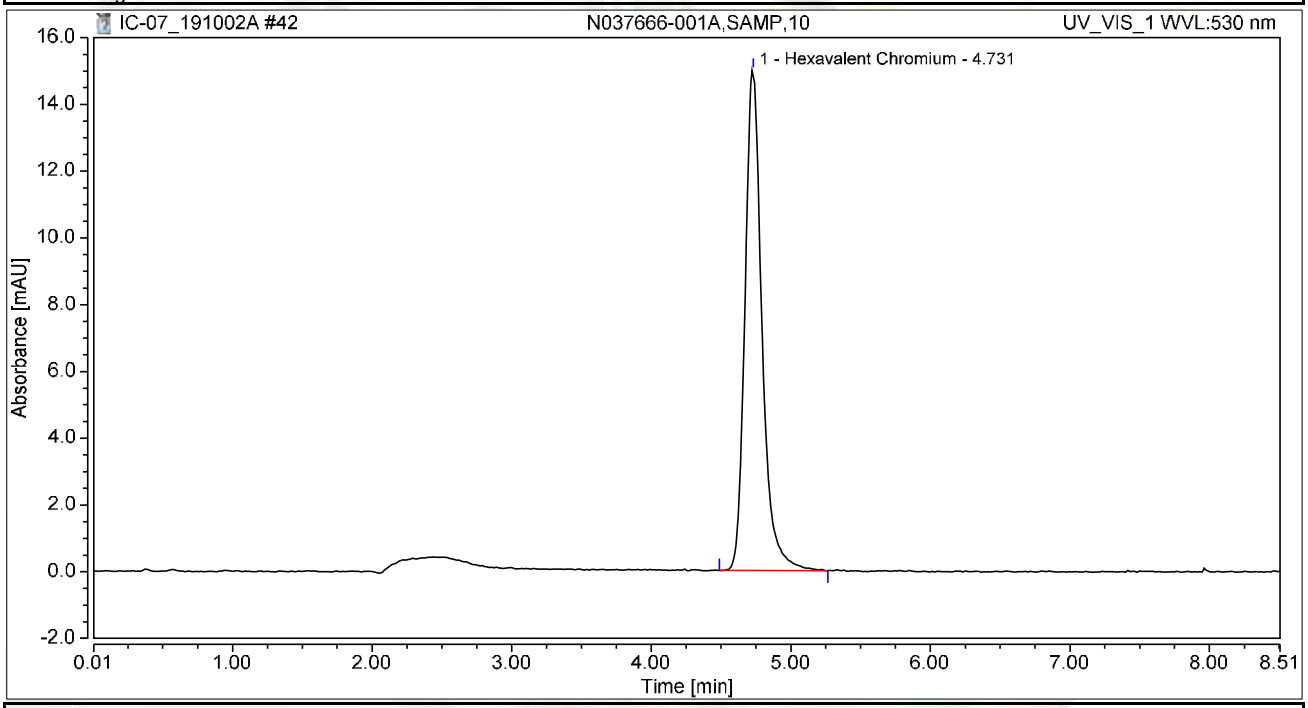
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.611	3.344	100.00	100.00	2.2490
Total:			**0.611**	**3.344**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

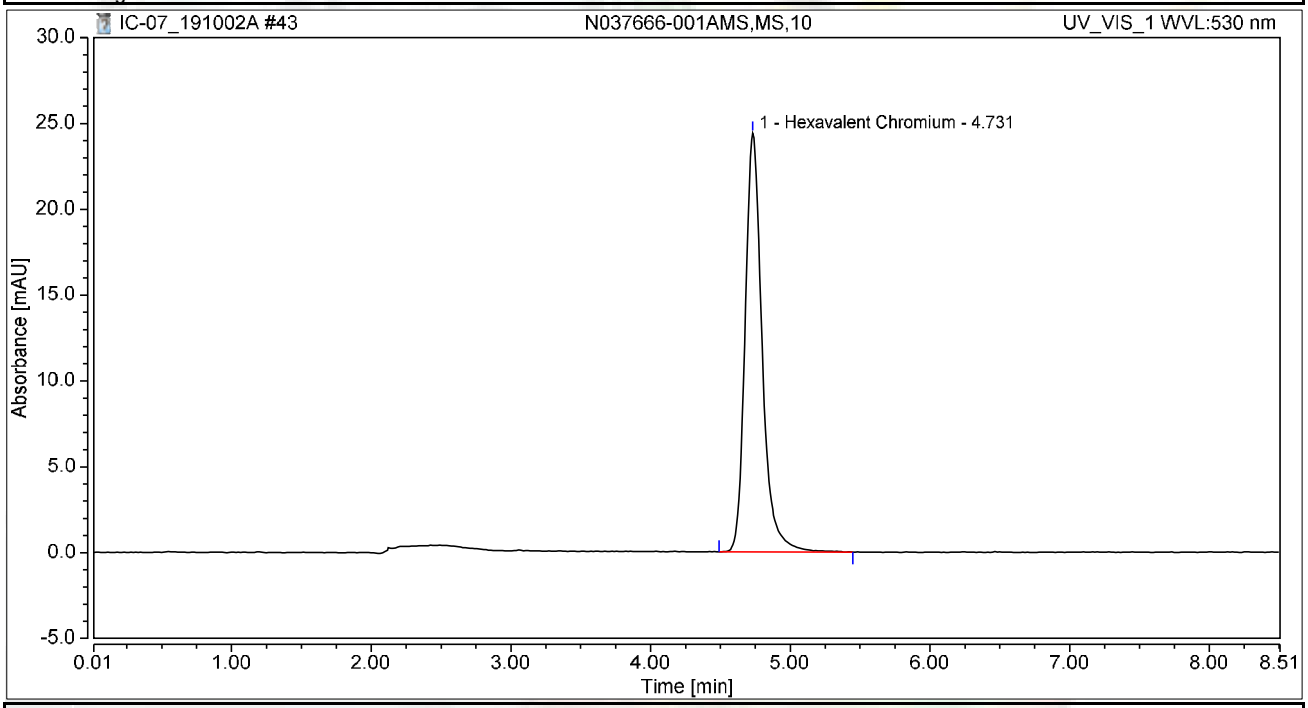
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.126	14.991	100.00	100.00	7.8284
Total:			**2.126**	**14.991**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

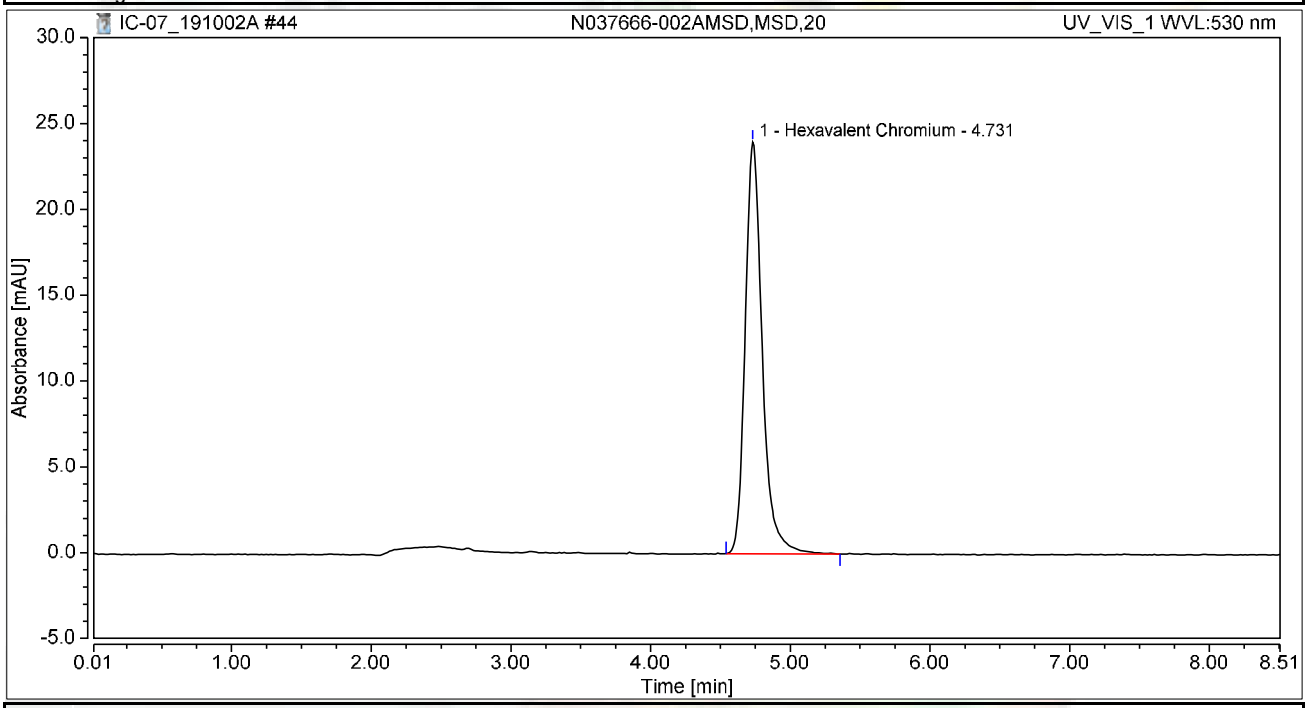
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.449	24.393	100.00	100.00	12.6961
Total:			**3.449**	**24.393**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002AMSD,MSD,20**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

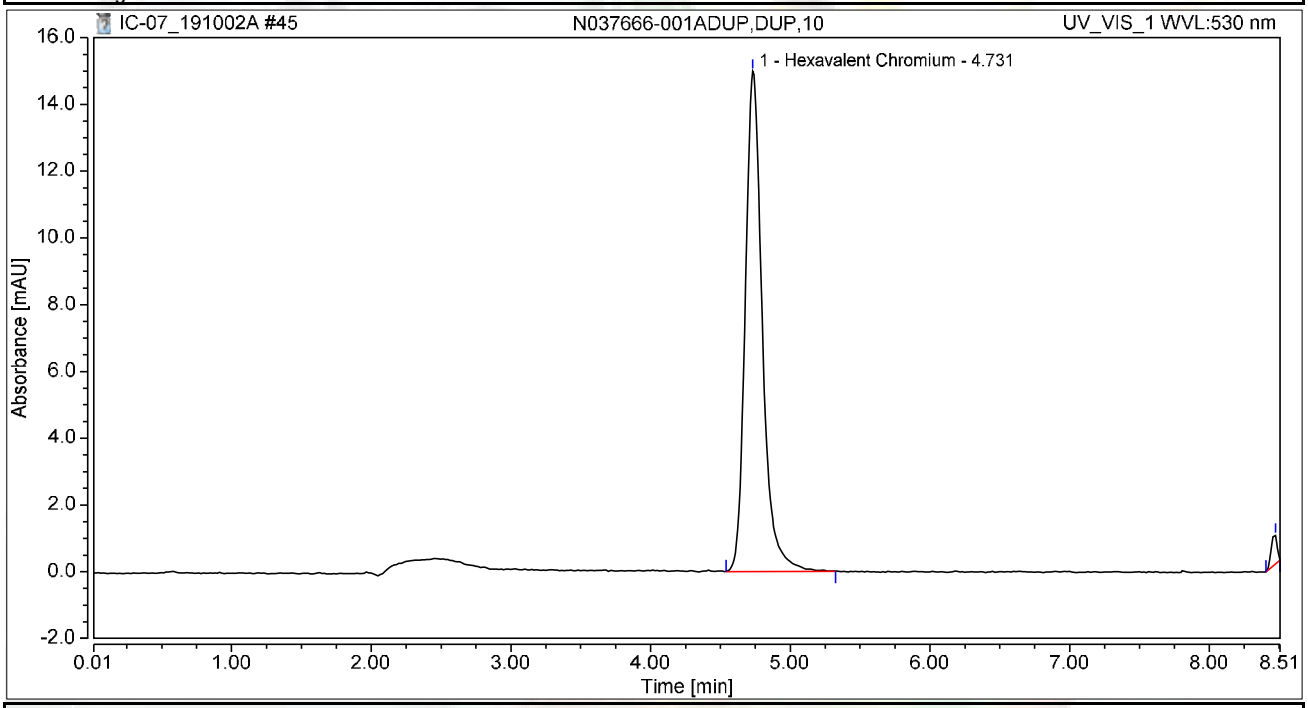
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.396	23.990	100.00	100.00	12.5037
Total:			**3.396**	**23.990**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001ADUP,DUP,10**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

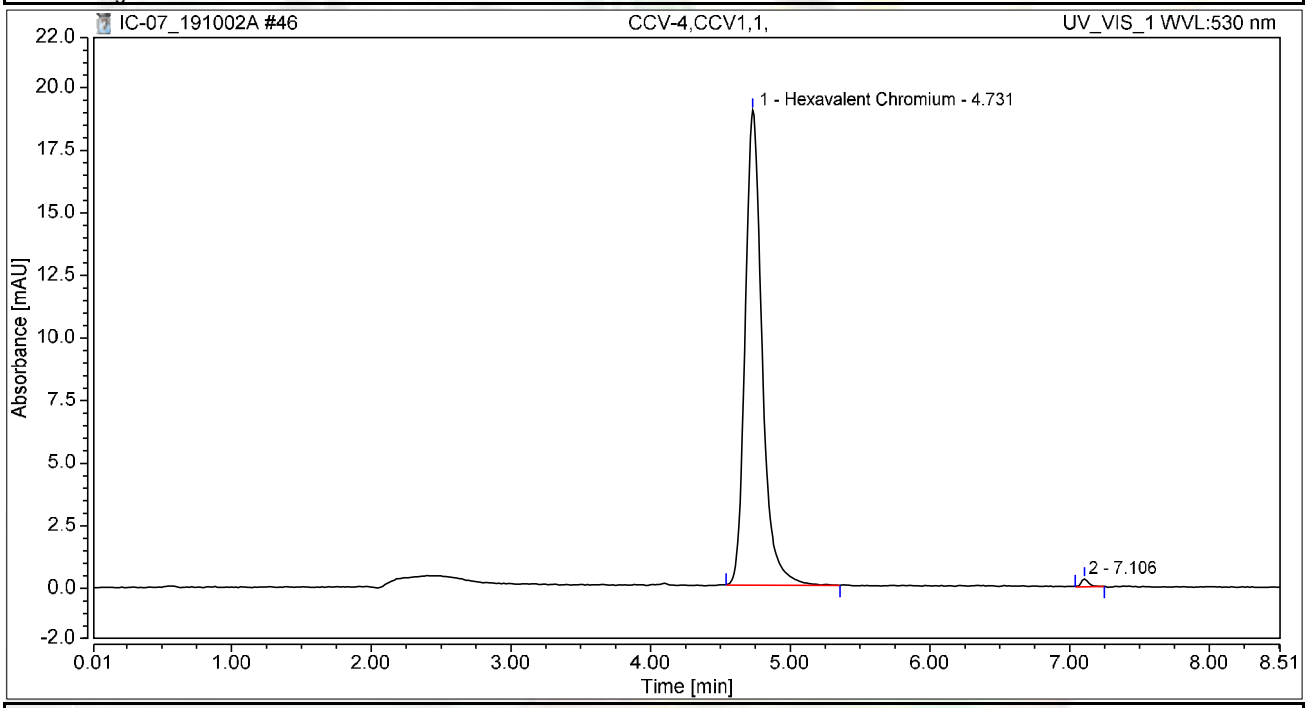
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.119	14.987	97.93	94.61	7.8017
2		8.473	0.045	0.853	2.07	5.39	n.a.
Total:			**2.164**	**15.840**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

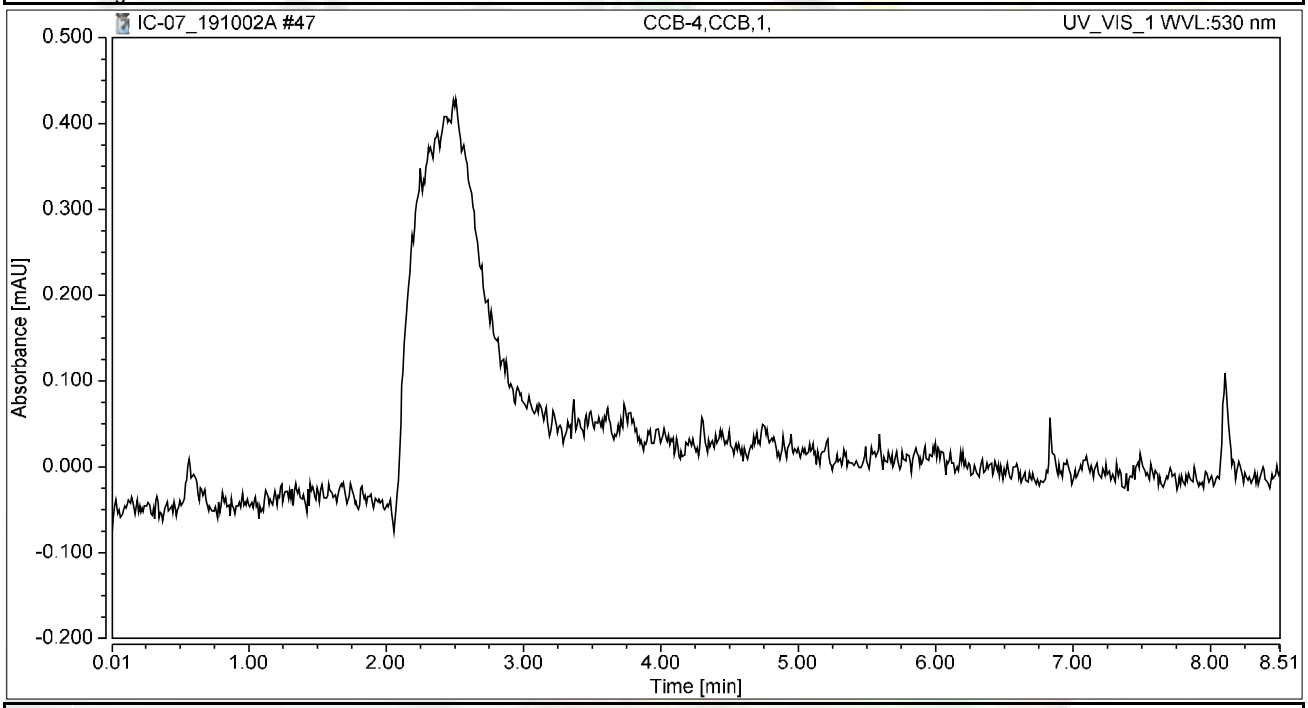
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.670	18.964	99.30	98.43	9.8302
2		7.106	0.019	0.303	0.70	1.57	n.a.
Total:			**2.689**	**19.267**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

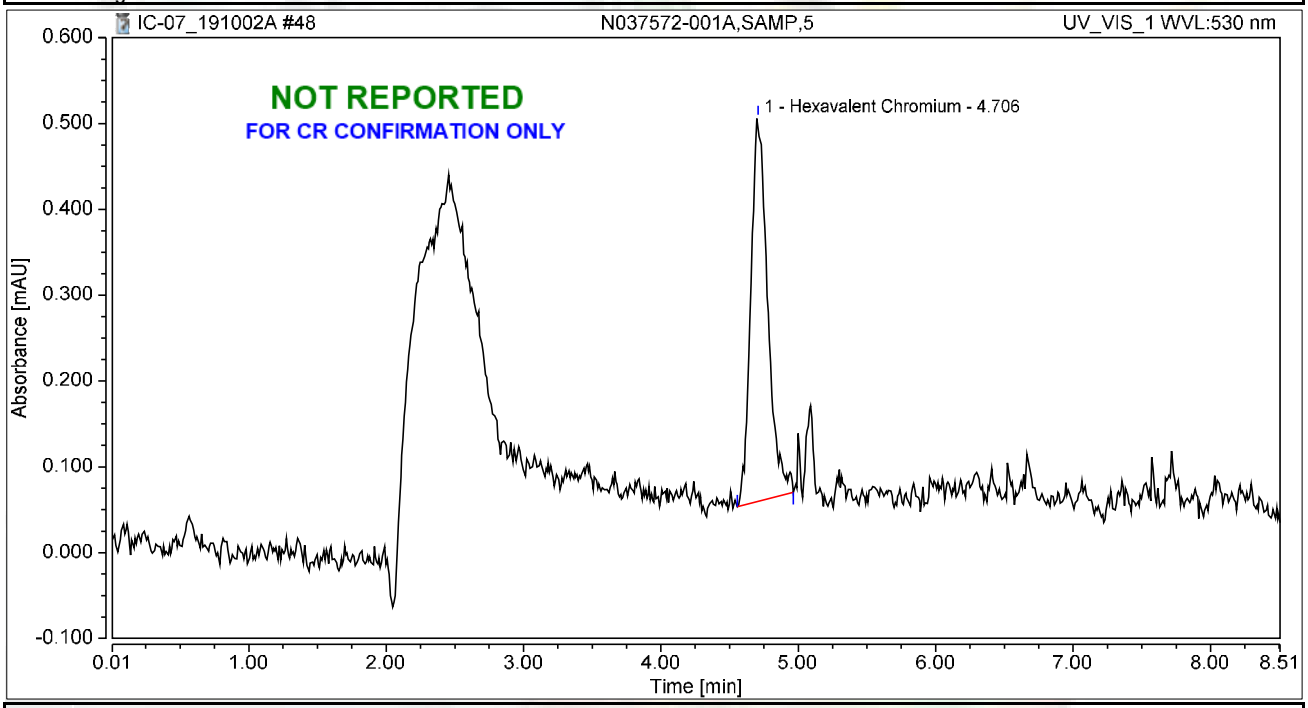
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037572-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

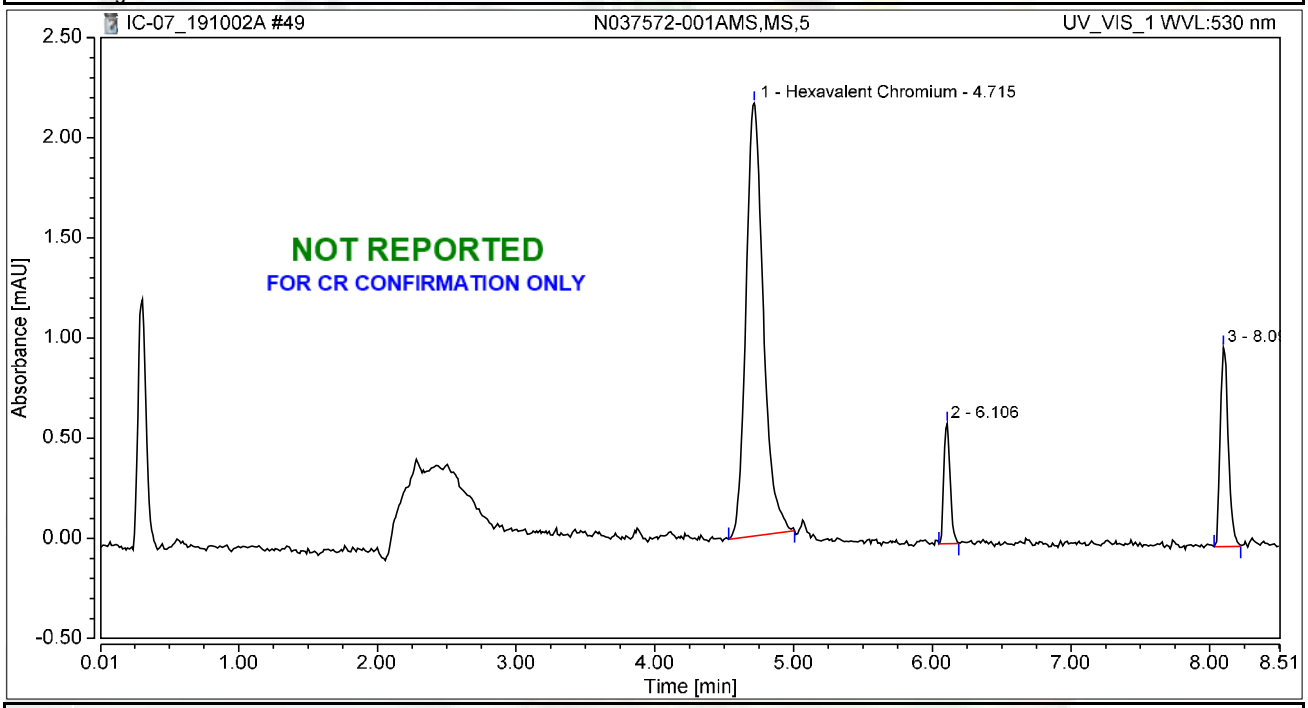
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.064	0.447	100.00	100.00	0.2360
Total:			**0.064**	**0.447**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037572-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

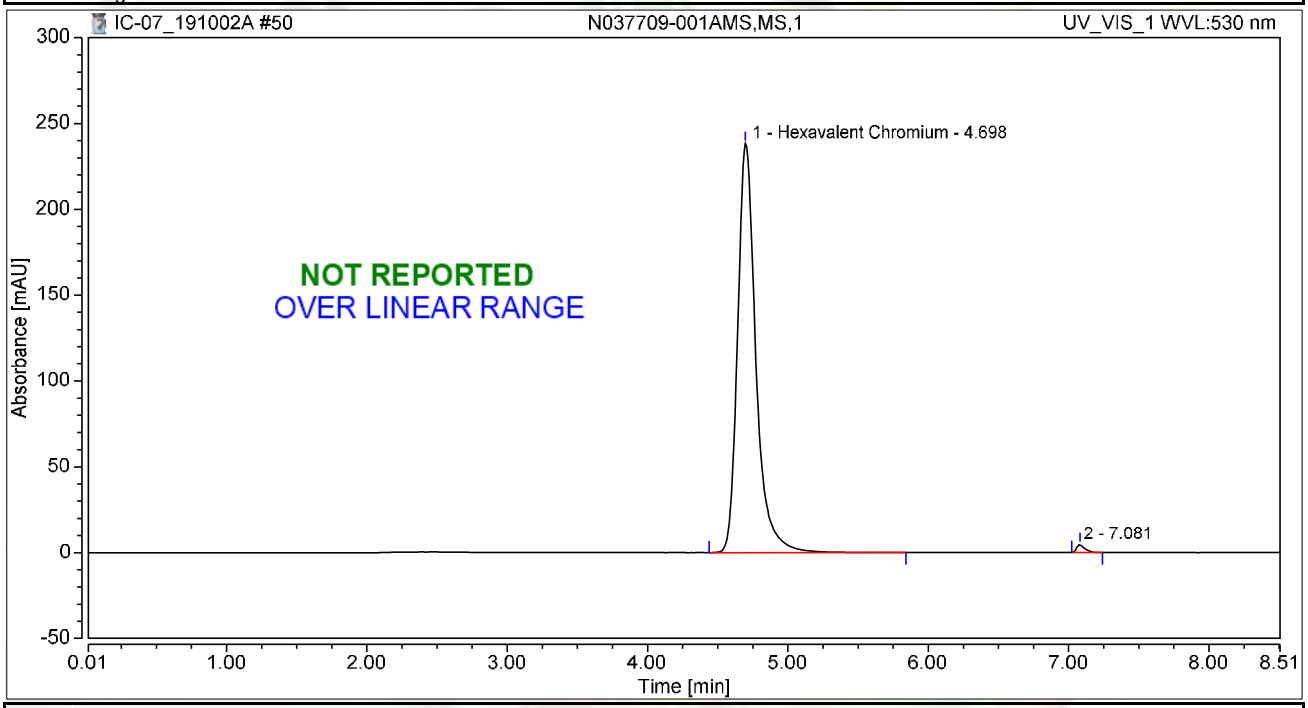
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.314	2.162	76.11	57.56	1.1557
2		6.106	0.031	0.600	7.64	15.97	n.a.
3		8.098	0.067	0.994	16.25	26.46	n.a.
Total:			**0.412**	**3.756**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

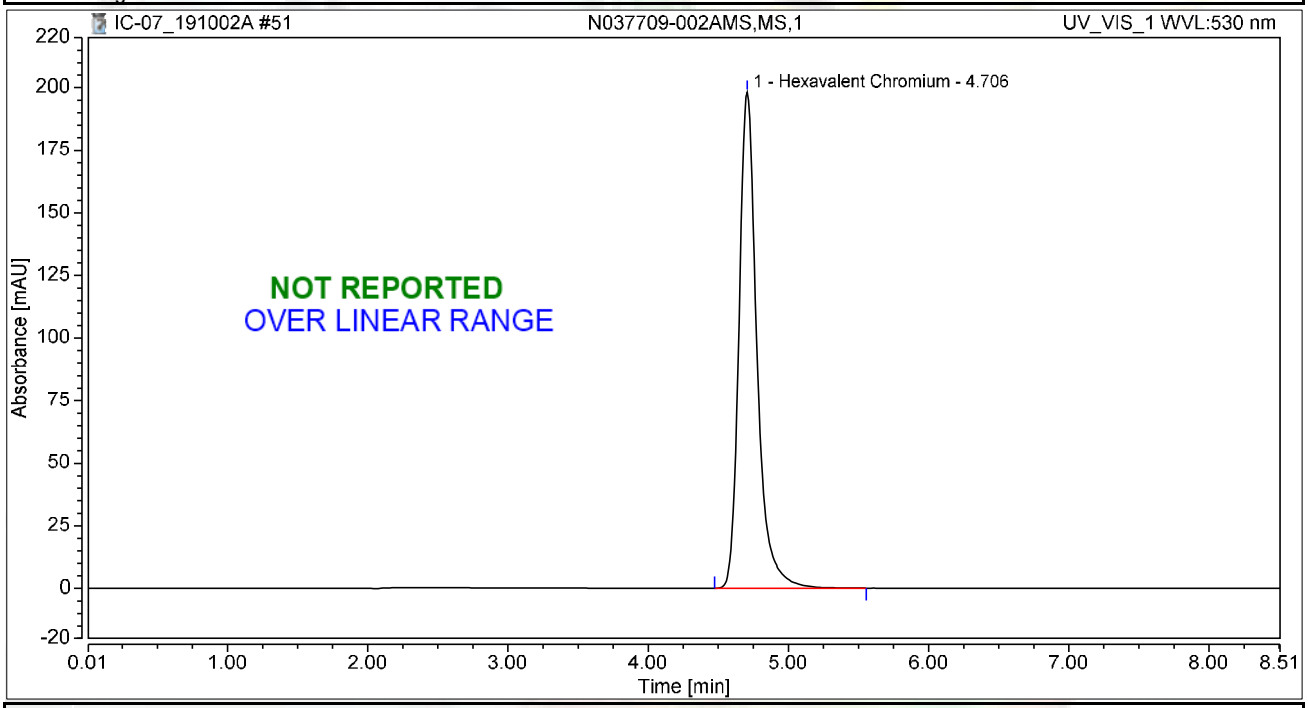
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	35.936	238.381	99.12	98.03	132.2985
2		7.081	0.317	4.790	0.88	1.97	n.a.
Total:			**36.253**	**243.171**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

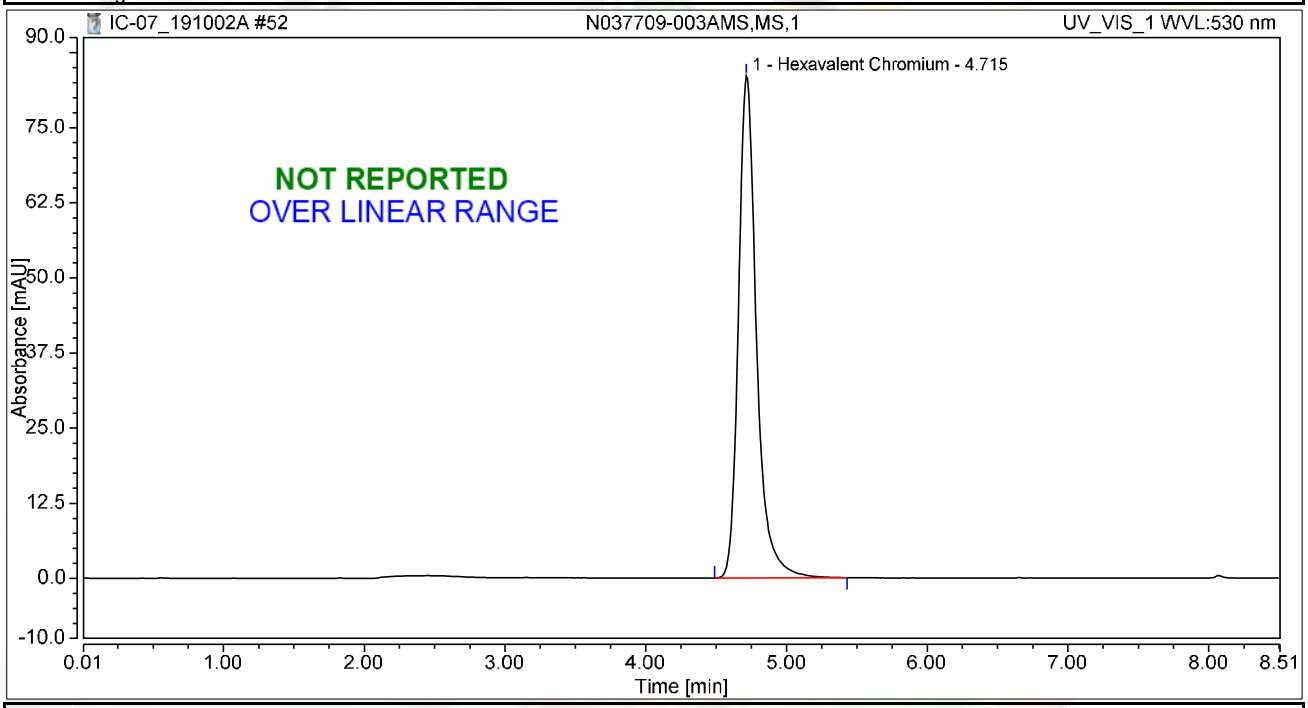
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	29.386	198.079	100.00	100.00	108.1862
Total:			**29.386**	**198.079**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**47**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

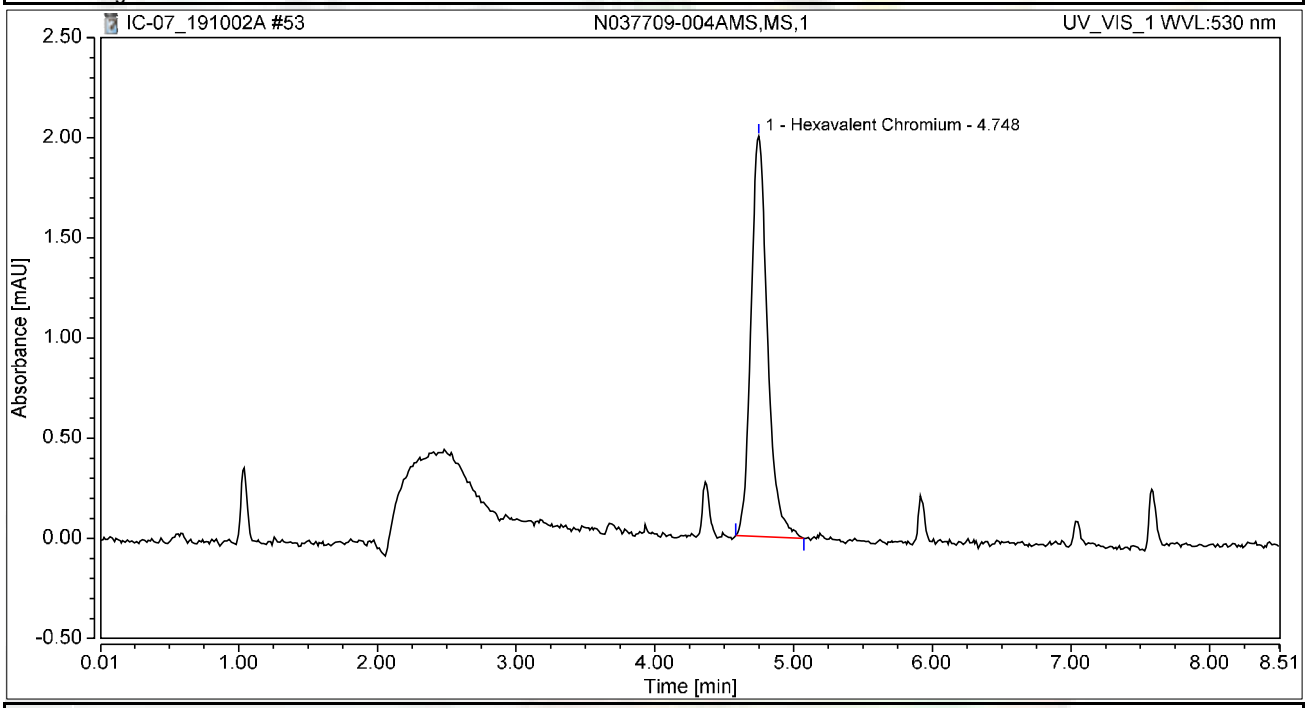
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	12.413	83.602	100.00	100.00	45.6977
Total:			**12.413**	**83.602**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**48**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

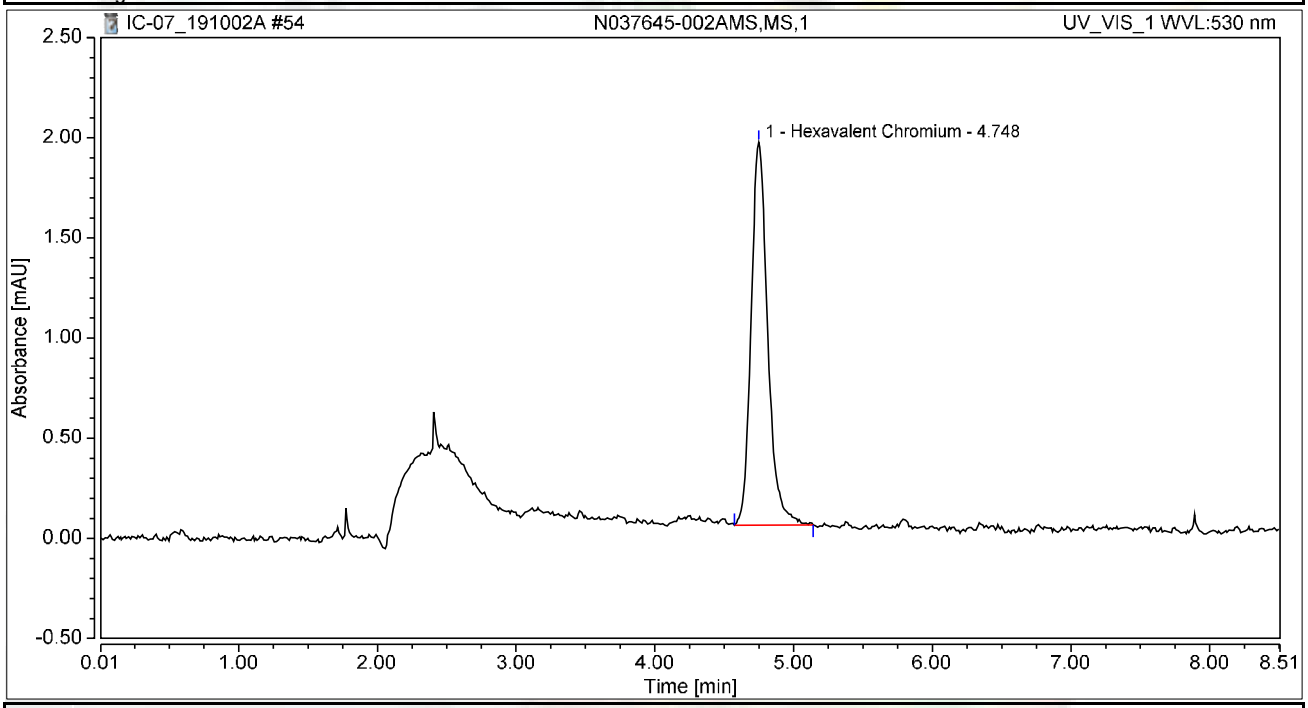
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.276	1.999	100.00	100.00	1.0151
Total:			**0.276**	**1.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**49**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

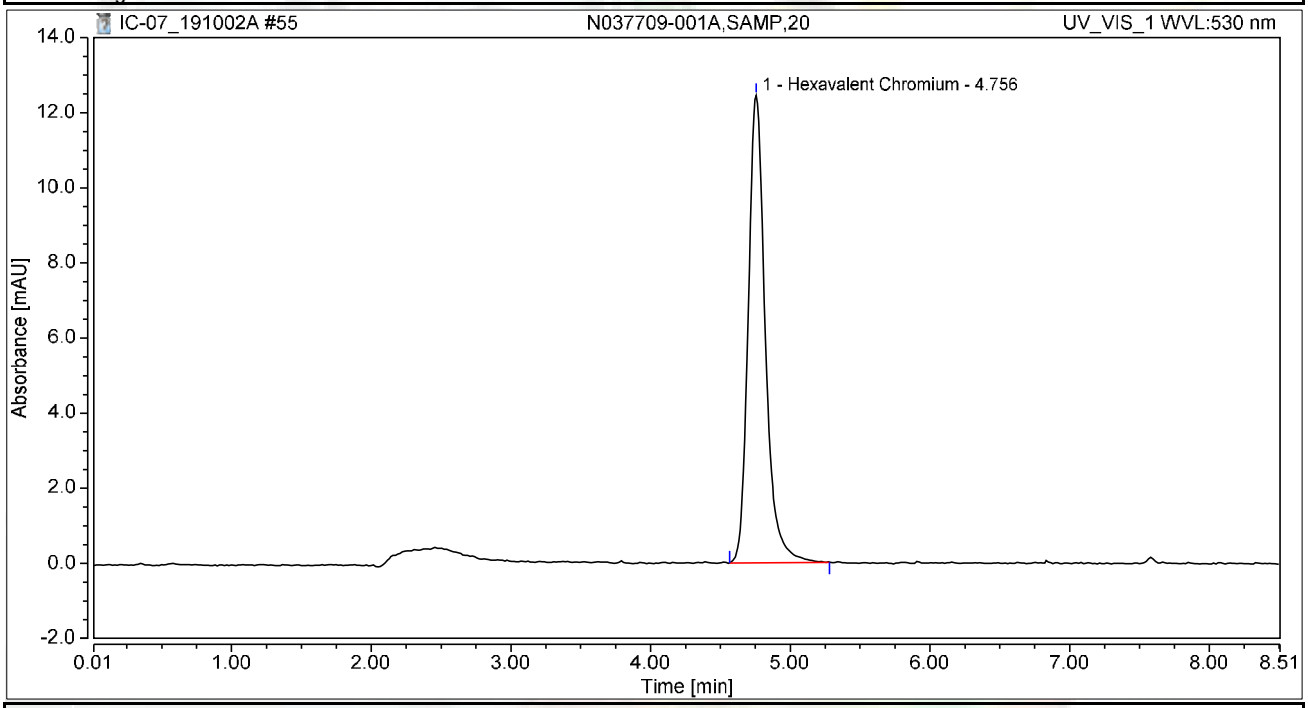
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.265	1.912	100.00	100.00	0.9756
Total:			**0.265**	**1.912**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

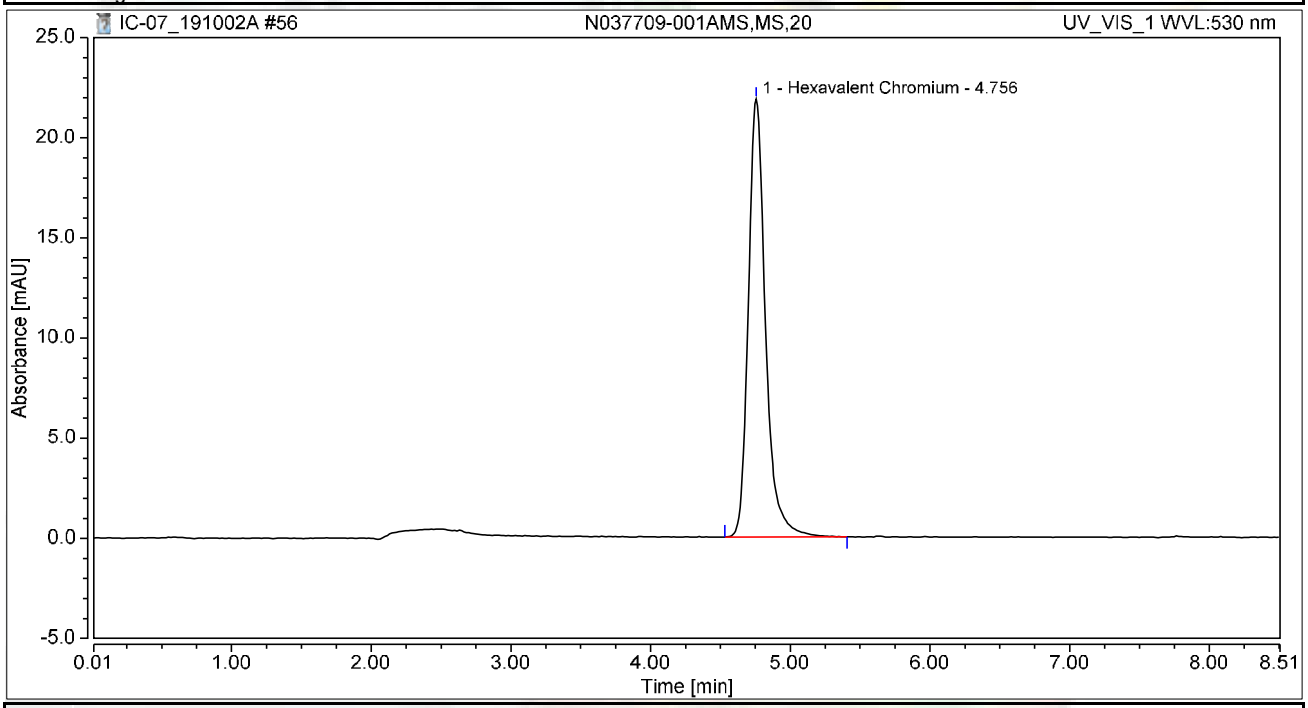
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	1.763	12.448	100.00	100.00	6.4923
Total:			**1.763**	**12.448**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001AMS,MS,20**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

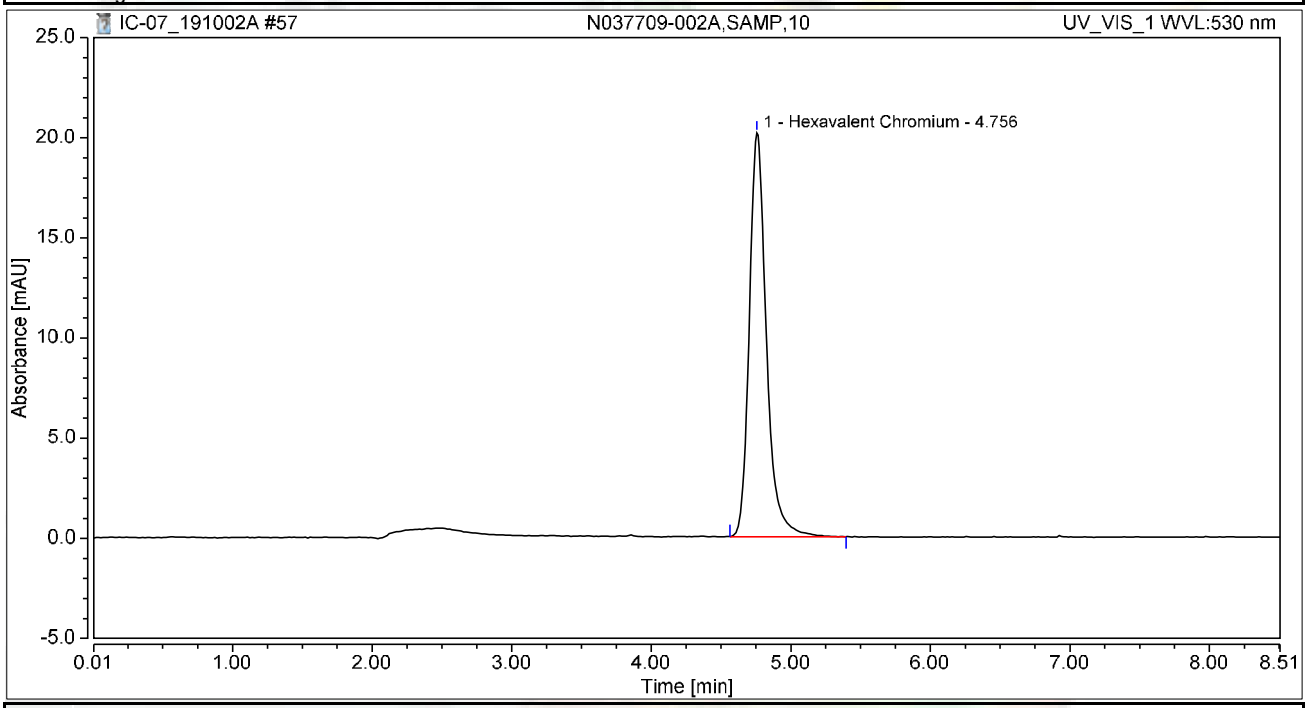
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.113	21.863	100.00	100.00	11.4610
Total:			**3.113**	**21.863**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

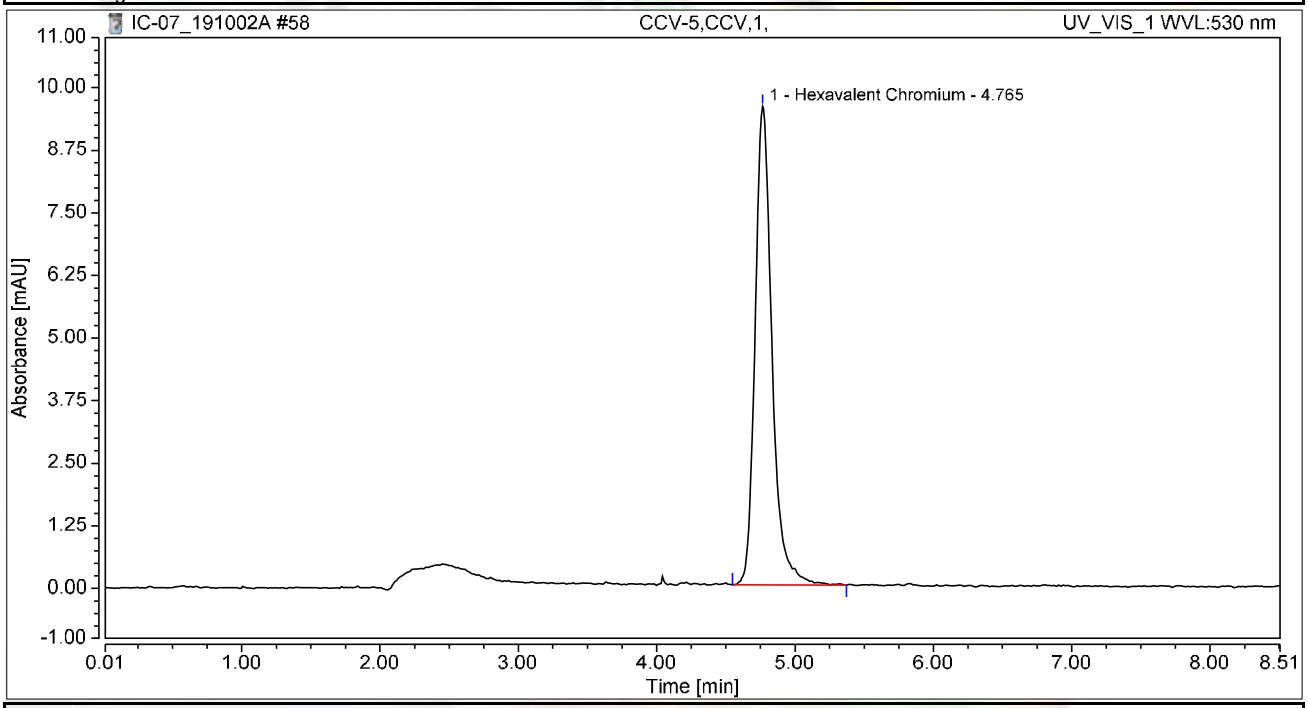
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	2.872	20.161	100.00	100.00	10.5727
Total:			**2.872**	**20.161**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

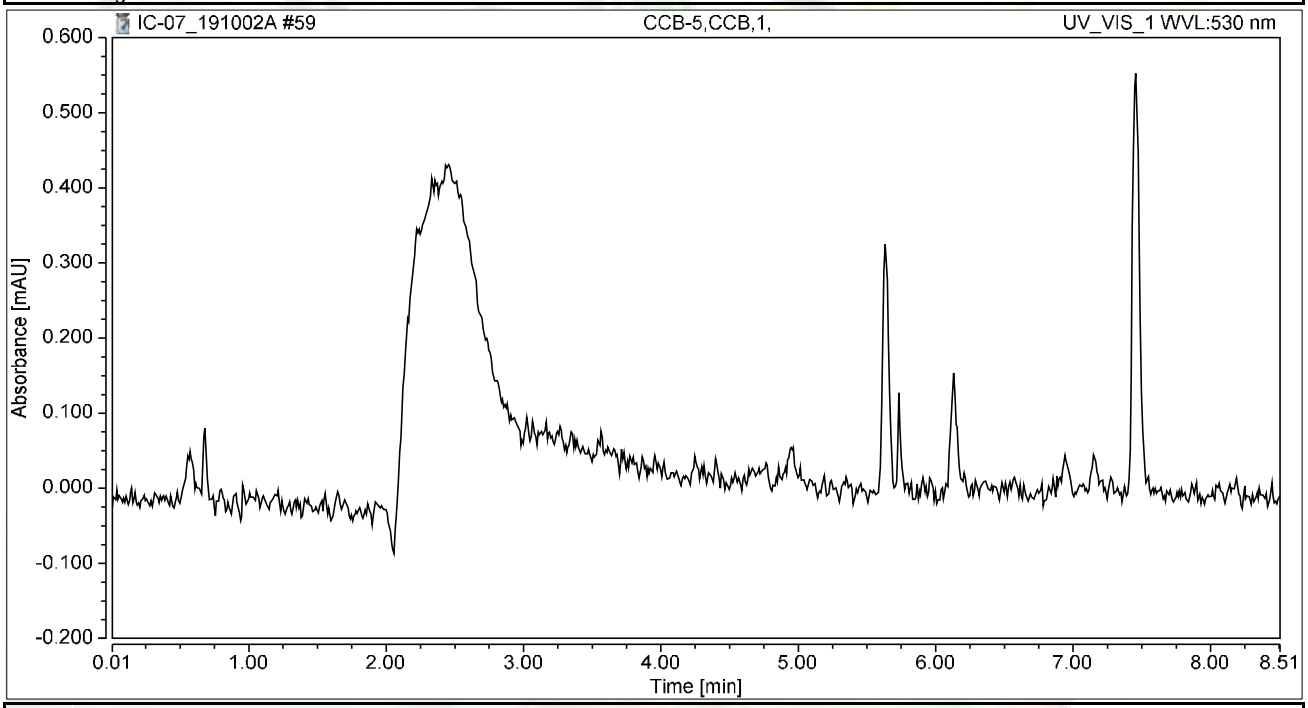
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.356	9.555	100.00	100.00	4.9922
Total:			**1.356**	**9.555**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

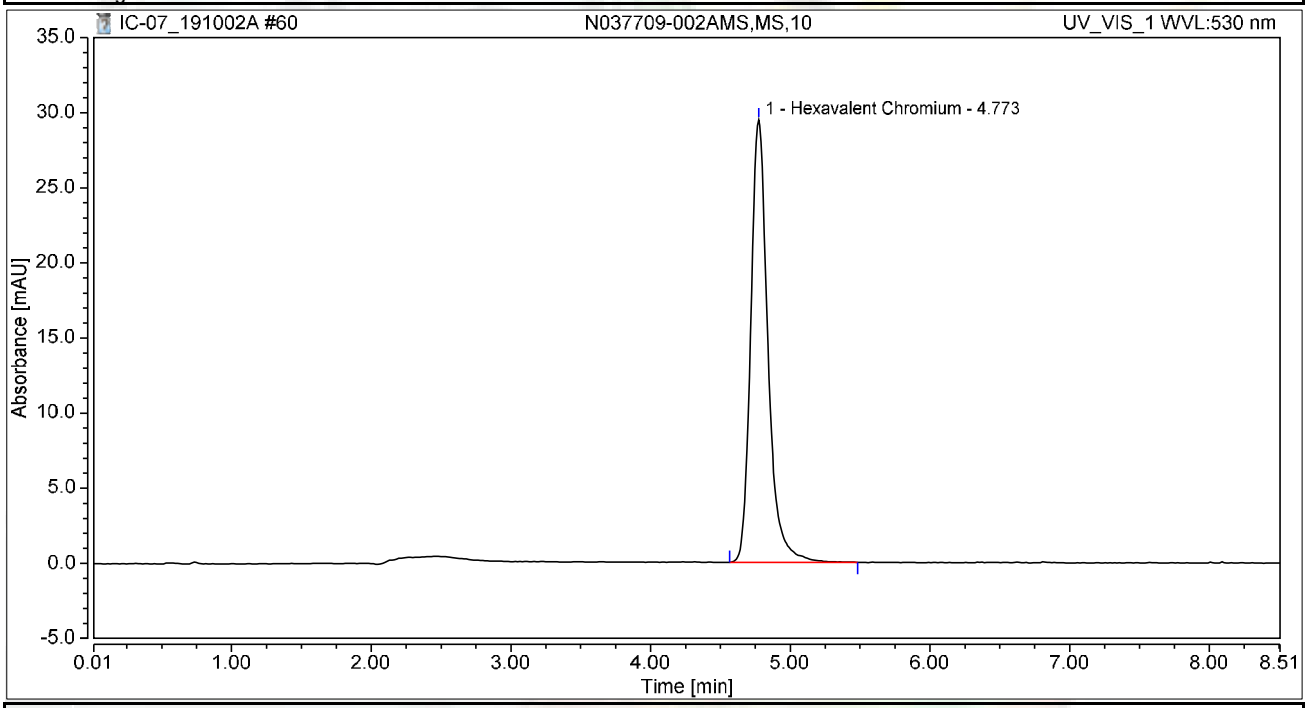
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

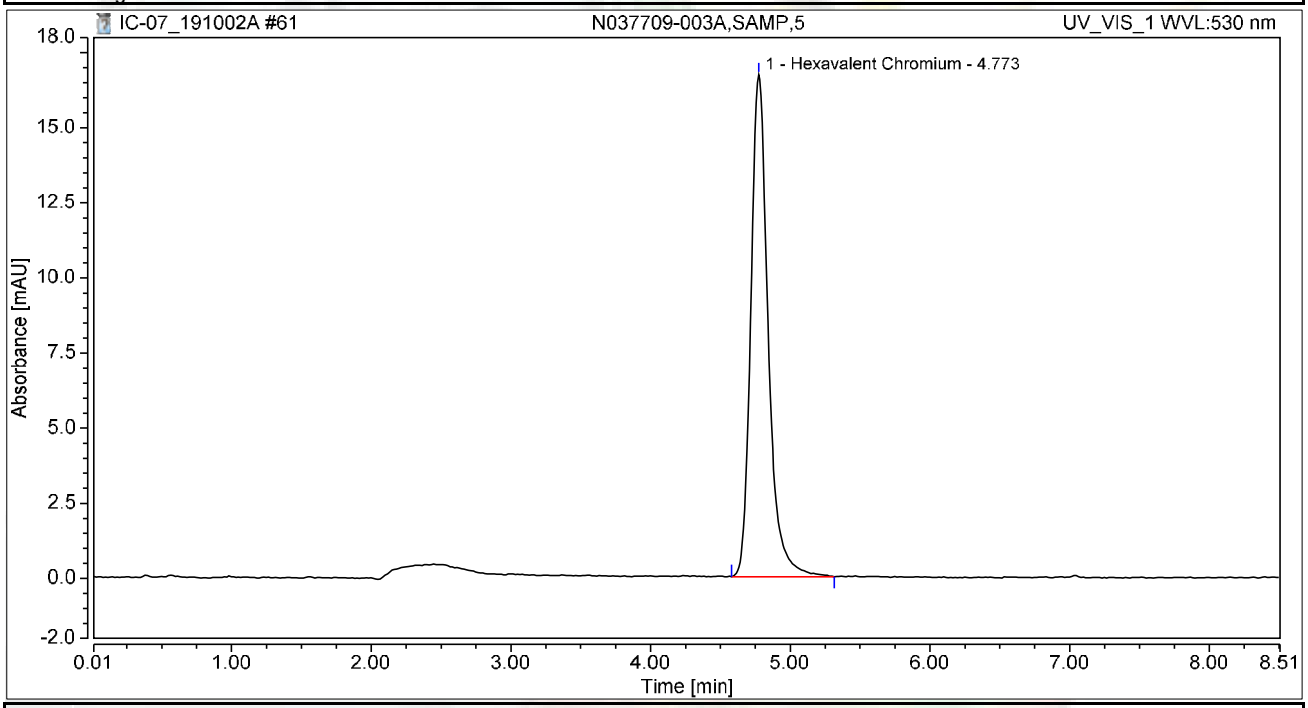
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	4.207	29.454	100.00	100.00	15.4886
Total:			**4.207**	**29.454**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

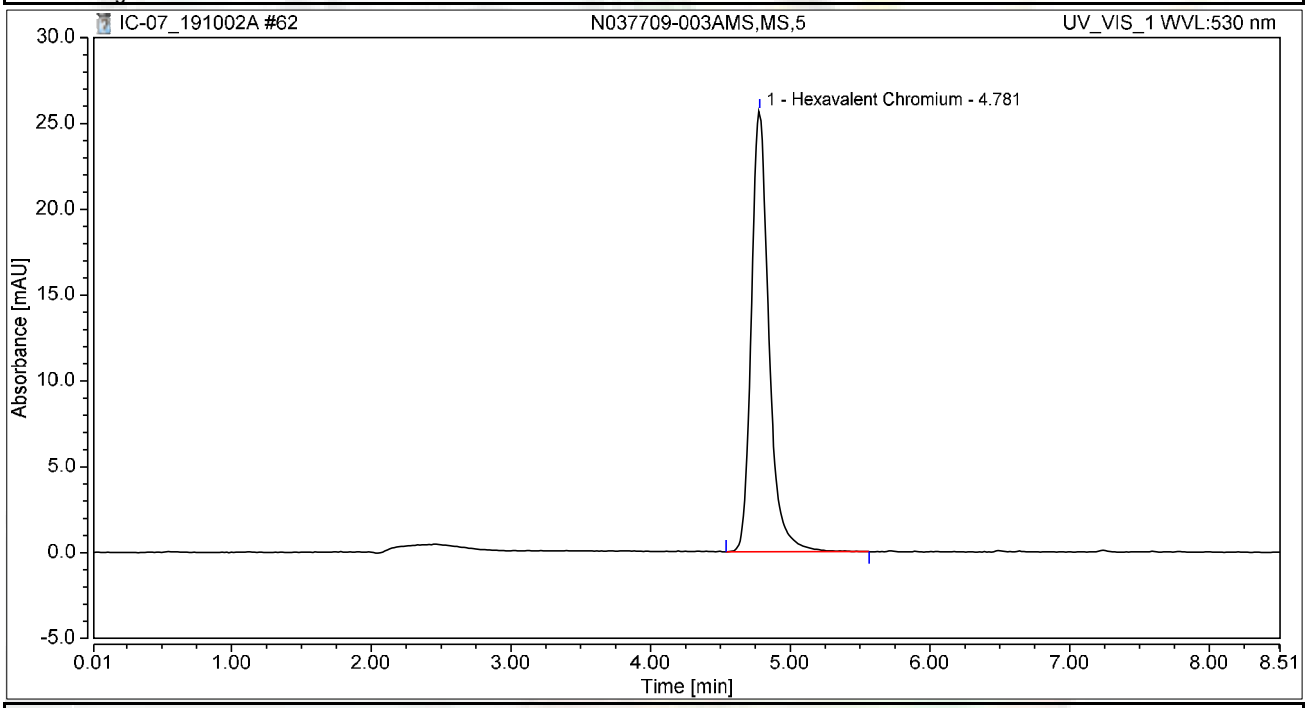
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	2.403	16.702	100.00	100.00	8.8486
Total:			**2.403**	**16.702**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

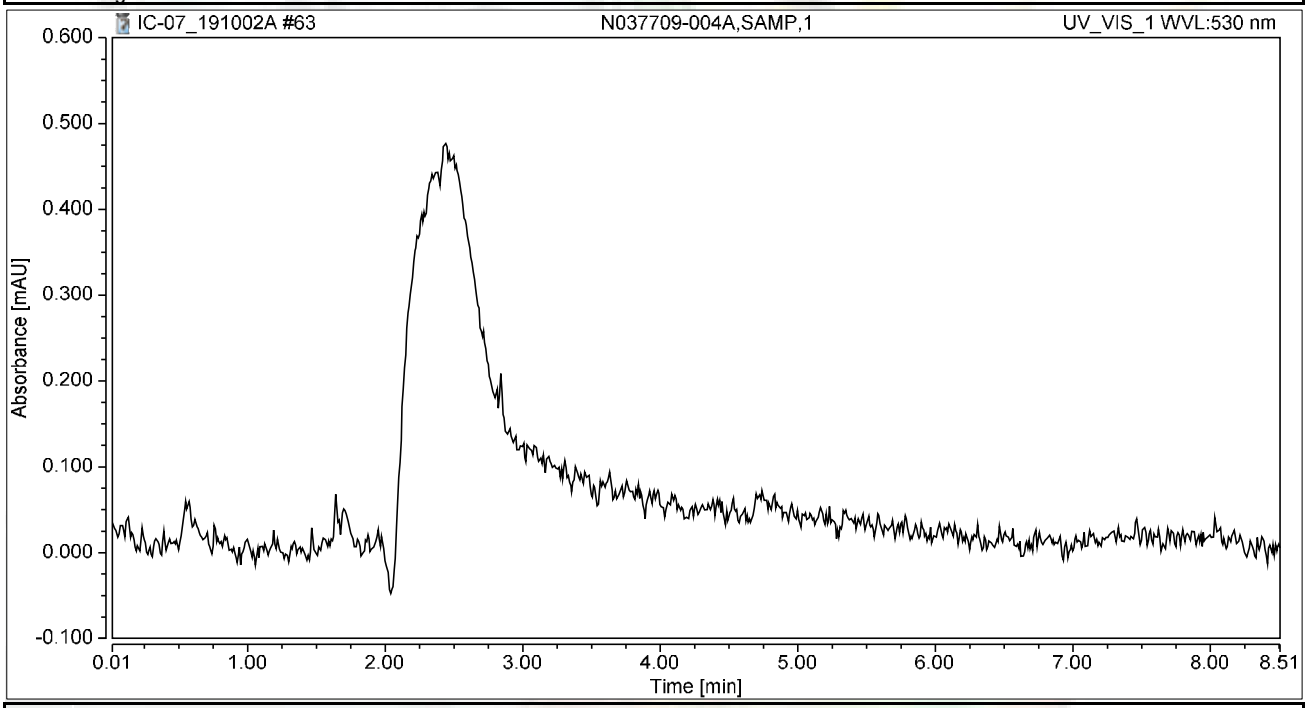
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.781	3.746	25.678	100.00	100.00	13.7899
Total:			**3.746**	**25.678**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

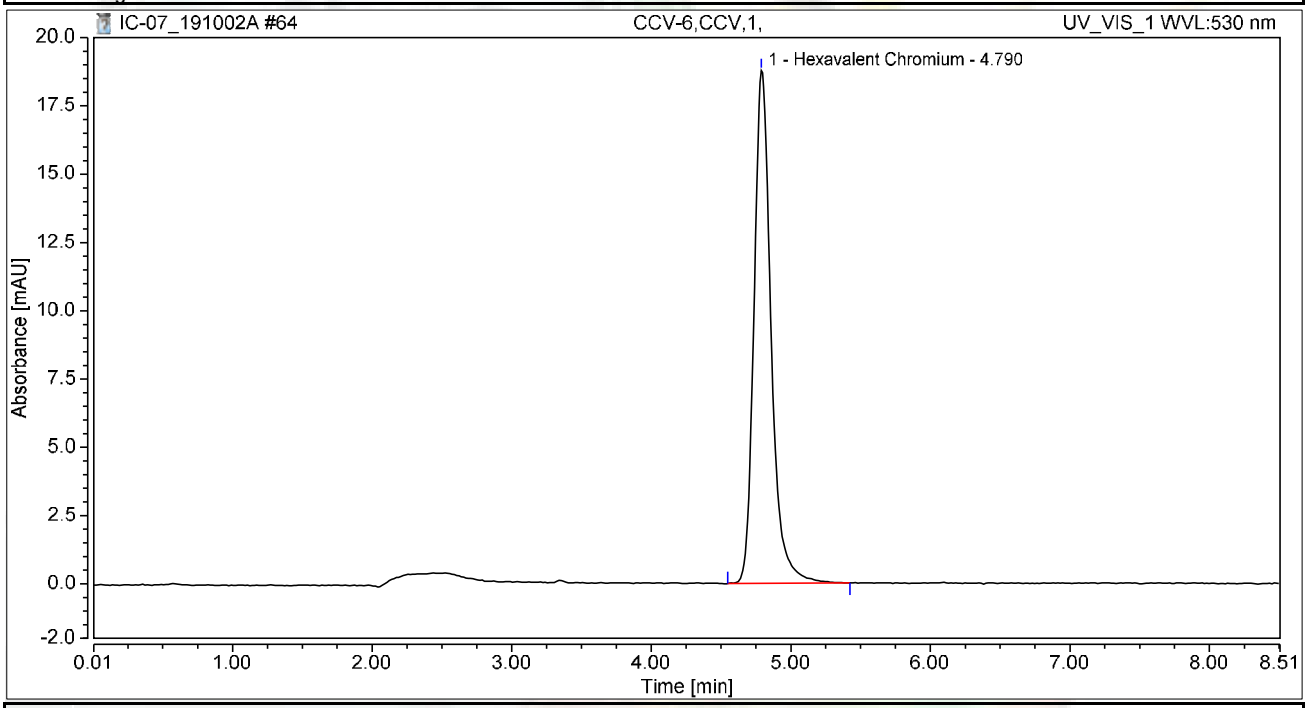
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

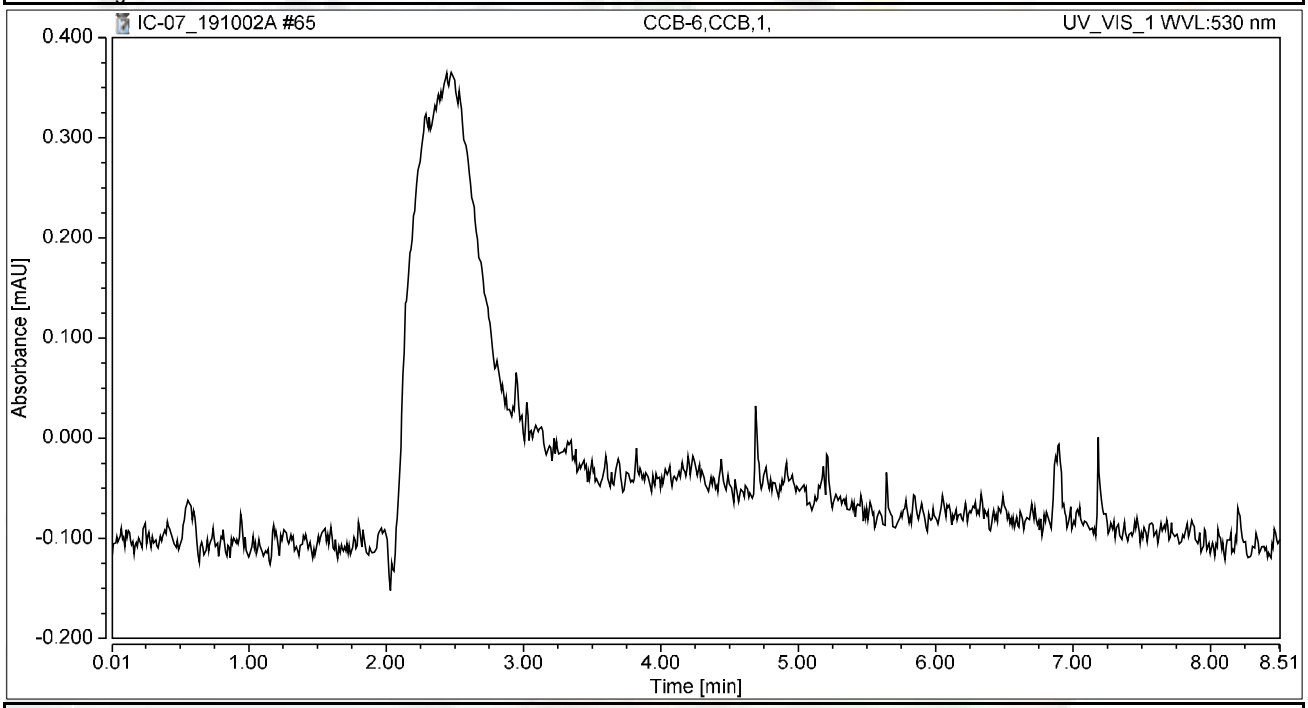
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	2.678	18.776	100.00	100.00	9.8588
Total:			**2.678**	**18.776**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

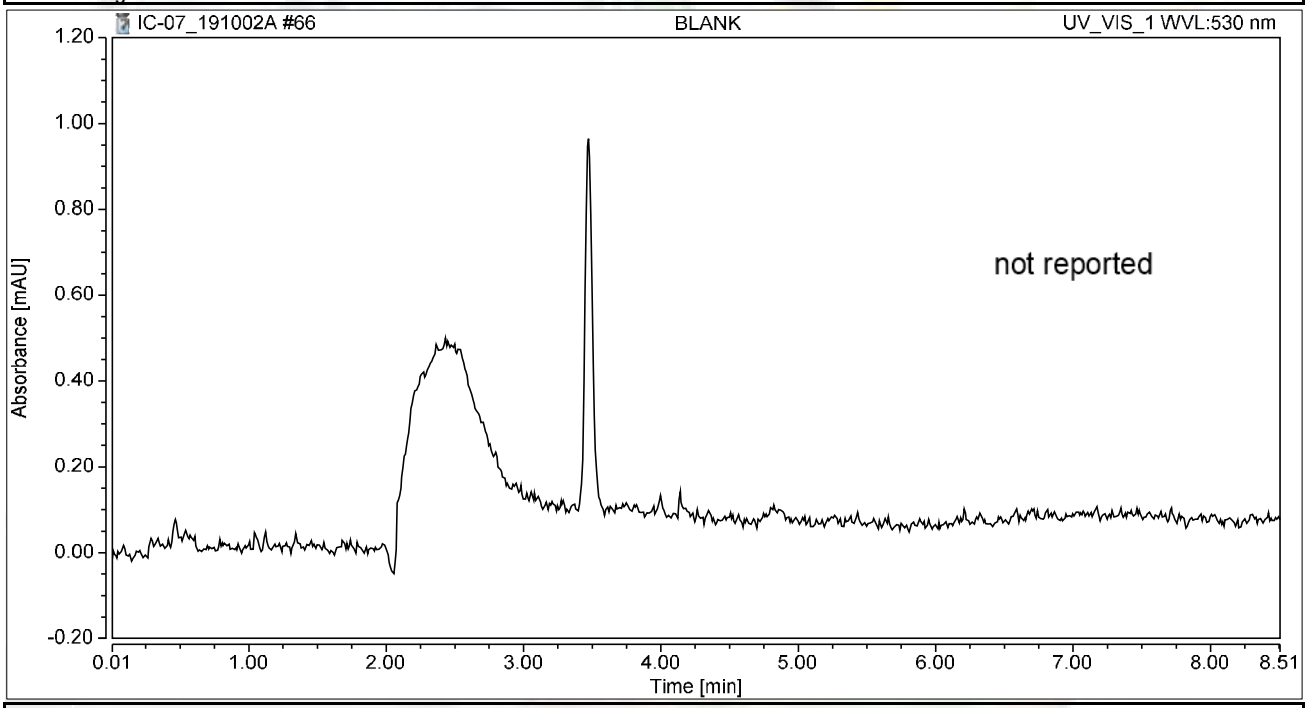
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320 B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136725 **Analyst:** LSR

ASSET #: N037709 **Date Analyzed:** 1-Oct

Method: EPA 2320

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 10/3/2019

2nd Level Reviewer: Mary 10/16/2019 Date: —

SAMPLE CALCULATION

Sample ID: **N037709-001D @ pH 7.70**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.525 mL)

= **0.02169 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (6.05) (0.02169 N) (1) * 1000

= 131.2245 mg**/L**

Reporting results in two significant figures,

=**130 as CaCO3**

Julia Ramit 10/3/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02169 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (6.05 mL) (0.02169) (1) * 1000

= 131.2245 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ =131.2245 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **130 mg/L**

Sirisha Ramit 10/3/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.64	50	0.00	0.050	MBLK
LCS-1	8.85	50	0.10	4.70	LCS
N037709-001D	7.70	50	0.00	6.05	SAMP
N037709-002D	7.64	50	0.00	5.40	SAMP
N037709-003D	7.58	50	0.00	4.30	SAMP
N037709-001DDUP	7.68	50	0.00	6.05	DUP
N037709-003DMS	8.03	50	0.00	8.75	MS
N037709-003DMSD	8.05	50	0.00	8.80	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.525**	ml
N H2SO4	**0.02169**	Normal
Date Analyzed:	**10/1/19**	
Time:	**3:30 PM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190930B**	

Julia Ramit 10/3/2019

Date Analyzed:	10/1/19		Reagents:					Standardization:					P = 0
Time Started:	3:30 PM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.525	mL		P = 1/2 T
				Sulfuric Acid:		R190930B							P > 1/2 T
									N H2SO4	0.02169	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.64				0.02169	0.00	0.05	0.05	1	0.00	1.08	
LCS-1	50	8.85				0.02169	0.10	4.60	4.70	1	2.17	101.95	
N037709-001D	50	7.7				0.02169	0.00	6.05	6.05	1	0.00	131.24	
N037709-002D	50	7.64				0.02169	0.00	5.40	5.40	1	0.00	117.14	
N037709-003D	50	7.58				0.02169	0.00	4.30	4.30	1	0.00	93.28	
N037709-001DDU	50	7.68				0.02169	0.00	6.05	6.05	1	0.00	131.24	
N037709-003DMS	50	8.03				0.02169	0.00	8.75	8.75	1	0.00	189.80	
N037709-003DMS	50	8.05				0.02169	0.00	8.80	8.80	1	0.00	190.89	

Julia Ramit 10/3/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	10/1/19
Time:	3:30 PM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.08	1.08	1.08		P = 0
LCS-1	0.00	4.34	97.61	101.95	101.95		P < 1/2 T
N037709-001D	0.00	0.00	131.24	131.24	131.24		P = 0
N037709-002D	0.00	0.00	117.14	117.14	117.14		P = 0
N037709-003D	0.00	0.00	93.28	93.28	93.28		P = 0
N037709-001DDUP	0.00	0.00	131.24	131.24	131.24		P = 0
N037709-003DMS	0.00	0.00	189.80	189.80	189.80		P = 0
N037709-003DMSD	0.00	0.00	190.89	190.89	190.89		P = 0

Silvia Ramit 10/3/2019

Alkalinity Preparation and Runlog

Matrix: H_2O

Date Extracted: 10/1/19
Time Extracted: 10/1/19
Extracted By: LSR

Date Analyzed: 10/1/19
Time Analyzed: 1530
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV - 161205A
Hydrochloric Acid: -
Sulfuric Acid: R190930B
Sodium Bicarbonate: CINV - 180510A

pH meter Calibration:
SLOPE: 97.5%
pH 7 - 7.04 - CINV - 190724 H
4 - 4.02 - J
10 - 10.02 - CINV - 190801A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARD 12/19/19											
	#1	50 mL	10.66	1WST190930A	5mL	0.05N	-	-	11.50	50/50	N H_2SO_4 = (2.65g/L)(5mL)	= 0.0217398
	#2	↓	10.74	↓	↓	↓		-	11.55	↓	(55) (V titrant)	= 0.0216450 21
1)	MBLK	50mL	5.64	-	-	-	0.02169	0	0.05	50/50		Ave 0.0216 92075
2)	LCS	↓	8.85	1WST190924A	1mL	0.05N	↓	0.10	4.70	↓		
3)	N03 7709-1D	↓	7.70	-	-	-	↓	0	6.05	↓		
4)	2D	↓	7.64	-	-	-	↓	0	5.40	↓		
5)	3D	↓	7.58	-	-	-	↓	0	4.30	↓		
6)	10DP	↓	7.68	-	-	-	↓	0	6.05	↓		
7)	3DMS	↓	8.03	1WST190924A	1mL	0.05N	↓	0	8.75	↓		
8)	3DMSD	↓	8.05	↓	↓	↓	↓	0	8.80	↓		
9)												
10)												
11)												
12)												
13)												
14)												
15)												
16)				$P = \frac{(V_{pH}\ 8.3)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$								
17)												
18)												
19)				$T = \frac{(V_{pH}\ 4.5)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$							Julia Ramit 10/3/2019	
20)												
	MS											
	MSD											
	LCS											

Logbook #8

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136772
ASSET #: N037709 / N037679

Instrument ID: IC-08
Analyst: HSG
Date Analyzed: 10/3/2019

Method:

[X] EPA 300.0
[ ] EPA 7199

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer HSG 10/16/2019 Date: —

2nd Level Reviewer [signature] 10/16/2019 Date: —

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136791
ASSET #: N037665 / N037709

Instrument ID: IC-08
Analyst: HSG
Date Analyzed: 10/4/2019

Method:

[X] EPA 300.0
[ ] EPA 7199

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer HSG 10/16/2019 Date: —

2nd Level Reviewer Nancy 10/16/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Bromide concentration, in mg/L, in the orignal sample as follows:

Bromide, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N037709-001D** concentration in mg/L is calculated as follows:

Bromide, mg/L = 0.4264 * 2

= 0.8528

Reporting result in two significant values,

Bromide, mg/L = 0.85

ANALYSIS RUN LOG

Sequence: IC-08_191001B
Operator: IC-05
Printed: 10/2/2019 1:13:34 AM

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 30
Created: 10/1/2019 10:29:50 AM by IC-05
Last Update: 10/1/2019 2:58:56 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190920	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190920	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190920	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190920	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190920	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190920	Finished
7	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
8	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
9	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
10	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
11	N037613-012A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
12	N037613-012A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
13	N037613-013A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
14	N037613-013A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
15	N037613-012AMS,MS,100	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
16	N037613-012AMSD,MSD,100	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
17	N037613-012AMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
18	N037613-012AMSD,MSD,1000	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
19	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
20	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
21	N037613-013ADUP,DUP,20	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
22	N037613-013ADUP,DUP,100	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
23	N037648-011A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
24	N037648-011A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
25	N037648-012A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
26	N037648-012A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
27	N037648-013A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
28	N037648-013A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
29	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished
30	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190920	Finished

Processed by:



Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 30
Created: 10/1/2019 10:29:50 AM by IC-05
Last Update: 10/1/2019 2:58:56 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	10/1/2019 10:33:40 AM	IBLANK
2	Std - 1	10/1/2019 10:49:28 AM	STD-LOW
3	Std - 2	10/1/2019 11:05:16 AM	STD
4	Std - 3	10/1/2019 11:21:04 AM	STD
5	Std - 4	10/1/2019 11:36:52 AM	STD
6	Std - 5	10/1/2019 11:52:39 AM	STD-HIGH
7	ICV,ICV,1	10/1/2019 12:14:13 PM	ICV
8	ICB,ICB,1	10/1/2019 12:30:01 PM	ICB
9	MB-H2O,MBLK,1	10/1/2019 12:45:49 PM	METHOD BLANK
10	LCS-H2O,LCS,1	10/1/2019 1:01:37 PM	LCS
11	N037613-012A,SAMP,100	10/1/2019 1:23:59 PM	BLANK
12	N037613-012A,SAMP,1000	10/1/2019 1:39:47 PM	SAMP
13	N037613-013A,SAMP,20	10/1/2019 1:55:35 PM	SAMP
14	N037613-013A,SAMP,100	10/1/2019 2:11:23 PM	SAMP
15	N037613-012AMS,MS,100	10/1/2019 2:27:11 PM	SAMP
16	N037613-012AMSD,MSD,100	10/1/2019 2:42:59 PM	SAMP
17	N037613-012AMS,MS,1000	10/1/2019 2:58:47 PM	SAMP
18	N037613-012AMSD,MSD,1000	10/1/2019 3:14:34 PM	SAMP
19	CCV-1,CCV,1	10/1/2019 3:30:22 PM	CCV
20	CCB-1,CCB,1	10/1/2019 3:46:10 PM	CCB
21	N037613-013ADUP,DUP,20	10/1/2019 4:01:58 PM	SAMP
22	N037613-013ADUP,DUP,100	10/1/2019 4:17:46 PM	SAMP
23	N037648-011A,SAMP,50	10/1/2019 4:33:34 PM	SAMP
24	N037648-011A,SAMP,1000	10/1/2019 4:49:21 PM	SAMP
25	N037648-012A,SAMP,50	10/1/2019 5:05:09 PM	SAMP
26	N037648-012A,SAMP,1000	10/1/2019 5:20:57 PM	SAMP
27	N037648-013A,SAMP,50	10/1/2019 5:36:45 PM	SAMP
28	N037648-013A,SAMP,1000	10/1/2019 5:52:33 PM	SAMP
29	CCV-2,CCV,1	10/1/2019 6:08:21 PM	CCV
30	CCB-2,CCB,1	10/1/2019 6:24:09 PM	CCB



Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 10/3/2019 8:04:48 AM by IC-05
Last Update: 10/3/2019 4:15:12 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
7	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
8	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
9	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
12	N037679-001A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
13	N037679-002A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
14	N037679-003A,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
15	N037679-004A,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
16	N037679-005A,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
17	N037679-006A,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
18	N037679-007A,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
19	N037709-001D,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
20	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
21	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
22	N037709-002D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
23	N037709-003D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
24	N037679-001AMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
25	N037679-001AMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
26	N037679-003A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
27	N037679-003ADUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
28	N037679-001A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
29	N037679-001A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
30	N037679-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
31	N037679-002A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
32	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
33	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
34	N037679-004A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
35	N037679-004A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
36	N037679-005A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
37	N037679-005A,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
38	N037679-006A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
39	N037679-006A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
40	N037679-007A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
41	N037679-007A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished

Processed by:

10/4/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 10/3/2019 8:04:48 AM by IC-05
Last Update: 10/3/2019 4:15:12 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	10/1/2019 10:33:40 AM	IBLANK
2	Std - 1	10/1/2019 10:49:28 AM	STD-LOW
3	Std - 2	10/1/2019 11:05:16 AM	STD
4	Std - 3	10/1/2019 11:21:04 AM	STD
5	Std - 4	10/1/2019 11:36:52 AM	STD
6	Std - 5	10/1/2019 11:52:39 AM	STD-HIGH
7	BLANK	10/3/2019 8:05:15 AM	BLANK
8	CCV-1,CCV,1	10/3/2019 8:21:03 AM	CCV
9	CCB-1,CCB,1	10/3/2019 8:36:51 AM	CCB
10	MB-H2O,MBLK,1	10/3/2019 8:52:40 AM	METHOD BLANK
11	LCS-H2O,LCS,1	10/3/2019 9:08:28 AM	LCS
12	N037679-001A,SAMP,5	10/3/2019 9:34:45 AM	SAMP
13	N037679-002A,SAMP,5	10/3/2019 9:50:33 AM	SAMP
14	N037679-003A,SAMP,2	10/3/2019 10:06:21 AM	NOT REPORTED
15	N037679-004A,SAMP,10	10/3/2019 10:22:08 AM	SAMP
16	N037679-005A,SAMP,10	10/3/2019 10:37:56 AM	SAMP
17	N037679-006A,SAMP,2	10/3/2019 10:53:45 AM	SAMP
18	N037679-007A,SAMP,10	10/3/2019 11:09:33 AM	SAMP
19	N037709-001D,SAMP,2	10/3/2019 11:25:21 AM	SAMP
20	CCV-2,CCV,1	10/3/2019 11:41:08 AM	CCV
21	CCB-2,CCB,1	10/3/2019 11:56:57 AM	CCB
22	N037709-002D,SAMP,5	10/3/2019 12:12:44 PM	SAMP
23	N037709-003D,SAMP,5	10/3/2019 12:28:32 PM	SAMP
24	N037679-001AMS,MS,5	10/3/2019 12:44:20 PM	SAMP
25	N037679-001AMSD,MSD,5	10/3/2019 1:00:08 PM	SAMP
26	N037679-003A,SAMP,5	10/3/2019 1:15:56 PM	SAMP
27	N037679-003ADUP,DUP,5	10/3/2019 1:31:44 PM	SAMP
28	N037679-001A,SAMP,50	10/3/2019 1:47:33 PM	SAMP
29	N037679-001A,SAMP,500	10/3/2019 2:03:21 PM	SAMP
30	N037679-002A,SAMP,50	10/3/2019 2:19:09 PM	SAMP
31	N037679-002A,SAMP,1000	10/3/2019 2:34:56 PM	SAMP
32	CCV-3,CCV,1	10/3/2019 2:50:44 PM	CCV
33	CCB-3,CCB,1	10/3/2019 3:06:32 PM	CCB
34	N037679-004A,SAMP,100	10/3/2019 3:22:20 PM	SAMP
35	N037679-004A,SAMP,500	10/3/2019 3:38:08 PM	SAMP
36	N037679-005A,SAMP,50	10/3/2019 3:53:56 PM	SAMP
37	N037679-005A,SAMP,200	10/3/2019 4:09:44 PM	SAMP
38	N037679-006A,SAMP,100	10/3/2019 4:25:32 PM	SAMP
39	N037679-006A,SAMP,500	10/3/2019 4:41:20 PM	SAMP
40	N037679-007A,SAMP,50	10/3/2019 4:57:08 PM	SAMP
41	N037679-007A,SAMP,1000	10/3/2019 5:12:56 PM	SAMP

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 10/3/2019 8:04:48 AM by IC-05
Last Update: 10/3/2019 4:15:12 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N037679-003A,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
43	N037679-003A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
44	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
45	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
46	N037679-001AMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
47	N037679-001AMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
48	N037679-001AMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
49	N037679-001AMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
50	N037679-004ADUP,DUP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
51	N037679-004ADUP,DUP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
52	N037679-003A,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
53	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
54	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 10/3/2019 8:04:48 AM by IC-05
Last Update: 10/3/2019 4:15:12 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N037679-003A,SAMP,200	10/3/2019 5:28:44 PM	SAMP
43	N037679-003A,SAMP,2000	10/3/2019 5:44:32 PM	SAMP
44	CCV-4,CCV,1	10/3/2019 6:00:21 PM	CCV
45	CCB-4,CCB,1	10/3/2019 6:16:09 PM	CCB
46	N037679-001AMS,MS,50	10/3/2019 6:31:57 PM	SAMP
47	N037679-001AMSD,MSD,50	10/3/2019 6:47:45 PM	SAMP
48	N037679-001AMS,MS,500	10/3/2019 7:03:32 PM	SAMP
49	N037679-001AMSD,MSD,500	10/3/2019 7:19:20 PM	SAMP
50	N037679-004ADUP,DUP,100	10/3/2019 7:35:08 PM	SAMP
51	N037679-004ADUP,DUP,500	10/3/2019 7:50:56 PM	SAMP
52	N037679-003A,SAMP,5000	10/3/2019 8:06:44 PM	SAMP
53	CCV-5,CCV,1	10/3/2019 8:22:32 PM	CCV
54	CCB-5,CCB,1	10/3/2019 8:38:21 PM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 49
Created: 10/4/2019 8:14:48 AM by IC-05
(Modified, not saved)

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
7	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
8	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
9	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
12	N037665-001A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
13	N037665-001A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
14	N037665-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
15	N037665-002A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
16	N037665-003A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
17	N037665-003A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
18	N037665-004A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
19	N037665-004A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
20	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
21	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
22	N037665-001AMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
23	N037665-001AMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
24	N037665-001AMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
25	N037665-001AMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
26	N037665-002ADUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
27	N037665-002ADUP,DUP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
28	N037665-005A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
29	N037665-005A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
30	N037665-006A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
31	N037665-006A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
32	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
33	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
34	N037665-007A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
35	N037665-007A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
36	N037665-008A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
37	N037665-008A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
38	N037665-008AMS,MS,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
39	N037665-008AMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
40	N037709-001D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
41	N037709-001D,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished



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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
Created: 10/4/2019 8:14:48 AM by IC-05
#Samples: 49
(Modified, not saved)

No.	Name	Inj. Date/Time	Comment
1	Std - 0	10/1/2019 10:33:40 AM	IBLANK
2	Std - 1	10/1/2019 10:49:28 AM	STD-LOW
3	Std - 2	10/1/2019 11:05:16 AM	STD
4	Std - 3	10/1/2019 11:21:04 AM	STD
5	Std - 4	10/1/2019 11:36:52 AM	STD
6	Std - 5	10/1/2019 11:52:39 AM	STD-HIGH
7	BLANK	10/4/2019 8:25:31 AM	BLANK
8	CCV-1,CCV,1	10/4/2019 8:41:19 AM	CCV
9	CCB-1,CCB,1	10/4/2019 8:57:07 AM	CCB
10	MB-H2O,MBLK,1	10/4/2019 9:12:55 AM	METHOD BLANK
11	LCS-H2O,LCS,1	10/4/2019 9:28:43 AM	LCS
12	N037665-001A,SAMP,50	10/4/2019 10:05:23 AM	SAMP
13	N037665-001A,SAMP,500	10/4/2019 10:21:12 AM	SAMP
14	N037665-002A,SAMP,50	10/4/2019 10:37:00 AM	SAMP
15	N037665-002A,SAMP,500	10/4/2019 10:52:48 AM	SAMP
16	N037665-003A,SAMP,50	10/4/2019 11:08:37 AM	SAMP
17	N037665-003A,SAMP,100	10/4/2019 11:24:25 AM	SAMP
18	N037665-004A,SAMP,100	10/4/2019 11:40:13 AM	SAMP
19	N037665-004A,SAMP,1000	10/4/2019 11:56:00 AM	SAMP
20	CCV-2,CCV,1	10/4/2019 12:11:48 PM	CCV
21	CCB-2,CCB,1	10/4/2019 12:27:36 PM	CCB
22	N037665-001AMS,MS,50	10/4/2019 12:43:24 PM	SAMP
23	N037665-001AMSD,MSD,50	10/4/2019 12:59:12 PM	SAMP
24	N037665-001AMS,MS,500	10/4/2019 1:15:00 PM	SAMP
25	N037665-001AMSD,MSD,500	10/4/2019 1:30:48 PM	SAMP
26	N037665-002ADUP,DUP,50	10/4/2019 1:46:36 PM	SAMP
27	N037665-002ADUP,DUP,500	10/4/2019 2:02:24 PM	SAMP
28	N037665-005A,SAMP,100	10/4/2019 2:18:12 PM	SAMP
29	N037665-005A,SAMP,1000	10/4/2019 2:34:00 PM	SAMP
30	N037665-006A,SAMP,100	10/4/2019 2:49:47 PM	SAMP
31	N037665-006A,SAMP,1000	10/4/2019 3:05:35 PM	SAMP
32	CCV-3,CCV,1	10/4/2019 3:21:23 PM	CCV
33	CCB-3,CCB,1	10/4/2019 3:37:11 PM	CCB
34	N037665-007A,SAMP,20	10/4/2019 4:32:09 PM	SAMP
35	N037665-007A,SAMP,50	10/4/2019 4:47:57 PM	SAMP
36	N037665-008A,SAMP,100	10/4/2019 5:03:44 PM	SAMP
37	N037665-008A,SAMP,1000	10/4/2019 5:19:32 PM	SAMP
38	N037665-008AMS,MS,100	10/4/2019 5:35:20 PM	SAMP
39	N037665-008AMS,MS,1000	10/4/2019 5:51:09 PM	SAMP
40	N037709-001D,SAMP,50	10/4/2019 6:06:57 PM	SAMP
41	N037709-001D,SAMP,100	10/4/2019 6:22:44 PM	SAMP

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 49
Created: 10/4/2019 8:14:48 AM by IC-05
(Modified, not saved)

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N037709-002D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
43	N037709-002D,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
44	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
45	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
46	N037709-003D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
47	N037709-003D,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
48	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
49	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished



Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 49
Created: 10/4/2019 8:14:48 AM by IC-05
(Modified, not saved)

No.	Name	Inj. Date/Time	Comment
42	N037709-002D,SAMP,50	10/4/2019 6:38:32 PM	SAMP
43	N037709-002D,SAMP,200	10/4/2019 6:54:21 PM	SAMP
44	CCV-4,CCV,1	10/4/2019 7:10:09 PM	CCV
45	CCB-4,CCB,1	10/4/2019 7:25:57 PM	CCB
46	N037709-003D,SAMP,50	10/4/2019 7:41:45 PM	SAMP
47	N037709-003D,SAMP,200	10/4/2019 7:57:33 PM	SAMP
48	CCV-5,CCV,1	10/4/2019 8:13:21 PM	CCV
49	CCB-5,CCB,1	10/4/2019 8:29:09 PM	CCB



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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/1/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0762	0.1545	0.3115	0.8013	1.6873	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/1/2019

Initial Calibration:

Bromide	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.05	0.25	0.5	1.25	2.5	R^2
Area,mAU*min	0.0000	0.0024	0.0162	0.0332	0.0813	0.1662	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914D

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/1/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0560	0.2347	0.4691	1.1936	2.4902	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136772**
Client ID: **ICV**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3526343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.240	0.50	1.250	0	99.2	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136772**
Client ID: **CCV**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.276	0.50	1.250	0	102	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136772**
Client ID: **CCV**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.256	0.50	1.250	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136772**
Client ID: **CCV**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.275	0.50	1.250	0	102	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136772**
Client ID: **CCV**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.272	0.50	1.250	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136772**
Client ID: **CCV**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526369**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.238	0.50	1.250	0	99.0	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **ICV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3527504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.002	0.50	2.000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.989	0.50	2.000	0	99.4	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527514**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.992	0.50	2.000	0	99.6	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.986	0.50	2.000	0	99.3	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.995	0.50	2.000	0	99.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.027	0.50	2.000	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **ICV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3527534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.039	0.50	4.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.995	0.50	4.000	0	99.9	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.992	0.50	4.000	0	99.8	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.974	0.50	4.000	0	99.3	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.995	0.50	4.000	0	99.9	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_SO4P** Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCV**	Batch ID: **R136791**	TestNo: **EPA 300.0**	Analysis Date: **10/4/2019**	SeqNo: **3527562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.023	0.50	4.000	0	101	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICB	**ICB**	**300_W_BRP**	**mg/L**		**136772**
Client ID: **ICB**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3526344**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-1	**CCB**	**300_W_BRP**	**mg/L**		**136772**
Client ID: **CCB**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526346**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-2	**CCB**	**300_W_BRP**	**mg/L**		**136772**
Client ID: **CCB**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526358**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-3	**CCB**	**300_W_BRP**	**mg/L**		**136772**
Client ID: **CCB**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526366**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-4	**CCB**	**300_W_BRP**	**mg/L**		**136772**
Client ID: **CCB**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**	SeqNo: **3526368**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:			RunNo: **136772**				
Client ID: **CCB**	Batch ID: **R136772**	TestNo: **EPA 300.0**		Analysis Date: **10/3/2019**			SeqNo: **3526370**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **ICB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3527505**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527507**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527515**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527522**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527530**

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

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527533**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **ICB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3527535**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527537**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527545**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527552**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**		Analysis Date: **10/4/2019**	SeqNo: **3527560**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_SO4P** Units: **mg/L**	Prep Date:	RunNo: **136791**
Client ID: **CCB**	Batch ID: **R136791**	TestNo: **EPA 300.0**	Analysis Date: **10/4/2019**	SeqNo: **3527563**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/3/2019

Sample Name		Retention Time	Evaluation
ICV	Bromide	6.710	
CCV-1	Bromide	6.703	
CCV-2	Bromide	6.687	
CCV-3	Bromide	6.693	
CCV-4	Bromide	6.684	
CCV-5	Bromide	6.694	
	Average	6.692	
	Applied RT Window	6.492 - 6.892	
MB-R136772_BR	Bromide	N.A.	N.A.
LCS-R136772_BR	Bromide	6.687	PASS
N037709-001D	Bromide	6.687	PASS
N037709-002D	Bromide	6.690	PASS
N037709-003D	Bromide	6.693	PASS
N037679-001AMS	Bromide	6.690	PASS
N037679-001AMSD	Bromide	6.694	PASS
N037679-003ADUP	Bromide	6.710	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/4/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.583	
CCV-1	Chloride	4.570	
CCV-2	Chloride	4.567	
CCV-3	Chloride	4.567	
CCV-4	Chloride	4.567	
CCV-5	Chloride	4.573	

Average 4.569

Applied RT Window 4.369 - 4.769

MB-R136791_CL	Chloride	N.A.	N.A.
LCS-R136791_CL	Chloride	4.564	PASS
N037665-001AMS	Chloride	4.570	PASS
N037665-001AMSD	Chloride	4.570	PASS
N037665-002ADUP	Chloride	4.567	PASS
N037665-008AMS	Chloride	4.570	PASS
N037709-001D	Chloride	4.567	PASS
N037709-002D	Chloride	4.567	PASS
N037709-003D	Chloride	4.570	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/4/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	11.583	
CCV-1	Sulfate	11.510	
CCV-2	Sulfate	11.510	
CCV-3	Sulfate	11.497	
CCV-4	Sulfate	11.483	
CCV-5	Sulfate	11.480	
	Average	11.496	
	Applied RT Window	11.296 - 11.696	
MB-R136791_SO4	Sulfate	11.590	PASS
LCS-R136791_SO4	Sulfate	11.507	PASS
N037665-001AMS	Sulfate	11.507	PASS
N037665-001AMSD	Sulfate	11.504	PASS
N037665-002ADUP	Sulfate	11.503	PASS
N037665-008AMS	Sulfate	11.497	PASS
N037709-001D	Sulfate	11.494	PASS
N037709-002D	Sulfate	11.487	PASS
N037709-003D	Sulfate	11.487	PASS

MDL STUDY

METHOD DETECTION LIMIT 2019

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 1/7/2019 ; 1/9/2019 ; 5/6/2019
Analyst/Technician: Ria Abes / Hanah Glodoviza

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

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	190107A D51	190107A D52	190107A D53	190109A D79	190109A D80	190506A D16	190506A D17					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.034	0.039	0.039	0.038	0.038	0.043	0.043	0.020	0.0031	**0.0096**	0.020	0.10
Chloride	0.201	0.201	0.200	0.200	0.202	0.178	0.179	0.050	0.0111	**0.0348**	0.080	0.50
Nitrite	0.033	0.032	0.032	0.035	0.035	0.031	0.031	0.020	0.0016	**0.0050**	0.010	0.05
Bromide	0.040	0.043	0.044	0.043	0.043	0.025	0.022	0.040	0.0095	**0.0300**	0.060	0.50
Nitrate	0.037	0.035	0.035	0.037	0.042	0.040	0.040	0.020	0.0028	**0.0087**	0.020	0.05
Phosphate	0.067	0.069	0.061	0.066	0.069	0.080	0.097	0.040	0.0120	**0.0378**	0.080	0.10
Sulfate	0.294	0.291	0.289	0.325	0.305	0.309	0.306	0.100	0.0127	**0.0399**	0.080	0.50

Note: All 7 Method Blanks analyzed together with the MDL samples have 0 ug/L concentrations

MDL/LOD & PQL Verification 2019 (1st Quarter)

Method Name: **Inorganic Anions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/8/2019
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD actual Conc., mg/L	PQL Spike Conc., mg/L	PQL actual Conc., mg/L	%Recovery
Fluoride	**0.0096**	0.02	0.038	0.100	0.114	**114**
Chloride	**0.0348**	0.08	0.207	0.500	0.550	**110**
Nitrite	**0.0050**	0.01	0.023	0.050	0.057	**114**
Bromide	**0.0300**	0.06	0.048	0.500	0.503	**101**
Nitrate	**0.0087**	0.02	0.032	0.050	0.064	**129**
Phosphate	**0.0378**	0.08	0.139	0.100	0.141	**141**
Sulfate	**0.0399**	0.08	0.291	0.500	0.661	**132**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136983 **Analyst:** MBC

ASSET #: N037723, 679, 709, 722, 723, 736 **Date Analyzed:** 10/12/2019

Method: 4500_N03

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer MBC Date: 10/16/2019

2nd Level Reviewer NS 10/16/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037709-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.569	*	20
	=	11.38	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 11 mg/L

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

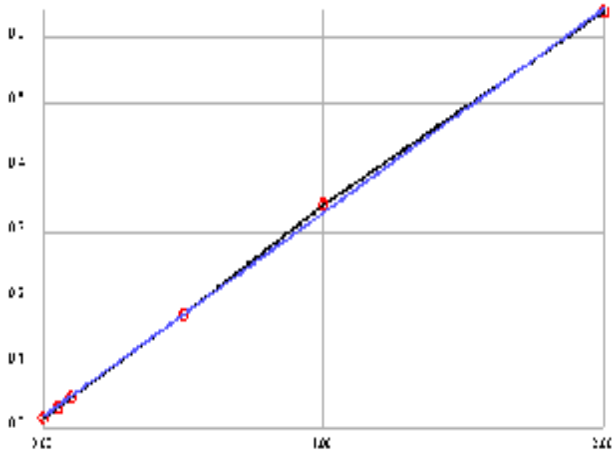
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3134x + 0.0176
Correlation	.999759

Calibrant	Energy	Set	Conc
1	0.0159	0.0000	-0.0053
2	0.0305	0.0500	0.0413
3	0.0478	0.1000	0.0965
4	0.1746	0.5000	0.5010
5	0.3413	1.0000	1.0329
6	0.6393	2.0000	1.9837

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **ICV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.517	0.050	0.5000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.507	0.050	0.5000	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.491	0.050	0.5000	0	98.1	90	110				

Qualifiers:

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **ICB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536756**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536814**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536825**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536834**

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

Qualifiers:

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

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-12-2019 13:59
Time end: 10-12-2019 16:50

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:10:48	-0.0047		0.0161
2	<BLANK>	16:11:48	-0.0025		0.0168
3	<CAL1>	16:12:43	-0.0053	[0]	0.0159
4	<CAL2>	16:13:39	0.0413	[0.05]	0.0305
5	<CAL3>	16:14:39	0.0965	[0.1]	0.0478
6	<CAL4>	16:15:34	0.5010	[0.5]	0.1746
7	<CAL5>	16:16:30	1.0329	[1]	0.3413
8	<CAL6>	16:17:25	1.9837	[2]	0.6393
9	,BLANK,BLANK,1, NOT REPORTED	16:18:26	0.0374		0.0293
10	,ICV,ICV,1,	16:19:21	0.5173		0.1797
11	,ICB,ICB,1,	16:20:17	0.0084		0.0202
12	,MB-H2O,MBLK,1,	16:21:17	-0.0037		0.0164
13	,LCS-H2O,LCS,1,	16:22:13	0.4959		0.1730
14	,N037723-001C,SAMP,1,	16:23:08	0.0387		0.0297
15	,N037723-001CDUP,DUP,1,	16:24:04	0.0301		0.0270
16	,N037679-006B,SAMP,20,	16:25:04	0.7623		0.2565
17	,N037679-004BMS,MS,20,	16:26:00	1.2907		0.4221
18	,N037679-004BMSD,MSD,20,	16:26:55	1.3401		0.4376
19	,N037679-005B,SAMP,10,	16:27:55	1.0581		0.3492
20	,N037679-007B,SAMP,20,	16:28:51	0.5116		0.1779
21	,BLANK, NOT REPORTED	16:29:47	0.0090		0.0204
22	,CCV-1,CCV,1,	16:30:42	0.5052		0.1759
23	,CCB-1,CCB,1,	16:31:43	0.0074		0.0199
24	,N037709-001C,SAMP,20,	16:32:38	0.5690		0.1959
25	,N037709-002C,SAMP,20,	16:33:34	0.5543		0.1913
26	,N037709-003C,SAMP,10,	16:34:34	0.5246		0.1820

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N037718-001D,SAMP,5,	16:35:18	0.8115		0.2719
28	,N037718-002D,SAMP,5,	16:36:07	0.6137		0.2099
29	,N037722-001E,SAMP,5,	16:36:49	0.5358		0.1855
30	,N037722-002E,SAMP,5,	16:37:33	0.6720		0.2282
31	,N037723-002C,SAMP,1,	16:38:21	1.0524		0.3474
32	,N037723-003C,SAMP,1,	16:39:04	0.0310		0.0273
33	,BLANK, NOT REPORTED	16:39:46	0.0030		0.0185
34	,CCV-2,CCV,1,	16:40:36	0.5071		0.1765
35	,CCB-2,CCB,1,	16:41:19	0.0030		0.0185
36	,N037723-004C,SAMP,5,	16:42:01	0.9445		0.3136
37	,N037736-001E,SAMP,5,	16:42:45	0.5361		0.1856
38	,N037736-002E,SAMP,5,	16:43:33	0.5939		0.2037
39	,N037736-003E,SAMP,5,	16:44:16	0.5731		0.1972
40	,N037736-004E,SAMP,5,	16:44:58	0.5722		0.1969
41	,N037736-005E,SAMP,5,	16:45:48	0.5929		0.2034
42	,N037736-006E,SAMP,5,	16:46:30	0.6529		0.2222
43	,BLANK, NOT REPORTED	16:47:13	0.0052		0.0192
44	,CCV-3,CCV,1,	16:47:57	0.4905		0.1713
45	,CCB-3,CCB,1,	16:48:45	0.0049		0.0191

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/12/2019
Time Analyzed: 1:59 PM ; 4:50 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R191012A
Color reagent: R191012B
2% Copper Sulfate: R191004A
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037723-001C		7.96							
N037679-006B		7.99							
N037679-005B		7.98							
N037679-007B		8.46							
N037709-001C		7.81							
N037709-002C		8.39							
N037709-003C		7.98							
N037718-001D		8.29							
N037718-002D		8.71							
N037722-001E		8.04							
N037722-002E		7.91							
N037723-002C		6.62							
N037723-003C		6.77							
N037723-004C		6.93							
N037736-001E		7.98							
N037736-002E		8.45							
N037736-003E		8.03							
N037736-004E		8.05							
N037736-005E		7.70							
N037736-006E		8.06							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75609
ASSET #: N037709
Instrument ID: ICP-02
Analyst: DBJ
Date Analyzed: 10/14/2019

Method:

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

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

Comments:

~~K and~~ Na run
% Rec of Na in N037709-002B-PS/MS/MSD failed, high bias. However, LCS passed criteria.
~~% Rec of K in N037709-002B-PS failed, low bias. However, LCS passed criteria.~~

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

1st Level Reviewer DBJ Date: 10/16/2019

2nd Level Reviewer NS 10/16/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75609
ASSET #: N037709
Instrument ID: ICP-02
Analyst: DBJ
Date Analyzed: 10/14/2019

Method:

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

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

Comments:

% Rec of Ca in N037709-001B-MS failed, low bias. However, LCS passed criteria.
% Rec of Ca in N037709-001B-MSD failed, high bias. However, LCS passed criteria.

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

1st Level Reviewer DBJ Date: 10/16/2019

2nd Level Reviewer NS 10/16/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

where:

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

For Sample **N037709-001B** , the concentration ir ug/L is calculated as follows:

Boron , ug/L = 0.72032 * 1 *(25/25) * 1000

Boron , ug/L = 720.32

Reporting results in two significant figures,

Boron , ug/L = 720

% RSD SUMMARY

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	K	0	2.11	15	PASS
Standard1	ICAL	1	K	0.1	6.76	15	PASS
Standard2	ICAL	1	K	1	1.14	15	PASS
Standard3	ICAL	1	K	5	0.17	15	PASS
Standard4	ICAL	1	K	10	0.15	15	PASS
Standard5	ICAL	1	K	20	1.52	15	PASS
Standard6	ICAL	1	K	40	0.19	15	PASS
ICV	ICV	1	K	9.75	0.11	15	PASS
ICB	ICB	1	K	0.01	334.23	15	<PQL
LLICV	CCV	1	K	0.12	7.27	20	PASS
LLICV	CCV	1	K	0.12	12.6	20	PASS
ICSA1	ICSA	1	K	0.02	59.82	15	<PQL
ICSAB1	ICSAB	1	K	9.9	0.11	15	PASS
MB-75609	MBLK	1	K	-0.01	101.55	15	<PQL
LCS2-75609	LCS	1	K	19.6	0.03	15	PASS
N037709-001B	SAMP	5	K	1.87	0.2	15	PASS
N037709-002B	SAMP	5	K	1.84	0.85	15	PASS
N037709-003B	SAMP	5	K	1.31	1.73	15	PASS
N037771-001D	SAMP	5	K	7.66	0.75	15	PASS
CCV1	CCV	1	K	10.2	0.08	15	PASS
CCB1	CCB	1	K	-0.01	108.5	15	<PQL
N037771-002D	SAMP	5	K	7.79	4.93	15	PASS
N037771-003D	SAMP	5	K	3.18	1.09	15	PASS
CCV2	CCV	1	K	10.14	0.11	15	PASS
CCB2	CCB	1	K	-0.02	50.12	15	<PQL
CCV3	CCV	1	K	10.02	0.25	15	PASS
CCB3	CCB	1	K	-0.01	106.49	15	<PQL
CCV4	CCV	1	K	9.93	0.1	15	PASS
CCB4	CCB	1	K	-0.01	52.29	15	<PQL
ICSA2	ICSA	1	K	-0.02	45.06	15	<PQL
ICSAB2	ICSAB	1	K	9.79	0.22	15	PASS
CCV5	CCV	1	K	9.94	0.03	15	PASS
CCB5	CCB	1	K	0	193.94	15	<PQL
N037709-001B	SAMP	25	K	0.35	3.46	15	PASS
N037709-002B	SAMP	25	K	0.36	3.97	15	PASS
N037709-002B	SAMP	125	K	0.08	6.71	15	PASS
N037709-002B-PS	PS	5	K	1.95	0.49	15	PASS
N037709-002B-PS	PS	25	K	0.36	4.44	15	PASS
N037709-002B-MS2	MS	5	K	6.26	0.43	15	PASS
N037709-002B-MS2	MS	25	K	1.21	1.06	15	PASS
N037709-002B-MSD2	MSD	5	K	6.52	0.13	15	PASS
N037709-002B-MSD2	MSD	25	K	1.6	1.07	15	PASS

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037709-003B	SAMP	25	K	0.24	4.21	15	PASS
CCV6	CCV	1	K	9.92	0.18	15	PASS
CCB6	CCB	1	K	0	373.04	15	<PQL
N037771-001D	SAMP	250	K	0.11	19.01	15	<PQL
N037771-002D	SAMP	250	K	0.11	9.15	15	PASS
N037771-003D	SAMP	50	K	0.26	3.51	15	PASS
CCV7	CCV	1	K	9.88	1.35	15	PASS
CCV7	CCV	1	K	9.86	0.16	15	PASS
CCB7	CCB	1	K	0	4351.36	15	<PQL
CCV8	CCV	1	K	10.05	0.28	15	PASS
CCB8	CCB	1	K	-0.06	41.85	15	<PQL
ICSA3	ICSA	1	K	-0.06	4.67	15	PASS
ICSAB3	ICSAB	1	K	9.94	0.17	15	PASS
CCV9	CCV	1	K	9.89	0.2	15	PASS
CCB9	CCB	1	K	-0.01	20.29	15	<PQL
CCV10	CCV	1	K	9.91	0.12	15	PASS
CCB10	CCB	1	K	-0.02	110.99	15	<PQL
CCV11	CCV	1	K	9.86	0.15	15	PASS
CCB11	CCB	1	K	-0.02	40.81	15	<PQL
ICSA4	ICSA	1	K	0.01	53.07	15	<PQL
ICSAB4	ICSAB	1	K	9.83	0.16	15	PASS
CalBlk	IBLK	1	Na	0	9.32	15	PASS
Standard1	ICAL	1	Na	0.1	2.14	15	PASS
Standard2	ICAL	1	Na	1	0.11	15	PASS
Standard3	ICAL	1	Na	5	0.07	15	PASS
Standard4	ICAL	1	Na	10	0.11	15	PASS
Standard5	ICAL	1	Na	20	1.64	15	PASS
Standard6	ICAL	1	Na	40	0.16	15	PASS
ICV	ICV	1	Na	10.23	0.07	15	PASS
ICB	ICB	1	Na	0	101.83	15	<PQL
LLICV	CCV	1	Na	0.13	1.88	20	PASS
LLICV	CCV	1	Na	0.11	1.65	20	PASS
ICSA1	ICSA	1	Na	0	110.19	15	<PQL
ICSAB1	ICSAB	1	Na	10.04	0.2	15	PASS
MB-75609	MBLK	1	Na	0.06	20.78	15	<PQL
LCS2-75609	LCS	1	Na	20.17	0.02	15	PASS
N037709-001B	SAMP	5	Na	81.58	0.57	15	PASS
N037709-002B	SAMP	5	Na	67.12	1.05	15	PASS
N037709-003B	SAMP	5	Na	48.54	0.74	15	PASS
N037771-001D	SAMP	5	Na	808.06	1.96	15	PASS
CCV1	CCV	1	Na	10.45	0.14	15	PASS
CCB1	CCB	1	Na	0.03	20.1	15	<PQL

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037771-002D	SAMP	5	Na	695.13	4.22	15	PASS
N037771-003D	SAMP	5	Na	248.76	1.39	15	PASS
CCV2	CCV	1	Na	10.53	0.28	15	PASS
CCB2	CCB	1	Na	0.03	4.69	15	PASS
CCV3	CCV	1	Na	10.26	0.1	15	PASS
CCB3	CCB	1	Na	0.04	16.83	15	<PQL
CCV4	CCV	1	Na	10.21	0.03	15	PASS
CCB4	CCB	1	Na	0.03	6.84	15	PASS
ICSA2	ICSA	1	Na	0.01	16.89	15	<PQL
ICSAB2	ICSAB	1	Na	9.99	0.04	15	PASS
CCV5	CCV	1	Na	10.23	0.05	15	PASS
CCB5	CCB	1	Na	0.03	13.5	15	PASS
N037709-001B	SAMP	25	Na	16.81	0.15	15	PASS
N037709-002B	SAMP	25	Na	13.28	0.07	15	PASS
N037709-002B	SAMP	125	Na	2.91	0.16	15	PASS
N037709-002B-PS	PS	5	Na	74.08	0.43	15	PASS
N037709-002B-PS	PS	25	Na	14.56	0.03	15	PASS
N037709-002B-MS2	MS	5	Na	79.04	0.75	15	PASS
N037709-002B-MS2	MS	25	Na	16.11	0.09	15	PASS
N037709-002B-MSD2	MSD	5	Na	80.75	0.97	15	PASS
N037709-002B-MSD2	MSD	25	Na	18.7	0.18	15	PASS
N037709-003B	SAMP	25	Na	9.46	0.11	15	PASS
CCV6	CCV	1	Na	10.2	0.06	15	PASS
CCB6	CCB	1	Na	0.03	10.43	15	PASS
N037771-001D	SAMP	250	Na	17.15	0.1	15	PASS
N037771-002D	SAMP	250	Na	12.46	0.16	15	PASS
N037771-003D	SAMP	50	Na	23.78	0.02	15	PASS
CCV7	CCV	1	Na	10.67	5.29	15	PASS
CCV7	CCV	1	Na	10.11	0.05	15	PASS
CCB7	CCB	1	Na	0.04	3.94	15	PASS
CCV8	CCV	1	Na	10.27	0.17	15	PASS
CCB8	CCB	1	Na	0.03	12.89	15	PASS
ICSA3	ICSA	1	Na	0.01	43.71	15	<PQL
ICSAB3	ICSAB	1	Na	10.13	0.14	15	PASS
CCV9	CCV	1	Na	10.16	0.06	15	PASS
CCB9	CCB	1	Na	0.02	12.92	15	PASS
CCV10	CCV	1	Na	10.19	0.03	15	PASS
CCB10	CCB	1	Na	0.03	8.84	15	PASS
CCV11	CCV	1	Na	10.18	0.05	15	PASS
CCB11	CCB	1	Na	0.02	15.54	15	<PQL
ICSA4	ICSA	1	Na	0.01	32.19	15	<PQL
ICSAB4	ICSAB	1	Na	10.1	0.1	15	PASS

RSD SUMMARY: 191014A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Al	0	0.93	15	PASS
Standard1	ICAL	1	Al	0.05	4.6	15	PASS
Standard2	ICAL	1	Al	1	0.07	15	PASS
Standard3	ICAL	1	Al	2	0.1	15	PASS
Standard4	ICAL	1	Al	5	0.2	15	PASS
Standard5	ICAL	1	Al	7.5	0.28	15	PASS
Standard6	ICAL	1	Al	10	0.54	15	PASS
Standard7	ICAL	1	Al	20	0.12	15	PASS
ICV	ICV	1	Al	10.23	0.23	15	PASS
ICB	ICB	1	Al	0	120.06	15	<PQL
LLICV	CCV1	1	Al	0.05	5.19	20	PASS
ICSA1	ICSA	1	Al	452.9	0.29	15	PASS
ICSAB1	ICSAB	1	Al	555.7	0.03	15	PASS
MB-75609	MBLK	1	Al	0	13.08	15	PASS
LCS1-75609	LCS	1	Al	10.15	0.41	15	PASS
CCV1	CCV	1	Al	10.32	0.53	15	PASS
CCB1	CCB	1	Al	0.01	53.27	15	<PQL
N037709-001B	SAMP	1	Al	0.02	14.81	15	PASS
N037709-001B	SAMP	5	Al	0.01	13.14	15	PASS
N037709-001B-PS	PS	1	Al	10.56	0.61	15	PASS
N037709-001B-MS1	MS	1	Al	10.75	0.34	15	PASS
N037709-001B-MSD1	MSD	1	Al	10.75	0.25	15	PASS
N037709-002B	SAMP	1	Al	0.03	12.88	15	PASS
N037709-003B	SAMP	1	Al	0.01	38.62	15	<PQL
N037771-002D	SAMP	1	Al	0.04	7.3	15	PASS
N037771-003D	SAMP	1	Al	0.02	14.44	15	PASS
CCV2	CCV	1	Al	10.28	0.24	15	PASS
CCB2	CCB	1	Al	0.01	65.92	15	<PQL
N037771-001D	SAMP	5	Al	0.01	41.91	15	<PQL
N037771-002D	SAMP	5	Al	0.01	30.34	15	<PQL
CCV3	CCV	1	Al	10.26	0.58	15	PASS
CCB3	CCB	1	Al	0.01	12.99	15	PASS
CCV4	CCV	1	Al	10.23	0.39	15	PASS
CCB4	CCB	1	Al	0.01	34.81	15	<PQL
ICSA2	ICSA	1	Al	468.08	0.04	15	PASS
ICSAB2	ICSAB	1	Al	534.64	0.66	15	PASS
CalBlk	IBLK	1	B	0	0.84	15	PASS
Standard1	ICAL	1	B	0.1	1.07	15	PASS
Standard3	ICAL	1	B	1	0.25	15	PASS
Standard4	ICAL	1	B	2.5	0.13	15	PASS
Standard5	ICAL	1	B	3.75	0.28	15	PASS
Standard6	ICAL	1	B	5	0.17	15	PASS

RSD SUMMARY: 191014A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
Standard7	ICAL	1	B	10	0.38	15	PASS
ICV	ICV	1	B	5.03	0.15	15	PASS
ICB	ICB	1	B	0.04	5.14	15	PASS
LLICV	CCV1	1	B	0.12	1	20	PASS
ICSA1	ICSA	1	B	0.03	4.18	15	PASS
ICSAB1	ICSAB	1	B	1.1	0.05	15	PASS
MB-75609	MBLK	1	B	0.01	5.66	15	PASS
LCS1-75609	LCS	1	B	4.94	0.32	15	PASS
CCV1	CCV	1	B	4.97	0.29	15	PASS
CCB1	CCB	1	B	0.02	6.3	15	PASS
N037709-001B	SAMP	1	B	0.72	0.15	15	PASS
N037709-001B	SAMP	5	B	0.14	0.22	15	PASS
N037709-001B-PS	PS	1	B	5.99	0.11	15	PASS
N037709-001B-MS1	MS	1	B	6.06	0.13	15	PASS
N037709-001B-MSD1	MSD	1	B	6.01	0.04	15	PASS
N037709-002B	SAMP	1	B	0.79	0.14	15	PASS
N037709-003B	SAMP	1	B	0.45	0.62	15	PASS
N037771-002D	SAMP	1	B	1.39	0.03	15	PASS
N037771-003D	SAMP	1	B	1.21	0.05	15	PASS
CCV2	CCV	1	B	5	0.13	15	PASS
CCB2	CCB	1	B	0.05	2.12	15	PASS
N037771-001D	SAMP	5	B	0.6	2.26	15	PASS
N037771-002D	SAMP	5	B	0.33	0.47	15	PASS
CCV3	CCV	1	B	4.88	0.15	15	PASS
CCB3	CCB	1	B	0	31.63	15	<PQL
CCV4	CCV	1	B	4.88	0.11	15	PASS
CCB4	CCB	1	B	0	402.33	15	<PQL
ICSA2	ICSA	1	B	0.01	7.15	15	PASS
ICSAB2	ICSAB	1	B	1.06	0.08	15	PASS
CalBlk	IBLK	1	Ca	0	6.72	15	PASS
Standard1	ICAL	1	Ca	0.2	14.44	15	PASS
Standard2	ICAL	1	Ca	1	3.43	15	PASS
Standard3	ICAL	1	Ca	2	0.49	15	PASS
Standard4	ICAL	1	Ca	5	0.68	15	PASS
Standard5	ICAL	1	Ca	7.5	0.39	15	PASS
Standard6	ICAL	1	Ca	10	0.41	15	PASS
Standard7	ICAL	1	Ca	20	0.47	15	PASS
ICV	ICV	1	Ca	10.02	0.35	15	PASS
ICB	ICB	1	Ca	-0.04	92.11	15	<PQL
LLICV	CCV1	1	Ca	0.16	4.38	20	PASS
ICSA1	ICSA	1	Ca	474.02	0.11	15	PASS
ICSAB1	ICSAB	1	Ca	557.89	0.08	15	PASS

RSD SUMMARY: 191014A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
MB-75609	MBLK	1	Ca	-0.03	42.85	15	<PQL
LCS1-75609	LCS	1	Ca	9.86	0.63	15	PASS
CCV1	CCV	1	Ca	10.1	0.89	15	PASS
CCB1	CCB	1	Ca	-0.07	36.04	15	<PQL
N037709-001B	SAMP	1	Ca	135.12	0.54	15	PASS
N037709-001B	SAMP	5	Ca	25.93	0.05	15	PASS
N037709-001B-PS	PS	1	Ca	144.35	0.74	15	PASS
N037709-001B-MS1	MS	1	Ca	141.3	0.34	15	PASS
N037709-001B-MSD1	MSD	1	Ca	147.94	0.17	15	PASS
N037709-002B	SAMP	1	Ca	144.51	1.05	15	PASS
N037709-003B	SAMP	1	Ca	145.92	0.34	15	PASS
N037771-002D	SAMP	1	Ca	658.45	0.16	15	PASS
N037771-003D	SAMP	1	Ca	293.49	0.48	15	PASS
CCV2	CCV	1	Ca	10.09	0.5	15	PASS
CCB2	CCB	1	Ca	-0.04	13.44	15	PASS
N037771-001D	SAMP	5	Ca	28.64	1.6	15	PASS
N037771-002D	SAMP	5	Ca	122.37	0.48	15	PASS
CCV3	CCV	1	Ca	10.06	1.18	15	PASS
CCB3	CCB	1	Ca	-0.11	16.39	15	<PQL
CCV4	CCV	1	Ca	10.06	0.28	15	PASS
CCB4	CCB	1	Ca	-0.09	28.22	15	<PQL
ICSA2	ICSA	1	Ca	478.81	0.09	15	PASS
ICSAB2	ICSAB	1	Ca	562.46	0.21	15	PASS
CalBlk	IBLK	1	Fe	0	22.16	15	<PQL
Standard1	ICAL	1	Fe	0.02	1.29	15	PASS
Standard2	ICAL	1	Fe	0.05	1.67	15	PASS
Standard3	ICAL	1	Fe	2	0.06	15	PASS
Standard4	ICAL	1	Fe	5	0.04	15	PASS
Standard5	ICAL	1	Fe	7.5	0.05	15	PASS
Standard6	ICAL	1	Fe	10	0.04	15	PASS
Standard7	ICAL	1	Fe	20	0.09	15	PASS
ICV	ICV	1	Fe	9.99	0.01	15	PASS
ICB	ICB	1	Fe	0	83.41	15	<PQL
LLICV	CCV1	1	Fe	0.02	1.43	20	PASS
ICSA1	ICSA	1	Fe	177.88	0.26	15	PASS
ICSAB1	ICSAB	1	Fe	188.09	0.28	15	PASS
MB-75609	MBLK	1	Fe	0	129.6	15	<PQL
LCS1-75609	LCS	1	Fe	0.1	0.83	15	PASS
CCV1	CCV	1	Fe	9.97	0.09	15	PASS
CCB1	CCB	1	Fe	0	10.58	15	PASS
N037709-001B	SAMP	1	Fe	0.01	12.32	15	PASS
N037709-001B	SAMP	5	Fe	0	56.57	15	<PQL

RSD SUMMARY: 191014A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037709-001B-PS	PS	1	Fe	0.1	0.52	15	PASS
N037709-001B-MS1	MS	1	Fe	0.1	0.31	15	PASS
N037709-001B-MSD1	MSD	1	Fe	0.1	0.32	15	PASS
N037709-002B	SAMP	1	Fe	0.04	3.49	15	PASS
N037709-003B	SAMP	1	Fe	0.01	7.32	15	PASS
N037771-002D	SAMP	1	Fe	0.05	0.94	15	PASS
N037771-003D	SAMP	1	Fe	0.54	0.47	15	PASS
CCV2	CCV	1	Fe	9.96	0.05	15	PASS
CCB2	CCB	1	Fe	0	3.1	15	PASS
N037771-001D	SAMP	5	Fe	0	15.43	15	<PQL
N037771-002D	SAMP	5	Fe	0.01	0.5	15	PASS
CCV3	CCV	1	Fe	9.84	0.04	15	PASS
CCB3	CCB	1	Fe	0	14.49	15	PASS
CCV4	CCV	1	Fe	9.81	0.14	15	PASS
CCB4	CCB	1	Fe	0	5.84	15	PASS
ICSA2	ICSA	1	Fe	173.1	0.28	15	PASS
ICSAB2	ICSAB	1	Fe	181.69	0.6	15	PASS
CalBlk	IBLK	1	Mg	0	2.1	15	PASS
Standard1	ICAL	1	Mg	0.1	0.46	15	PASS
Standard2	ICAL	1	Mg	1	0.33	15	PASS
Standard3	ICAL	1	Mg	2	0.28	15	PASS
Standard4	ICAL	1	Mg	5	0.03	15	PASS
Standard5	ICAL	1	Mg	7.5	0.13	15	PASS
Standard6	ICAL	1	Mg	10	0.04	15	PASS
Standard7	ICAL	1	Mg	20	0.08	15	PASS
ICV	ICV	1	Mg	9.96	0.07	15	PASS
ICB	ICB	1	Mg	0	30.7	15	<PQL
LLICV	CCV1	1	Mg	0.1	0.85	20	PASS
ICSA1	ICSA	1	Mg	435.57	0.28	15	PASS
ICSAB1	ICSAB	1	Mg	515.36	0.24	15	PASS
MB-75609	MBLK	1	Mg	0	7.12	15	PASS
LCS1-75609	LCS	1	Mg	9.77	0.05	15	PASS
CCV1	CCV	1	Mg	9.83	0.22	15	PASS
CCB1	CCB	1	Mg	0	21.07	15	<PQL
N037709-001B	SAMP	1	Mg	31.12	0.17	15	PASS
N037709-001B	SAMP	5	Mg	6.35	0.04	15	PASS
N037709-001B-PS	PS	1	Mg	42.79	0.23	15	PASS
N037709-001B-MS1	MS	1	Mg	42.15	0.19	15	PASS
N037709-001B-MSD1	MSD	1	Mg	43.21	0.13	15	PASS
N037709-002B	SAMP	1	Mg	20.63	0.16	15	PASS
N037709-003B	SAMP	1	Mg	22.95	0.2	15	PASS
N037771-002D	SAMP	1	Mg	37.81	0.08	15	PASS

RSD SUMMARY: 191014A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037771-003D	SAMP	1	Mg	32.26	0.1	15	PASS
CCV2	CCV	1	Mg	9.8	0.17	15	PASS
CCB2	CCB	1	Mg	0	17.47	15	<PQL
N037771-001D	SAMP	5	Mg	0.78	1.87	15	PASS
N037771-002D	SAMP	5	Mg	10.19	0.11	15	PASS
CCV3	CCV	1	Mg	9.62	0.13	15	PASS
CCB3	CCB	1	Mg	0	16.3	15	<PQL
CCV4	CCV	1	Mg	9.55	0.15	15	PASS
CCB4	CCB	1	Mg	-0.01	5.74	15	PASS
ICSA2	ICSA	1	Mg	416.63	0.21	15	PASS
ICSAB2	ICSAB	1	Mg	488.99	0.63	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191010A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820V,0.025<50mL
Standard2	MWST-190820V,0.25<50mL
Standard3	MWST-190820V,1.25<50mL
Standard4	MWST-190820V,2.5<50mL
Standard5	MWST-190820V,5<50mL
Standard6	MWST-190820V,10<50mL
ICV	MWST-190820W
CCV	MWST-190820V,2.5<50mL
ICSA/ICSAB	MWST-190820T/MWST-190820X
Int. Std. (Sc):	MSST-190708B
PS Spike	MSST-140120B/ -180608B/A

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	10/10/2019	09:38:33 AM
11	Standard1	ICAL	1	10/10/2019	09:41:43 AM
12	Standard2	ICAL	1	10/10/2019	09:44:54 AM
13	Standard3	ICAL	1	10/10/2019	09:48:36 AM
14	Standard4	ICAL	1	10/10/2019	09:52:21 AM
15	Standard5	ICAL	1	10/10/2019	09:56:06 AM
16	Standard6	ICAL	1	10/10/2019	10:00:04 AM
17	ICV	ICV	1	10/10/2019	10:03:13 AM
1	ICB	ICB	1	10/10/2019	10:07:03 AM
11	LLICV	CCV	1	10/10/2019	10:10:13 AM
11	LLICV	CCV	1	10/10/2019	10:14:41 AM
18	ICSA1	ICSA	1	10/10/2019	10:17:52 AM
19	ICSAB1	ICSAB	1	10/10/2019	10:21:05 AM
23	MB-75559	MBLK	1	10/10/2019	10:24:53 AM
24	LCS2-75559	LCS	1	10/10/2019	10:28:03 AM
26	N037722-001C	SAMP	5	10/10/2019	10:32:00 AM
27	N037722-002C	SAMP	5	10/10/2019	10:36:46 AM
28	MB-75609	MBLK	1	10/10/2019	10:41:31 AM
29	LCS2-75609	LCS	1	10/10/2019	10:44:43 AM
30	N037709-001B	SAMP	5	10/10/2019	10:48:43 AM
31	N037709-002B	SAMP	5	10/10/2019	10:52:28 AM
32	N037709-003B	SAMP	5	10/10/2019	10:56:12 AM
33	N037771-001D	SAMP	5	10/10/2019	10:59:55 AM
14	CCV1	CCV	1	10/10/2019	11:05:17 AM
1	CCB1	CCB	1	10/10/2019	11:09:07 AM
34	N037771-002D	SAMP	5	10/10/2019	11:12:19 AM
35	N037771-003D	SAMP	5	10/10/2019	11:17:12 AM
36	MB-75564	MBLK	1	10/10/2019	11:21:58 AM
37	LCS2-75564	LCS	1	10/10/2019	11:25:08 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
38	N037736-001C	SAMP	5	10/10/2019	11:29:05 AM
39	N037736-002C	SAMP	5	10/10/2019	11:33:51 AM
40	N037736-003C	SAMP	5	10/10/2019	11:38:37 AM
41	N037736-004C	SAMP	5	10/10/2019	11:43:24 AM
42	N037736-005C	SAMP	5	10/10/2019	11:48:13 AM
43	N037736-006C	SAMP	5	10/10/2019	11:53:00 AM
14	CCV2	CCV	1	10/10/2019	11:57:53 AM
1	CCB2	CCB	1	10/10/2019	12:01:43 PM
44	N037736-007C	SAMP	5	10/10/2019	12:04:55 PM
45	N037757-001B	SAMP	5	10/10/2019	12:09:40 PM
46	N037757-002B	SAMP	5	10/10/2019	12:13:29 PM
47	N037758-001C	SAMP	5	10/10/2019	12:18:18 PM
48	N037758-002C	SAMP	5	10/10/2019	12:23:04 PM
49	N037758-003C	SAMP	5	10/10/2019	12:27:50 PM
50	N037758-004B	SAMP	5	10/10/2019	12:32:36 PM
51	N037758-005C	SAMP	5	10/10/2019	12:37:23 PM
52	N037758-006C	SAMP	5	10/10/2019	12:42:11 PM
53	N037758-007B	SAMP	5	10/10/2019	12:46:59 PM
14	CCV3	CCV	1	10/10/2019	12:51:44 PM
1	CCB3	CCB	1	10/10/2019	12:55:34 PM
54	N037758-008C	SAMP	5	10/10/2019	12:58:46 PM
55	N037758-009C	SAMP	5	10/10/2019	01:03:34 PM
56	N037758-010C	SAMP	5	10/10/2019	01:08:21 PM
57	N037758-011B	SAMP	5	10/10/2019	01:13:10 PM
58	MB-75608	MBLK	1	10/10/2019	01:17:10 PM
59	LCS2-75608	LCS	1	10/10/2019	01:20:25 PM
60	N037772-002A	SAMP	5	10/10/2019	01:24:22 PM
61	MB-75596	MBLK	1	10/10/2019	01:27:34 PM
62	LCS2-75596	LCS	1	10/10/2019	01:30:46 PM
63	N037772-001A	SAMP	5	10/10/2019	01:34:33 PM
14	CCV4	CCV	1	10/10/2019	01:37:46 PM
1	CCB4	CCB	1	10/10/2019	01:41:35 PM
18	ICSA2	ICSA	1	10/10/2019	01:44:54 PM
19	ICSAB2	ICSAB	1	10/10/2019	01:48:08 PM
64	N037722-001C	SAMP	25	10/10/2019	01:51:59 PM
65	N037722-001C	SAMP	50	10/10/2019	01:55:42 PM
66	N037722-001C	SAMP	250	10/10/2019	01:58:54 PM
67	N037722-001C-PS	PS	5	10/10/2019	02:02:08 PM
68	N037722-001C-PS	PS	50	10/10/2019	02:06:55 PM
69	N037722-001C-MS2	MS	5	10/10/2019	02:10:09 PM
70	N037722-001C-MS2	MS	50	10/10/2019	02:14:58 PM
71	N037722-001C-MSD2	MSD	5	10/10/2019	02:18:42 PM
72	N037722-001C-MSD2	MSD	50	10/10/2019	02:23:29 PM
73	N037722-002C	SAMP	50	10/10/2019	02:26:42 PM
14	CCV5	CCV	1	10/10/2019	02:29:54 PM
1	CCB5	CCB	1	10/10/2019	02:33:43 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
74	N037709-001B	SAMP	25	10/10/2019	02:36:55 PM
75	N037709-002B	SAMP	25	10/10/2019	02:40:07 PM
76	N037709-002B	SAMP	125	10/10/2019	02:43:19 PM
77	N037709-002B-PS	PS	5	10/10/2019	02:46:47 PM
78	N037709-002B-PS	PS	25	10/10/2019	02:50:32 PM
79	N037709-002B-MS2	MS	5	10/10/2019	02:53:44 PM
80	N037709-002B-MS2	MS	25	10/10/2019	02:57:31 PM
81	N037709-002B-MSD2	MSD	5	10/10/2019	03:01:15 PM
82	N037709-002B-MSD2	MSD	25	10/10/2019	03:05:03 PM
83	N037709-003B	SAMP	25	10/10/2019	03:08:48 PM
14	CCV6	CCV	1	10/10/2019	03:12:00 PM
1	CCB6	CCB	1	10/10/2019	03:15:49 PM
84	N037771-001D	SAMP	250	10/10/2019	03:18:59 PM
85	N037771-002D	SAMP	250	10/10/2019	03:22:11 PM
86	N037771-003D	SAMP	50	10/10/2019	03:25:23 PM
87	N037736-001C	SAMP	50	10/10/2019	03:28:37 PM
88	N037736-002C	SAMP	25	10/10/2019	03:31:52 PM
89	N037736-002C	SAMP	50	10/10/2019	03:35:36 PM
90	N037736-002C	SAMP	250	10/10/2019	03:38:50 PM
91	N037736-002C-PS	PS	5	10/10/2019	03:42:04 PM
92	N037736-002C-PS	PS	50	10/10/2019	03:46:50 PM
93	N037736-002C-MS2	MS	5	10/10/2019	03:50:05 PM
14	CCV7	CCV	1	10/10/2019	03:54:58 PM
14	CCV7	CCV	1	10/10/2019	03:58:58 PM
1	CCB7	CCB	1	10/10/2019	04:02:47 PM
94	N037736-002C-MS2	MS	50	10/10/2019	04:05:58 PM
95	N037736-002C-MSD2	MSD	5	10/10/2019	04:09:43 PM
96	N037736-002C-MSD2	MSD	50	10/10/2019	04:14:34 PM
97	N037736-003C	SAMP	50	10/10/2019	04:17:47 PM
98	N037736-004C	SAMP	50	10/10/2019	04:21:00 PM
99	N037736-005C	SAMP	50	10/10/2019	04:24:12 PM
100	N037736-006C	SAMP	50	10/10/2019	04:27:25 PM
101	N037736-007C	SAMP	50	10/10/2019	04:30:39 PM
102	N037757-001B	SAMP	25	10/10/2019	04:33:51 PM
103	N037757-002B	SAMP	50	10/10/2019	04:37:04 PM
14	CCV8	CCV	1	10/10/2019	04:40:18 PM
1	CCB8	CCB	1	10/10/2019	04:44:03 PM
18	ICSA3	ICSA	1	10/10/2019	04:47:15 PM
19	ICSAB3	ICSAB	1	10/10/2019	04:50:33 PM
104	N037758-001C	SAMP	50	10/10/2019	04:54:19 PM
105	N037758-002C	SAMP	50	10/10/2019	04:57:32 PM
106	N037758-003C	SAMP	50	10/10/2019	05:00:46 PM
107	N037758-004B	SAMP	50	10/10/2019	05:04:00 PM
108	N037758-005C	SAMP	50	10/10/2019	05:07:12 PM
109	N037758-006C	SAMP	50	10/10/2019	05:10:25 PM
53	N037758-007B	SAMP	5	10/10/2019	05:13:37 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
110	N037758-007B	SAMP	50	10/10/2019	05:18:22 PM
111	N037758-008C	SAMP	50	10/10/2019	05:21:36 PM
112	N037758-009C	SAMP	50	10/10/2019	05:24:49 PM
14	CCV9	CCV	1	10/10/2019	05:28:02 PM
1	CCB9	CCB	1	10/10/2019	05:31:50 PM
113	N037758-010C	SAMP	50	10/10/2019	05:35:01 PM
114	N037758-010C-MS2	MS	5	10/10/2019	05:38:15 PM
115	N037758-010C-MS2	MS	50	10/10/2019	05:43:04 PM
116	N037758-011B	SAMP	50	10/10/2019	05:46:16 PM
117	N037772-002A	SAMP	1	10/10/2019	05:50:00 PM
118	N037772-002A-PS	PS	1	10/10/2019	05:53:14 PM
119	N037772-002A-MS2	MS	1	10/10/2019	05:56:27 PM
120	N037772-002A-MSD2	MSD	1	10/10/2019	06:00:26 PM
121	N037772-001A	SAMP	1	10/10/2019	06:04:26 PM
122	N037772-001A-PS	PS	1	10/10/2019	06:08:13 PM
14	CCV10	CCV	1	10/10/2019	06:12:14 PM
1	CCB10	CCB	1	10/10/2019	06:16:04 PM
123	N037772-001A-MS2	MS	1	10/10/2019	06:19:15 PM
124	N037772-001A-MSD2	MSD	1	10/10/2019	06:23:36 PM
70	N037722-001C-MS2	MS	50	10/10/2019	06:27:27 PM
70	N037722-001C-MS2	MS	50	10/10/2019	06:30:40 PM
14	CCV11	CCV	1	10/10/2019	06:33:55 PM
1	CCB11	CCB	1	10/10/2019	06:37:44 PM
18	ICSA4	ICSA	1	10/10/2019	06:40:55 PM
19	ICSAB4	ICSAB	1	10/10/2019	06:44:08 PM

INJECTION LOG: 191014A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820D,0.5<50mL
Standard2	MWST-190820I
Standard3	MWST-190820N,5<50mL
Standard4	MWST-190820N,12.5<50mL
Standard5	MWST-190820N,15<40mL
Standard6	MWST-190820N,25<50mL
Standard7	MWST-190820N
ICV	MWST-190820S
CCV	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190820T/U
Int. Std. (Y)	MSST-190708A
PS Spike	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	10/14/2019	08:47:25 AM
2	Standard1	ICAL	1	10/14/2019	08:51:37 AM
3	Standard2	ICAL	1	10/14/2019	08:55:51 AM
4	Standard3	ICAL	1	10/14/2019	09:00:04 AM
5	Standard4	ICAL	1	10/14/2019	09:04:18 AM
6	Standard5	ICAL	1	10/14/2019	09:09:54 AM
7	Standard6	ICAL	1	10/14/2019	09:15:29 AM
8	Standard7	ICAL	1	10/14/2019	09:21:06 AM
250	ICV	ICV	1	10/14/2019	09:23:58 AM
1	ICB	ICB	1	10/14/2019	09:29:36 AM
2	LLICV	CCV1	1	10/14/2019	09:36:06 AM
9	ICSA1	ICSA	1	10/14/2019	09:44:02 AM
10	ICSAB1	ICSAB	1	10/14/2019	09:49:51 AM
71	MB-75622	MBLK	1	10/14/2019	09:55:40 AM
72	LCS-75622	LCS	1	10/14/2019	09:59:53 AM
73	N037828-001A	SAMP	1	10/14/2019	10:05:26 AM
74	N037828-001A	SAMP	5	10/14/2019	10:09:39 AM
75	N037828-001A-PS	PS	1	10/14/2019	10:13:51 AM
76	N037828-001A-MS	MS	1	10/14/2019	10:19:24 AM
77	N037828-001A-MSD	MSD	1	10/14/2019	10:24:58 AM
78	N037828-002A	SAMP	1	10/14/2019	10:30:32 AM
79	MB-75609	MBLK	1	10/14/2019	10:34:46 AM
80	LCS1-75609	LCS	1	10/14/2019	10:39:00 AM
7	CCV1	CCV	1	10/14/2019	10:44:35 AM
1	CCB1	CCB	1	10/14/2019	10:50:12 AM
81	N037709-001B	SAMP	1	10/14/2019	10:54:24 AM
82	N037709-001B	SAMP	5	10/14/2019	10:59:59 AM
83	N037709-001B-PS	PS	1	10/14/2019	11:04:14 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
84	N037709-001B-MS1	MS	1	10/14/2019	11:09:47 AM
85	N037709-001B-MSD1	MSD	1	10/14/2019	11:15:23 AM
86	N037709-002B	SAMP	1	10/14/2019	11:20:57 AM
87	N037709-003B	SAMP	1	10/14/2019	11:26:31 AM
89	N037771-002D	SAMP	1	10/14/2019	11:36:16 AM
90	N037771-003D	SAMP	1	10/14/2019	11:41:51 AM
7	CCV2	CCV	1	10/14/2019	11:47:26 AM
1	CCB2	CCB	1	10/14/2019	11:53:02 AM
91	MB-75608	MBLK	1	10/14/2019	11:57:15 AM
92	LCS1-75608	LCS	1	10/14/2019	12:01:28 PM
94	N037771-001E	SAMP	5	10/14/2019	12:12:57 PM
98	N037771-002E	SAMP	1	10/14/2019	12:17:12 PM
99	N037771-003E	SAMP	1	10/14/2019	12:23:26 PM
100	N037771-001D	SAMP	5	10/14/2019	12:29:01 PM
101	N037771-002D	SAMP	5	10/14/2019	12:33:15 PM
102	N037771-001E	SAMP	25	10/14/2019	12:38:48 PM
103	N037771-001E-PS	PS	5	10/14/2019	12:43:03 PM
7	CCV3	CCV	1	10/14/2019	12:48:37 PM
1	CCB3	CCB	1	10/14/2019	12:54:14 PM
104	N037771-001E-MS1	MS	5	10/14/2019	12:58:25 PM
105	N037771-001E-MSD1	MSD	5	10/14/2019	01:04:01 PM
106	N037771-002E	SAMP	5	10/14/2019	01:09:37 PM
7	CCV4	CCV	1	10/14/2019	01:15:12 PM
1	CCB4	CCB	1	10/14/2019	01:20:48 PM
9	ICSA2	ICSA	1	10/14/2019	01:25:00 PM
10	ICSAB2	ICSAB	1	10/14/2019	01:30:47 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

DBJ

PREP BATCH REPORT

Prep Start Date: **10/9/2019 12:30:00**
Prep End Date: **10/9/2019 5:00:00 P**
Prep Batch **75609** Prep Code: **3010_W_DISS**

Reviewed/ Date: 10/9/2019
Initials/ Date: for CEI 10/9/2019
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.0**	**01-32**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-75609	Aqueous		25	☐	25	1.000		
LCS2-75609	Aqueous		25	☐	25	1.000		
MB-75609	Aqueous		25	☐	25	1.000		
N037709-001B	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-002B	Groundwater	<2	25	☐	25	1.000		
N037709-002B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-002B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-003B	Groundwater	<2	25	☐	25	1.000		
N037771-001D	Groundwater	<2	25	☐	25	1.000		
N037771-002D	Groundwater	<2	25	☐	25	1.000		
N037771-003D	Groundwater	<2	25	☐	25	1.000		

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

Number	Reagent Name
11433	NITIRC ACID
11439	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820AF	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820AG	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820AH	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191010A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	10/10/2019	09:38:33 AM	Na	589.62	-413	0.00	mg/L	
Standard1	10/10/2019	09:41:43 AM	Na	589.62	1234	0.1000	mg/L	
Standard2	10/10/2019	09:44:54 AM	Na	589.62	9557	1.000	mg/L	
Standard3	10/10/2019	09:48:36 AM	Na	589.62	47690	5.000	mg/L	
Standard4	10/10/2019	09:52:21 AM	Na	589.62	93345	10.000	mg/L	
Standard5	10/10/2019	09:56:06 AM	Na	589.62	187669	20.000	mg/L	
Standard6	10/10/2019	10:00:04 AM	Na	589.62	367192	40.000	mg/L	1.0000
Potassium								
CalBlk	10/10/2019	09:38:33 AM	K	766.489	-1377	0.00	mg/L	
Standard1	10/10/2019	09:41:43 AM	K	766.489	384	0.1000	mg/L	
Standard2	10/10/2019	09:44:54 AM	K	766.489	3582	1.000	mg/L	
Standard3	10/10/2019	09:48:36 AM	K	766.489	17918	5.000	mg/L	
Standard4	10/10/2019	09:52:21 AM	K	766.489	35294	10.000	mg/L	
Standard5	10/10/2019	09:56:06 AM	K	766.489	71290	20.000	mg/L	
Standard6	10/10/2019	10:00:04 AM	K	766.489	140961	40.000	mg/L	1.0000

INITIAL CALIBRATION SUMMARY: 191014A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Boron								
CalBlk	10/14/2019	08:47:25 AM	B	249.677	9112	0.00	mg/L	
Standard1	10/14/2019	08:51:37 AM	B	249.677	5243	0.1000	mg/L	
Standard3	10/14/2019	09:00:04 AM	B	249.677	53088	1.000	mg/L	
Standard4	10/14/2019	09:04:18 AM	B	249.677	133473	2.500	mg/L	
Standard5	10/14/2019	09:09:54 AM	B	249.677	200742	3.750	mg/L	
Standard6	10/14/2019	09:15:29 AM	B	249.677	266205	5.000	mg/L	
Standard7	10/14/2019	09:21:06 AM	B	249.677	535187	10.000	mg/L	1.0000
Magnesium								
CalBlk	10/14/2019	08:47:25 AM	Mg	279.077	828	0.00	mg/L	
Standard1	10/14/2019	08:51:37 AM	Mg	279.077	2078	0.1000	mg/L	
Standard2	10/14/2019	08:55:51 AM	Mg	279.077	20149	1.000	mg/L	
Standard3	10/14/2019	09:00:04 AM	Mg	279.077	42926	2.000	mg/L	
Standard4	10/14/2019	09:04:18 AM	Mg	279.077	100169	5.000	mg/L	
Standard5	10/14/2019	09:09:54 AM	Mg	279.077	150236	7.500	mg/L	
Standard6	10/14/2019	09:15:29 AM	Mg	279.077	198015	10.000	mg/L	
Standard7	10/14/2019	09:21:06 AM	Mg	279.077	393837	20.000	mg/L	1.0000
Aluminum								
CalBlk	10/14/2019	08:47:25 AM	Al	237.312	-340	0.00	mg/L	
Standard1	10/14/2019	08:51:37 AM	Al	237.312	396	0.0500	mg/L	
Standard2	10/14/2019	08:55:51 AM	Al	237.312	7948	1.000	mg/L	
Standard3	10/14/2019	09:00:04 AM	Al	237.312	16527	2.000	mg/L	
Standard4	10/14/2019	09:04:18 AM	Al	237.312	41298	5.000	mg/L	
Standard5	10/14/2019	09:09:54 AM	Al	237.312	61228	7.500	mg/L	
Standard6	10/14/2019	09:15:29 AM	Al	237.312	81213	10.000	mg/L	
Standard7	10/14/2019	09:21:06 AM	Al	237.312	156232	20.000	mg/L	0.9998
Calcium								
CalBlk	10/14/2019	08:47:25 AM	Ca	227.546	210	0.00	mg/L	
Standard1	10/14/2019	08:51:37 AM	Ca	227.546	75	0.2000	mg/L	
Standard2	10/14/2019	08:55:51 AM	Ca	227.546	400	1.000	mg/L	
Standard3	10/14/2019	09:00:04 AM	Ca	227.546	888	2.000	mg/L	
Standard4	10/14/2019	09:04:18 AM	Ca	227.546	2254	5.000	mg/L	
Standard5	10/14/2019	09:09:54 AM	Ca	227.546	3392	7.500	mg/L	
Standard6	10/14/2019	09:15:29 AM	Ca	227.546	4509	10.000	mg/L	
Standard7	10/14/2019	09:21:06 AM	Ca	227.546	8983	20.000	mg/L	1.0000
Iron								
CalBlk	10/14/2019	08:47:25 AM	Fe	273.953	-95	0.00	mg/L	
Standard1	10/14/2019	08:51:37 AM	Fe	273.953	847	0.0200	mg/L	
Standard2	10/14/2019	08:55:51 AM	Fe	273.953	2582	0.050	mg/L	
Standard3	10/14/2019	09:00:04 AM	Fe	273.953	80701	2.000	mg/L	
Standard4	10/14/2019	09:04:18 AM	Fe	273.953	200382	5.000	mg/L	
Standard5	10/14/2019	09:09:54 AM	Fe	273.953	300743	7.500	mg/L	
Standard6	10/14/2019	09:15:29 AM	Fe	273.953	396675	10.000	mg/L	
Standard7	10/14/2019	09:21:06 AM	Fe	273.953	788678	20.000	mg/L	1.0000

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **ICV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10233.956	500	10000	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	109.855	500	100.0	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10452.571	500	10000	0	105	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10532.998	500	10000	0	105	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10263.452	500	10000	0	103	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10206.691	500	10000	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10226.118	500	10000	0	102	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10200.258	500	10000	0	102	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10111.411	500	10000	0	101	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCV**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10266.658	500	10000	0	103	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ICV**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	5029.467	100	5000	0	101	90	110				
Calcium	10017.910	500	10000	0	100	90	110				
Iron	9994.907	20	10000	0	99.9	90	110				
Magnesium	9959.760	100	10000	0	99.6	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ZZZZZZ**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	118.170	100	100.0	0	118	80	120				
Calcium	161.493	500	200.0	0	80.7	80	120				
Iron	21.341	20	20.00	0	107	80	120				
Magnesium	103.518	100	100.0	0	104	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCV**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	4966.703	100	5000	0	99.3	90	110				
Calcium	10099.013	500	10000	0	101	90	110				
Iron	9974.796	20	10000	0	99.7	90	110				
Magnesium	9829.941	100	10000	0	98.3	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCV**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	4995.848	100	5000	0	99.9	90	110				
Calcium	10092.961	500	10000	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCV**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9964.316	20	10000	0	99.6	90	110				
Magnesium	9800.176	100	10000	0	98.0	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCV**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	4880.223	100	5000	0	97.6	90	110				
Calcium	10062.981	500	10000	0	101	90	110				
Iron	9839.665	20	10000	0	98.4	90	110				
Magnesium	9620.213	100	10000	0	96.2	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCV**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	4883.199	100	5000	0	97.7	90	110				
Calcium	10057.768	500	10000	0	101	90	110				
Iron	9809.305	20	10000	0	98.1	90	110				
Magnesium	9546.562	100	10000	0	95.5	90	110				

Qualifiers:

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

Calculations are based on raw values

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **ICB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4.752	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	25.759	500									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	30.004	500									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	35.324	500									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	31.427	500									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	31.542	500									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	33.776	500									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	38.172	500									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **CCB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	32.290	500									

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ICB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	36.385	100									
Calcium	-36.163626	500									
Iron	1.846	20									
Magnesium	-1.396165	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	17.062	100									
Calcium	-67.102101	500									
Iron	3.693	20									
Magnesium	-2.636887	100									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534545**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	47.003	100									
Calcium	-42.876145	500									
Iron	3.627	20									
Magnesium	-3.231678	100									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	3.810	100									
Calcium	-114.031321	500									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.539	20									
Magnesium	-4.549238	100									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **CCB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	0.335	100									
Calcium	-85.760787	500									
Iron	4.135	20									
Magnesium	-5.006846	100									

Qualifiers:

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136883**
Client ID: **ICSA** Batch ID: **R136883** TestNo: **EPA 6010B** Analysis Date: **10/10/2019** SeqNo: **3532523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	15.505	500									
Sodium	-3.180709	500									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136883**
Client ID: **ICSAB** Batch ID: **R136883** TestNo: **EPA 6010B** Analysis Date: **10/10/2019** SeqNo: **3532524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9904.037	500	10000	0	99.0	80	120				
Sodium	10038.302	500	10000	0	100	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136883**
Client ID: **ICSA** Batch ID: **R136883** TestNo: **EPA 6010B** Analysis Date: **10/10/2019** SeqNo: **3532573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	-18.684824	500									
Sodium	12.288	500									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136883**
Client ID: **ICSAB** Batch ID: **R136883** TestNo: **EPA 6010B** Analysis Date: **10/10/2019** SeqNo: **3532574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9794.252	500	10000	0	97.9	80	120				
Sodium	9993.598	500	10000	0	99.9	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136883**
Client ID: **ICSA** Batch ID: **R136883** TestNo: **EPA 6010B** Analysis Date: **10/10/2019** SeqNo: **3532624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **ICSA**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	-57.10005	500									
Sodium	13.006	500									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **ICSAB**	Batch ID: **R136883**	TestNo: **EPA 6010B**		Analysis Date: **10/10/2019**	SeqNo: **3532625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9941.710	500	10000	0	99.4	80	120				
Sodium	10129.050	500	10000	0	101	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ICSA**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	452898.501	50	500000	0	90.6	80	120				
Boron	26.157	100									
Calcium	474016.643	500	500000	0	94.8	80	120				
Iron	177882.110	20	200000	0	88.9	80	120				
Magnesium	435568.622	100	500000	0	87.1	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ICSAB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555696.543	50	500000	0	111	80	120				
Boron	1098.711	100	1000	0	110	80	120				
Calcium	557893.351	500	500000	0	112	80	120				
Iron	188088.752	20	200000	0	94.0	80	120				
Magnesium	515363.180	100	500000	0	103	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ICSA**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	468084.113	50	500000	0	93.6	80	120				
Boron	11.733	100									
Calcium	478809.751	500	500000	0	95.8	80	120				
Iron	173095.691	20	200000	0	86.5	80	120				
Magnesium	416633.672	100	500000	0	83.3	80	120				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ICSAB**	Batch ID: **R136926**	TestNo: **EPA 6010B**		Analysis Date: **10/14/2019**	SeqNo: **3534563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	534641.532	50	500000	0	107	80	120				
Boron	1062.701	100	1000	0	106	80	120				
Calcium	562457.916	500	500000	0	112	80	120				
Iron	181689.833	20	200000	0	90.8	80	120				
Magnesium	488991.544	100	500000	0	97.8	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191010A

Instrument ID: ICP-02

Scandium

Sample Name	Type	DF	~~Yttrium~~, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.85	65-125	PASS
Standard2	ICAL	1	1.01	100.82	65-125	PASS
Standard3	ICAL	1	1.01	100.98	65-125	PASS
Standard4	ICAL	1	1.01	101.11	65-125	PASS
Standard5	ICAL	1	1.01	101.39	65-125	PASS
Standard6	ICAL	1	1.01	101.33	65-125	PASS
ICV	ICV	1	1.03	102.63	65-125	PASS
ICB	ICB	1	1.02	101.61	65-125	PASS
LLICV	CCV	1	1.01	100.75	65-125	PASS
LLICV	CCV	1	1.01	100.99	65-125	PASS
ICSA1	ICSA	1	1.01	100.91	65-125	PASS
ICSAB1	ICSAB	1	1.01	100.55	65-125	PASS
MB-75609	MBLK	1	0.98	98.25	65-125	PASS
LCS2-75609	LCS	1	1.04	103.83	65-125	PASS
N037709-001B	SAMP	5	1	100.47	65-125	PASS
N037709-002B	SAMP	5	1	100.07	65-125	PASS
N037709-003B	SAMP	5	1	100.46	65-125	PASS
N037771-001D	SAMP	5	1.01	101.07	65-125	PASS
CCV1	CCV	1	0.99	99.27	65-125	PASS
CCB1	CCB	1	0.98	98.31	65-125	PASS
N037771-002D	SAMP	5	1	100.35	65-125	PASS
N037771-003D	SAMP	5	1.02	102.29	65-125	PASS
CCV2	CCV	1	0.98	98	65-125	PASS
CCB2	CCB	1	0.98	97.96	65-125	PASS
CCV3	CCV	1	1	99.54	65-125	PASS
CCB3	CCB	1	0.98	97.96	65-125	PASS
CCV4	CCV	1	1.01	100.6	65-125	PASS
CCB4	CCB	1	1	99.82	65-125	PASS
ICSA2	ICSA	1	0.99	99.49	65-125	PASS
ICSAB2	ICSAB	1	1	100	65-125	PASS
CCV5	CCV	1	1	100.09	65-125	PASS
CCB5	CCB	1	1.01	100.73	65-125	PASS
N037709-001B	SAMP	25	1.02	101.9	65-125	PASS
N037709-002B	SAMP	25	1.01	101.31	65-125	PASS
N037709-002B	SAMP	125	1.01	101.1	65-125	PASS
N037709-002B-PS	PS	5	1.01	100.56	65-125	PASS
N037709-002B-PS	PS	25	1.01	101.01	65-125	PASS
N037709-002B-MS2	MS	5	1.02	101.75	65-125	PASS
N037709-002B-MS2	MS	25	1.03	102.85	65-125	PASS
N037709-002B-MSD2	MSD	5	1.02	102.29	65-125	PASS

JRB 10/24/2019

INTERNAL STANDARD: 191010A

Instrument ID: ICP-02

Scandium

Sample Name	Type	DF	~~Yttrium~~, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037709-002B-MSD2	MSD	25	1.03	102.67	65-125	PASS
N037709-003B	SAMP	25	1.02	101.84	65-125	PASS
CCV6	CCV	1	1.01	101.44	65-125	PASS
CCB6	CCB	1	1.01	101.04	65-125	PASS
N037771-001D	SAMP	250	1.02	101.69	65-125	PASS
N037771-002D	SAMP	250	1.02	101.6	65-125	PASS
N037771-003D	SAMP	50	1.02	101.83	65-125	PASS
CCV7	CCV	1	0.56	55.78	65-125	NR!
CCV7	CCV	1	1.02	102.18	65-125	PASS
CCB7	CCB	1	1.02	102	65-125	PASS
CCV8	CCV	1	0.95	94.89	65-125	PASS
CCB8	CCB	1	0.96	96.19	65-125	PASS
ICSA3	ICSA	1	0.96	95.69	65-125	PASS
ICSAB3	ICSAB	1	0.95	95.16	65-125	PASS
CCV9	CCV	1	1.01	100.68	65-125	PASS
CCB9	CCB	1	0.98	98.02	65-125	PASS
CCV10	CCV	1	1	99.66	65-125	PASS
CCB10	CCB	1	0.99	98.92	65-125	PASS
CCV11	CCV	1	1.01	100.81	65-125	PASS
CCB11	CCB	1	1	100.25	65-125	PASS
ICSA4	ICSA	1	1.01	100.63	65-125	PASS
ICSAB4	ICSAB	1	1	100.44	65-125	PASS

JRB 10/24/2019

INTERNAL STANDARD: 191014A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	100.25	65-125	PASS
Standard2	ICAL	1	1.11	110.91	65-125	PASS
Standard3	ICAL	1	1.01	101.27	65-125	PASS
Standard4	ICAL	1	1.02	102.1	65-125	PASS
Standard5	ICAL	1	1.03	103.06	65-125	PASS
Standard6	ICAL	1	1.05	105.05	65-125	PASS
Standard7	ICAL	1	1	100.17	65-125	PASS
ICV	ICV	1	1.06	106.03	65-125	PASS
ICB	ICB	1	1.02	101.95	65-125	PASS
LLICV	CCV1	1	1.02	101.58	65-125	PASS
ICSA1	ICSA	1	1.14	114.16	65-125	PASS
ICSAB1	ICSAB	1	0.92	91.76	65-125	PASS
MB-75609	MBLK	1	1.02	102.24	65-125	PASS
LCS1-75609	LCS	1	0.96	96.44	65-125	PASS
CCV1	CCV	1	1.08	107.78	65-125	PASS
CCB1	CCB	1	1.04	103.61	65-125	PASS
N037709-001B	SAMP	1	1.06	105.55	65-125	PASS
N037709-001B	SAMP	5	1.09	109.06	65-125	PASS
N037709-001B-PS	PS	1	0.98	97.69	65-125	PASS
N037709-001B-MS1	MS	1	1.05	104.66	65-125	PASS
N037709-001B-MSD1	MSD	1	1.06	105.74	65-125	PASS
N037709-002B	SAMP	1	1.05	105.1	65-125	PASS
N037709-003B	SAMP	1	1.06	105.91	65-125	PASS
N037771-002D	SAMP	1	0.85	84.54	65-125	PASS
N037771-003D	SAMP	1	1.01	100.99	65-125	PASS
CCV2	CCV	1	1.1	109.51	65-125	PASS
CCB2	CCB	1	1.05	104.55	65-125	PASS
N037771-001D	SAMP	5	0.94	93.91	65-125	PASS
N037771-002D	SAMP	5	0.95	94.98	65-125	PASS
CCV3	CCV	1	1.1	109.6	65-125	PASS
CCB3	CCB	1	1.06	105.6	65-125	PASS
CCV4	CCV	1	1.11	111.01	65-125	PASS
CCB4	CCB	1	1.07	106.8	65-125	PASS
ICSA2	ICSA	1	1.19	118.57	65-125	PASS
ICSAB2	ICSAB	1	0.95	95.38	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037709
Test Method: EPA 6010B
Analysis Date: 10 / 10 & 14 / 2019

Matrix: Groundwater
Batch No.: 75609

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

Comments:

Analyzed By: Diane Jetajobe

Dilution test is not applicable to B, Fe, K. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037709-001B DT 5x	Boron	B	ug/L	694.6371	NA	720.3225	3.57%	10
N037709-001B DT 5x	Calcium	Ca	ug/L	129655.2	PASS	135119.3	4.04%	10
N037709-001B DT 5x	Iron	Fe	ug/L	0	NA	0		10
N037709-001B DT 5x	Magnesium	Mg	ug/L	31732.04	PASS	31124.42	1.95%	10
N037709-002B DT 25x	Potassium	K	ug/L	8946.891	NA	9212.129	2.88%	10
N037709-002B DT 125x	Sodium	Na	ug/L	363325.2	PASS	332111.3	9.40%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **N037709-002B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **ZZZZZZ**	Batch ID: **75609**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3532590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9744.707	2500	20000	9212	2.66	80	120				S

Sample ID **N037709-002B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136883**
Client ID: **ZZZZZZ**	Batch ID: **75609**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3532591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	363990.517	12000	20000	332100	159	80	120				S

Sample ID **N037709-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136926**
Client ID: **ZZZZZZ**	Batch ID: **75609**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3534537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10557.329	50	10000	0	106	80	120				
Boron	5990.753	100	5000	720.3	105	80	120				
Calcium	144353.764	500	10000	135100	92.3	80	120				
Iron	104.869	20	100.0	0	105	80	120				
Magnesium	42786.187	100	10000	31120	117	80	120				

Qualifiers:

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

MDL STUDY

METHOD DETECTION LIMIT 2017

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

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

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

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

METHOD DETECTION LIMIT 2017

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

Instrument Name: **ICP-02**

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

Method Detection Limit

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

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

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

MBLK

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

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

LOD & PQL VERIFICATION

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

Matrix: Water
Units: mg/L

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

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number 75562
ASSET #: N037709

Instrument ID: ICPMS-02
Analyst: CEI

Method:

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

Date Analyzed: 10/11/2019

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

Comments:

Blank hit in As and V.
% Rec of Ba in ICV failed, high bias. N037709-002B for rerun.
IS of As, Cu and Ni in CCV6 failed. Samples affected are for rerun.
% Rec of Cr in N037709-001B-MS/MSD failed, low bias. However, LCS passed criteria.
IS of Zn in CCV6 failed. However, % Recovery passed criteria and N037709-002B is ND.
% Rec of Zn in CCV7 failed, low bias. However, samples are enclosed by CCV1 to CCV6 thus unaffected.

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

1st Level Reviewer CEI Date: 10/14/2019

2nd Level Reviewer NS 10/14/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75562
ASSET #: N037709

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/14/2019

Method:

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

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

Comments:

As, Ba, Ni, Se and V run
% RSD of As in LLICV failed. However, % Recovery passed criteria.

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

1st Level Reviewer CEI Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75662
ASSET #: N037709

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/15/2019

Method:

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

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

Comments:

Cu rerun
% Rec of Cu in N037709-001B-PS/MS/MSD failed, low bias. However, LCS passed criteria.

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

1st Level Reviewer CEI Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

Chromium , ug/L = A * DF * PF

where:

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

For Sample **N037709-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 147.482 * 1 *(25 / 25)

Chromium , ug/L = 147.482

Reporting results in two significant figures,

Chromium , ug/L = 150

% RSD SUMMARY

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	107 Ag [3]				111 Cd [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.08	12.862	15	PASS	0.08	9.375	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.51	5.11	15	PASS	0.54	0.508	15	PASS
Std3-5/50 ppb	ICAL	1	4.97	1.457	15	PASS	5.2	2.965	15	PASS
Std4-10/100 ppb	ICAL	1	9.99	0.369	15	PASS	9.88	0.19	15	PASS
Std5-20/200 ppb	ICAL	1	19.88	0.592	15	PASS	20.23	0.995	15	PASS
Std6-40/400 ppb	ICAL	1	39.97	0.391	15	PASS	40.28	0.543	15	PASS
Std7-100/1000 ppb	ICAL	1	100.04	0.558	15	PASS	100.28	1.032	15	PASS
Std8-200/2000 ppb	ICAL	1	216.93	3.461	15	PASS	199.78	0.646	15	PASS
ICV	ICV	1	10.06	1.816	15	PASS	10.61	2.174	15	PASS
ICB	ICB	1	0.03	9.499	15	PASS	0.01	163.359	15	<PQL
LLICV	CCV1	1	0.53	8.408	20	PASS	0.5	11.214	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.02	71.964	15	<PQL
ICSAB1	ICSAB	1	19.15	0.731	15	PASS	20.68	0.59	15	PASS
LLICV	CCV1	1	0.55	3.112	20	PASS	0.49	8.135	20	PASS
CCV1	CCV	1	19.96	0.502	15	PASS	19.9	1.086	15	PASS
CCB1	CCB	1	0.03	18.621	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	19.97	0.435	15	PASS	20.07	0.605	15	PASS
CCB2	CCB	1	0.02	24.929	15	<PQL	0	85.031	15	<PQL
CCV3	CCV	1	19.92	1.413	15	PASS	19.96	1.042	15	PASS
CCB3	CCB	1	0.03	31.222	15	<PQL	0	167.37	15	<PQL
CCV4	CCV	1	19.98	0.207	15	PASS	19.93	1.4	15	PASS
CCB4	CCB	1	0.03	31.232	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0	168.128	15	<PQL
ICSAB2	ICSAB	1	19.08	0.739	15	PASS	20.4	1.034	15	PASS
MB-75562	MBLK	1	0.03	26.237	15	<PQL	0	934.418	15	<PQL
LCS-75562	LCS	1	10.06	0.958	15	PASS	10.44	0.276	15	PASS
N037709-001B	SAMP	1	<0.000	N/A	15	<PQL	0.01	112.905	15	<PQL
N037709-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B-PS	PS	1	10.19	0.706	15	PASS	10.04	2.109	15	PASS
N037709-001B-PS	PS	5	2.14	1.46	15	PASS	2.14	3.414	15	PASS
N037709-001B-MS	MS	1	10.32	1.597	15	PASS	10	1.312	15	PASS
N037709-001B-MS	MS	5	2.14	1.747	15	PASS	2.16	4.997	15	PASS
N037709-001B-MSD	MSD	1	10.35	1.37	15	PASS	9.96	1.547	15	PASS
CCV5	CCV	1	20.01	0.9	15	PASS	20.01	0.591	15	PASS
CCB5	CCB	1	0.04	9.907	15	PASS	0	30.871	15	<PQL
N037709-001B-MSD	MSD	5	2.17	0.552	15	PASS	1.99	1.724	15	PASS
N037709-002B	SAMP	1	<0.000	N/A	15	<PQL	0.02	97.27	15	<PQL
N037709-002B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037709-003B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	107 Ag [3]				111 Cd [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037723-001B	SAMP	1	<0.000	N/A	15	<PQL	0.13	27.711	15	<PQL
N037723-001B	SAMP	5	<0.000	N/A	15	<PQL	0.01	71.654	15	<PQL
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	0.25	9.819	15	PASS
N037723-002B	SAMP	5	<0.000	N/A	15	<PQL	0.04	26.673	15	<PQL
N037723-003B	SAMP	1	<0.000	N/A	15	<PQL	0.06	27.969	15	<PQL
CCV6	CCV	1	20	0.83	15	PASS	19.77	2.724	15	PASS
CCB6	CCB	1	0.03	4.382	15	PASS	0	244.776	15	<PQL
N037723-003B	SAMP	5	<0.000	N/A	15	<PQL	0	351.122	15	<PQL
N037723-004B	SAMP	1	<0.000	N/A	15	<PQL	0.05	17.862	15	<PQL
N037723-004B	SAMP	5	<0.000	N/A	15	<PQL	0	222.517	15	<PQL
N037735-001B	SAMP	1	<0.000	N/A	15	<PQL	0.01	43.059	15	<PQL
N037735-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037756-001B	SAMP	1	<0.000	N/A	15	<PQL	0.01	42.72	15	<PQL
N037756-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	19.82	0.476	15	PASS	19.87	1.68	15	PASS
CCB7	CCB	1	0.04	9.578	15	PASS	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.25	0.27	15	PASS	20.49	1.132	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	121 Sb [3]				137 Ba [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	5.012	15	PASS	0.08	20.244	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	2.614	15	PASS	0.55	8.456	15	PASS
Std3-5/50 ppb	ICAL	1	4.85	1.306	15	PASS	4.97	5.976	15	PASS
Std4-10/100 ppb	ICAL	1	9.77	1.128	15	PASS	9.91	5.006	15	PASS
Std5-20/200 ppb	ICAL	1	19.78	0.244	15	PASS	21.86	10.589	15	PASS
Std6-40/400 ppb	ICAL	1	39.59	0.772	15	PASS	42.75	7.125	15	PASS
Std7-100/1000 ppb	ICAL	1	99.53	0.156	15	PASS	100.02	1.347	15	PASS
Std8-200/2000 ppb	ICAL	1	200.35	0.213	15	PASS	199.26	1.333	15	PASS
ICV	ICV	1	10.86	0.847	15	PASS	11.52	5.693	15	PASS
ICB	ICB	1	0.06	9.92	15	PASS	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.6	0.426	20	PASS	1.06	0.636	20	PASS
ICSA1	ICSA	1	0.04	28.161	15	<PQL	0.31	1.881	15	PASS
ICSAB1	ICSAB	1	21.18	0.857	15	PASS	21.36	6.019	15	PASS
LLICV	CCV1	1	0.77	1.023	20	PASS	0.99	5.503	20	PASS
CCV1	CCV	1	19.77	0.605	15	PASS	20.09	5.959	15	PASS
CCB1	CCB	1	0.2	7.186	15	PASS	0.03	11.5	15	PASS
CCV2	CCV	1	20.09	0.452	15	PASS	20.23	5.74	15	PASS
CCB2	CCB	1	0.19	10.244	15	PASS	0	83.203	15	<PQL
CCV3	CCV	1	20.1	0.659	15	PASS	19.34	0.618	15	PASS
CCB3	CCB	1	0.18	2.282	15	PASS	0.01	56.699	15	<PQL
CCV4	CCV	1	20.11	0.509	15	PASS	20.5	3.911	15	PASS
CCB4	CCB	1	0.18	7.35	15	PASS	0.02	89.795	15	<PQL
ICSA2	ICSA	1	0.07	7.595	15	PASS	0.32	13.597	15	PASS
ICSAB2	ICSAB	1	21.66	0.717	15	PASS	22.23	1.91	15	PASS
MB-75562	MBLK	1	0.2	3.985	15	PASS	0.01	6.004	15	PASS
LCS-75562	LCS	1	11.18	0.42	15	PASS	11.24	11.057	15	PASS
N037709-001B	SAMP	1	0.11	3.591	15	PASS	57.92	0.738	15	PASS
N037709-001B	SAMP	5	0.03	11.554	15	PASS	12.02	8.593	15	PASS
N037709-001B	SAMP	25	0.01	53.337	15	<PQL	2.44	10.228	15	PASS
N037709-001B-PS	PS	1	11.13	1.312	15	PASS	67.79	3.263	15	PASS
N037709-001B-PS	PS	5	2.37	0.869	15	PASS	14.82	4.791	15	PASS
N037709-001B-MS	MS	1	11.2	1.356	15	PASS	67.2	3.45	15	PASS
N037709-001B-MS	MS	5	2.32	1.43	15	PASS	13.9	9.111	15	PASS
N037709-001B-MSD	MSD	1	11.22	1.588	15	PASS	66.36	0.378	15	PASS
CCV5	CCV	1	20.19	0.411	15	PASS	21.72	4.555	15	PASS
CCB5	CCB	1	0.2	7.566	15	PASS	0.01	42.86	15	<PQL
N037709-001B-MSD	MSD	5	2.4	1.225	15	PASS	13.91	1.376	15	PASS
N037709-002B	SAMP	1	0.13	5.911	15	PASS	50.89	0.121	15	PASS
N037709-002B	SAMP	5	0.03	7.021	15	PASS	10.84	8.691	15	PASS
N037709-003B	SAMP	1	0.04	1.845	15	PASS	51.01	0.998	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	121 Sb [3]				137 Ba [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	0.01	53.595	15	<PQL	10.74	1.556	15	PASS
N037723-001B	SAMP	1	0.1	5.63	15	PASS	20.34	0.766	15	PASS
N037723-001B	SAMP	5	0.02	33.493	15	<PQL	4.34	6.038	15	PASS
N037723-002B	SAMP	1	0.28	6.024	15	PASS	29	0.617	15	PASS
N037723-002B	SAMP	5	0.05	14.834	15	PASS	5.92	0.901	15	PASS
N037723-003B	SAMP	1	0.04	9.04	15	PASS	22.27	0.275	15	PASS
CCV6	CCV	1	19.88	0.561	15	PASS	20.29	1.512	15	PASS
CCB6	CCB	1	0.18	9.545	15	PASS	0.01	105.119	15	<PQL
N037723-003B	SAMP	5	0.06	1.997	15	PASS	4.5	3.59	15	PASS
N037723-004B	SAMP	1	0.13	14.928	15	PASS	41.19	0.45	15	PASS
N037723-004B	SAMP	5	0.03	24.398	15	<PQL	7.92	2.723	15	PASS
N037735-001B	SAMP	1	0.04	9.235	15	PASS	108.53	0.36	15	PASS
N037735-001B	SAMP	5	0	98.313	15	<PQL	22.69	1.821	15	PASS
N037756-001B	SAMP	1	0.07	13.478	15	PASS	59	0.331	15	PASS
N037756-001B	SAMP	5	0.01	79.549	15	<PQL	11.83	5.1	15	PASS
CCV7	CCV	1	20.19	0.798	15	PASS	20.28	3.183	15	PASS
CCB7	CCB	1	0.19	5.109	15	PASS	0	324.239	15	<PQL
ICSA3	ICSA	1	0.06	10.612	15	PASS	0.32	1.306	15	PASS
ICSAB3	ICSAB	1	21.96	0.15	15	PASS	22.53	1.018	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	205 Tl [3]				208 Pb [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	4.131	15	PASS	0.1	7.26	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.51	3.415	15	PASS	0.5	1.261	15	PASS
Std3-5/50 ppb	ICAL	1	5.04	0.864	15	PASS	5.06	1.113	15	PASS
Std4-10/100 ppb	ICAL	1	9.98	0.326	15	PASS	10.01	0.759	15	PASS
Std5-20/200 ppb	ICAL	1	20.17	0.366	15	PASS	20.1	0.348	15	PASS
Std6-40/400 ppb	ICAL	1	39.92	0.196	15	PASS	40.01	0.725	15	PASS
Std7-100/1000 ppb	ICAL	1	109.37	1.233	15	PASS	99.97	0.111	15	PASS
Std8-200/2000 ppb	ICAL	1	215.4	0.993	15	PASS	213.03	0.53	15	PASS
ICV	ICV	1	10.26	0.447	15	PASS	10.54	0.526	15	PASS
ICB	ICB	1	0.08	10.825	15	PASS	0.01	14.539	15	PASS
LLICV	CCV1	1	0.47	1.543	20	PASS	1.05	2.041	20	PASS
ICSA1	ICSA	1	0.02	9.688	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.67	0.954	15	PASS	18.87	0.387	15	PASS
LLICV	CCV1	1	0.46	1.918	20	PASS	1.05	0.668	20	PASS
CCV1	CCV	1	20.04	0.091	15	PASS	19.98	0.189	15	PASS
CCB1	CCB	1	0.03	11.28	15	PASS	<0.000	N/A	15	<PQL
CCV2	CCV	1	20	0.737	15	PASS	20.07	0.516	15	PASS
CCB2	CCB	1	0.01	7.152	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.06	0.36	15	PASS	20.13	0.374	15	PASS
CCB3	CCB	1	0.01	9.421	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	19.95	0.592	15	PASS	20.03	0.197	15	PASS
CCB4	CCB	1	0.02	2.773	15	PASS	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.82	0.327	15	PASS	19.22	0.098	15	PASS
MB-75562	MBLK	1	0.01	21.303	15	<PQL	<0.000	N/A	15	<PQL
LCS-75562	LCS	1	10.23	1.057	15	PASS	10.53	0.913	15	PASS
N037709-001B	SAMP	1	0.13	7.923	15	PASS	<0.000	N/A	15	<PQL
N037709-001B	SAMP	5	0.02	24.994	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B	SAMP	25	0.01	22.647	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B-PS	PS	1	10.5	0.267	15	PASS	10.2	0.624	15	PASS
N037709-001B-PS	PS	5	2.11	1.296	15	PASS	1.17	1.693	15	PASS
N037709-001B-MS	MS	1	10.4	0.728	15	PASS	10.22	0.707	15	PASS
N037709-001B-MS	MS	5	2.09	0.615	15	PASS	1.2	2.252	15	PASS
N037709-001B-MSD	MSD	1	10.44	0.597	15	PASS	10.19	0.173	15	PASS
CCV5	CCV	1	20.09	0.671	15	PASS	20.09	0.516	15	PASS
CCB5	CCB	1	0.02	17.312	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B-MSD	MSD	5	2.1	1.577	15	PASS	1.19	1.731	15	PASS
N037709-002B	SAMP	1	0.06	9.621	15	PASS	<0.000	N/A	15	<PQL
N037709-002B	SAMP	5	0.01	25.149	15	<PQL	<0.000	N/A	15	<PQL
N037709-003B	SAMP	1	0.06	3.859	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	205 Tl [3]				208 Pb [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	0.01	47.777	15	<PQL	<0.000	N/A	15	<PQL
N037723-001B	SAMP	1	0.05	4.554	15	PASS	<0.000	N/A	15	<PQL
N037723-001B	SAMP	5	0	53.642	15	<PQL	<0.000	N/A	15	<PQL
N037723-002B	SAMP	1	0.5	3.848	15	PASS	<0.000	N/A	15	<PQL
N037723-002B	SAMP	5	0.09	4.673	15	PASS	<0.000	N/A	15	<PQL
N037723-003B	SAMP	1	0.22	2.686	15	PASS	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.08	0.608	15	PASS	20.05	0.418	15	PASS
CCB6	CCB	1	0.01	25.217	15	<PQL	<0.000	N/A	15	<PQL
N037723-003B	SAMP	5	0.04	7.999	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	0.02	13.891	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037735-001B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037735-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037756-001B	SAMP	1	0.03	13.018	15	PASS	0.82	4.816	15	PASS
N037756-001B	SAMP	5	0	1206.463	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.23	0.664	15	PASS	20.19	0.35	15	PASS
CCB7	CCB	1	0.01	8.559	15	PASS	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	21.82	0.709	15	PASS	19.26	0.698	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	51 V [2]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.27	23.368	15	<PQL	0.13	23.117	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.74	6.989	15	PASS	0.52	9.218	15	PASS
Std3-5/50 ppb	ICAL	1	5.46	0.733	15	PASS	5.2	2.485	15	PASS
Std4-10/100 ppb	ICAL	1	10.31	1.097	15	PASS	10.25	0.359	15	PASS
Std5-20/200 ppb	ICAL	1	20.22	0.267	15	PASS	20.37	0.233	15	PASS
Std6-40/400 ppb	ICAL	1	40.51	1.571	15	PASS	40.82	2.072	15	PASS
Std7-100/1000 ppb	ICAL	1	99.7	2.371	15	PASS	100.69	1.721	15	PASS
Std8-200/2000 ppb	ICAL	1	196.56	0.785	15	PASS	199.43	0.801	15	PASS
ICV	ICV	1	10.69	0.711	15	PASS	10.95	1.692	15	PASS
ICB	ICB	1	0.3	26.827	15	<PQL	0.05	63.72	15	<PQL
LLICV	CCV1	1	1.39	8.899	20	PASS	1.1	1.708	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.29	1.315	15	PASS	20.29	2.125	15	PASS
LLICV	CCV1	1	2.18	7.441	20	PASS	1.07	0.881	20	PASS
CCV1	CCV	1	22.04	1.898	15	PASS	19.61	2.371	15	PASS
CCB1	CCB	1	2.73	5.996	15	PASS	0.01	147.204	15	<PQL
CCV2	CCV	1	25.59	1.245	15	PASS	20.09	1.986	15	PASS
CCB2	CCB	1	6.12	4.655	15	PASS	0.03	31.999	15	<PQL
CCV3	CCV	1	22.97	1.666	15	PASS	19.74	0.808	15	PASS
CCB3	CCB	1	3.71	3.338	15	PASS	0.03	68.356	15	<PQL
CCV4	CCV	1	21.68	2.57	15	PASS	19.91	0.868	15	PASS
CCB4	CCB	1	2.03	4.807	15	PASS	0.02	90.1	15	<PQL
ICSA2	ICSA	1	0.82	13.905	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	22.37	3.736	15	PASS	20.67	1.592	15	PASS
MB-75562	MBLK	1	2.75	3.081	15	PASS	0.02	109.222	15	<PQL
LCS-75562	LCS	1	14.82	1.724	15	PASS	10.66	0.829	15	PASS
N037709-001B	SAMP	1	14.25	3.008	15	PASS	147.48	2.76	15	PASS
N037709-001B	SAMP	5	4.41	2.054	15	PASS	29.92	1.539	15	PASS
N037709-001B	SAMP	25	2.88	3.271	15	PASS	6.1	0.317	15	PASS
N037709-001B-PS	PS	1	24.78	1.324	15	PASS	157.19	0.425	15	PASS
N037709-001B-PS	PS	5	6.68	2.19	15	PASS	33.1	1.168	15	PASS
N037709-001B-MS	MS	1	24.15	0.467	15	PASS	152.51	0.67	15	PASS
N037709-001B-MS	MS	5	6.42	4.835	15	PASS	31.54	0.713	15	PASS
N037709-001B-MSD	MSD	1	24.52	2.353	15	PASS	153.87	1.348	15	PASS
CCV5	CCV	1	21.57	1.587	15	PASS	20.29	1.97	15	PASS
CCB5	CCB	1	1.87	10.24	15	PASS	0.03	43.514	15	<PQL
N037709-001B-MSD	MSD	5	7.96	2.76	15	PASS	32.15	1.028	15	PASS
N037709-002B	SAMP	1	14.9	1.478	15	PASS	111.24	0.369	15	PASS
N037709-002B	SAMP	5	4.49	1.392	15	PASS	22.86	0.971	15	PASS
N037709-003B	SAMP	1	9.17	1.124	15	PASS	47.38	0.471	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	51 V [2]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	3.44	3.635	15	PASS	9.87	1.693	15	PASS
N037723-001B	SAMP	1	7.55	1.905	15	PASS	6.3	1.819	15	PASS
N037723-001B	SAMP	5	2.36	1.934	15	PASS	1.31	2.488	15	PASS
N037723-002B	SAMP	1	5.2	2.495	15	PASS	6.11	2.497	15	PASS
N037723-002B	SAMP	5	1.7	8.318	15	PASS	1.29	3.466	15	PASS
N037723-003B	SAMP	1	1.59	6.64	15	PASS	0.25	19.212	15	<PQL
CCV6	CCV	1	20.35	1.229	15	PASS	20.15	1.14	15	PASS
CCB6	CCB	1	0.61	9.719	15	PASS	0.04	37.369	15	<PQL
N037723-003B	SAMP	5	1.2	4.715	15	PASS	0.09	11.846	15	PASS
N037723-004B	SAMP	1	1.68	5.587	15	PASS	585.69	1.066	15	PASS
N037723-004B	SAMP	5	0.76	10.137	15	PASS	105.67	0.797	15	PASS
N037735-001B	SAMP	1	0.8	10.666	15	PASS	<0.000	N/A	15	<PQL
N037735-001B	SAMP	5	0.67	10.863	15	PASS	0.05	36.503	15	<PQL
N037756-001B	SAMP	1	7.41	0.379	15	PASS	109.77	0.315	15	PASS
N037756-001B	SAMP	5	2.08	9.105	15	PASS	22.72	0.662	15	PASS
CCV7	CCV	1	21.65	1.723	15	PASS	20.53	1.45	15	PASS
CCB7	CCB	1	0.87	7.201	15	PASS	0.07	21.896	15	<PQL
ICSA3	ICSA	1	0.81	6.848	15	PASS	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	22.81	2.297	15	PASS	20.92	0.457	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				59 Co [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.09	7.669	15	PASS	0.11	5.633	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.49	1.061	15	PASS	0.51	3.376	15	PASS
Std3-5/50 ppb	ICAL	1	5.03	1.222	15	PASS	5.18	3.104	15	PASS
Std4-10/100 ppb	ICAL	1	10.19	1.46	15	PASS	10.26	2.54	15	PASS
Std5-20/200 ppb	ICAL	1	20.09	1.165	15	PASS	20.24	1.059	15	PASS
Std6-40/400 ppb	ICAL	1	40.69	1.647	15	PASS	40.81	2.347	15	PASS
Std7-100/1000 ppb	ICAL	1	101.19	3.379	15	PASS	101.01	2.05	15	PASS
Std8-200/2000 ppb	ICAL	1	199.25	1.473	15	PASS	199.29	0.75	15	PASS
ICV	ICV	1	108.44	1.339	15	PASS	10.69	0.294	15	PASS
ICB	ICB	1	0.02	44.514	15	<PQL	0.01	20.154	15	<PQL
LLICV	CCV1	1	0.56	5.534	20	PASS	0.53	2.295	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.47	0.669	15	PASS	19.95	0.999	15	PASS
LLICV	CCV1	1	0.59	9.735	20	PASS	0.53	3.908	20	PASS
CCV1	CCV	1	20.5	1.258	15	PASS	19.63	1.752	15	PASS
CCB1	CCB	1	0.02	42.411	15	<PQL	0.01	61.513	15	<PQL
CCV2	CCV	1	19.97	0.462	15	PASS	20.15	1.345	15	PASS
CCB2	CCB	1	0.01	140.116	15	<PQL	0.01	17.907	15	<PQL
CCV3	CCV	1	20.52	1.684	15	PASS	19.76	0.49	15	PASS
CCB3	CCB	1	0.02	25.756	15	<PQL	0.01	28.827	15	<PQL
CCV4	CCV	1	20.35	1.83	15	PASS	20.16	1.67	15	PASS
CCB4	CCB	1	0.01	76.13	15	<PQL	0.01	34.561	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.32	1.411	15	PASS	20.37	1.822	15	PASS
MB-75562	MBLK	1	0.02	110.511	15	<PQL	0.01	14.29	15	PASS
LCS-75562	LCS	1	107.82	1.337	15	PASS	10.54	2.184	15	PASS
N037709-001B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B	SAMP	25	<0.000	N/A	15	<PQL	0	144.125	15	<PQL
N037709-001B-PS	PS	1	83.53	0.392	15	PASS	9.54	0.604	15	PASS
N037709-001B-PS	PS	5	17.76	0.239	15	PASS	2.06	2.232	15	PASS
N037709-001B-MS	MS	1	83.95	0.707	15	PASS	9.61	1.001	15	PASS
N037709-001B-MS	MS	5	17.56	2.05	15	PASS	2.05	1.096	15	PASS
N037709-001B-MSD	MSD	1	84.42	1.404	15	PASS	9.7	0.27	15	PASS
CCV5	CCV	1	20.28	0.802	15	PASS	20.37	1.111	15	PASS
CCB5	CCB	1	0.01	255.282	15	<PQL	0.02	42.106	15	<PQL
N037709-001B-MSD	MSD	5	17.36	1.873	15	PASS	2.08	1.31	15	PASS
N037709-002B	SAMP	1	<0.000	N/A	15	<PQL	0.24	6.073	15	PASS
N037709-002B	SAMP	5	<0.000	N/A	15	<PQL	0.05	7.583	15	PASS
N037709-003B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				59 Co [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	<0.000	N/A	15	<PQL	0	215.137	15	<PQL
N037723-001B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037723-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037723-002B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037723-003B	SAMP	1	64.02	3.693	15	PASS	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.3	0.587	15	PASS	20.12	0.809	15	PASS
CCB6	CCB	1	0.01	66.639	15	<PQL	0.01	24.873	15	<PQL
N037723-003B	SAMP	5	12.98	0.671	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	<0.000	N/A	15	<PQL	0.26	10.917	15	PASS
N037723-004B	SAMP	5	<0.000	N/A	15	<PQL	0.06	4.905	15	PASS
N037735-001B	SAMP	1	488.26	0.464	15	PASS	<0.000	N/A	15	<PQL
N037735-001B	SAMP	5	101.73	0.465	15	PASS	<0.000	N/A	15	<PQL
N037756-001B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037756-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.35	3.22	15	PASS	20.67	1.14	15	PASS
CCB7	CCB	1	0.1	37.504	15	<PQL	0.01	15.46	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.22	0.456	15	PASS	20.79	0.313	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.4	24.085	15	<PQL	<0.000	N/A	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.86	22.294	15	<PQL	0.06	76.639	15	<PQL
Std3-5/50 ppb	ICAL	1	4.98	4.249	15	PASS	4.51	6.747	15	PASS
Std4-10/100 ppb	ICAL	1	10.04	1.349	15	PASS	9.69	4.252	15	PASS
Std5-20/200 ppb	ICAL	1	20.22	1.172	15	PASS	20.08	1.316	15	PASS
Std6-40/400 ppb	ICAL	1	39.72	0.64	15	PASS	40.27	0.516	15	PASS
Std7-100/1000 ppb	ICAL	1	100.32	0.577	15	PASS	100.17	0.594	15	PASS
Std8-200/2000 ppb	ICAL	1	199.87	0.574	15	PASS	199.88	0.96	15	PASS
ICV	ICV	1	9.05	2.209	15	PASS	9.84	1.788	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	<0.000	N/A	20	<PQL	0.43	25.066	20	<PQL
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	15.32	1.754	15	PASS	17.77	1.819	15	PASS
LLICV	CCV1	1	<0.000	N/A	20	<PQL	2.17	4.424	20	PASS
CCV1	CCV	1	15.75	0.279	15	PASS	19.39	1.066	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	16.14	0.353	15	PASS	18.51	1.17	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV3	CCV	1	15.49	1.368	15	PASS	19.07	0.856	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.71	14.272	15	PASS
CCV4	CCV	1	15.91	1.132	15	PASS	20.76	1.572	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	5.97	3.921	15	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	16.14	4.005	15	PASS	15.25	3.618	15	PASS
MB-75562	MBLK	1	<0.000	N/A	15	<PQL	3.43	6.691	15	PASS
LCS-75562	LCS	1	9.99	3.03	15	PASS	12.77	1.709	15	PASS
N037709-001B	SAMP	1	2.09	5.829	15	PASS	<0.000	N/A	15	<PQL
N037709-001B	SAMP	5	2.7	8.339	15	PASS	<0.000	N/A	15	<PQL
N037709-001B	SAMP	25	<0.000	N/A	15	<PQL	2.88	4.179	15	PASS
N037709-001B-PS	PS	1	9.54	4.916	15	PASS	4.62	3.589	15	PASS
N037709-001B-PS	PS	5	3.96	4.706	15	PASS	<0.000	N/A	15	<PQL
N037709-001B-MS	MS	1	11.18	1.818	15	PASS	4.91	0.389	15	PASS
N037709-001B-MS	MS	5	3.76	8.223	15	PASS	<0.000	N/A	15	<PQL
N037709-001B-MSD	MSD	1	11.65	0.307	15	PASS	5.18	6.092	15	PASS
CCV5	CCV	1	19.54	3.399	15	PASS	18.12	2.637	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	5.5	4.428	15	PASS
N037709-001B-MSD	MSD	5	0.55	39.64	15	<PQL	1.54	7.424	15	PASS
N037709-002B	SAMP	1	5.91	5.622	15	PASS	<0.000	N/A	15	<PQL
N037709-002B	SAMP	5	1.64	6.543	15	PASS	<0.000	N/A	15	<PQL
N037709-003B	SAMP	1	0.73	16.778	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	0.49	52.99	15	<PQL	<0.000	N/A	15	<PQL
N037723-001B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037723-001B	SAMP	5	4.02	4.4	15	PASS	<0.000	N/A	15	<PQL
N037723-002B	SAMP	1	3.48	20.252	15	NR!	<0.000	N/A	15	<PQL
N037723-002B	SAMP	5	4.51	5.772	15	PASS	<0.000	N/A	15	<PQL
N037723-003B	SAMP	1	1.89	26.101	15	NR!	<0.000	N/A	15	<PQL
CCV6	CCV	1	22.6	1.882	15	PASS	18.99	2.173	15	PASS
CCB6	CCB	1	5.2	7.648	15	PASS	<0.000	N/A	15	<PQL
N037723-003B	SAMP	5	3.64	11.433	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	6.82	6.43	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	5	5.68	5.813	15	PASS	<0.000	N/A	15	<PQL
N037735-001B	SAMP	1	5.5	15.581	15	NR!	<0.000	N/A	15	<PQL
N037735-001B	SAMP	5	5.9	8.841	15	PASS	<0.000	N/A	15	<PQL
N037756-001B	SAMP	1	6.75	10.635	15	PASS	5.33	4.651	15	PASS
N037756-001B	SAMP	5	4.79	21.543	15	NR!	0.03	164.977	15	<PQL
CCV7	CCV	1	20.7	3.237	15	PASS	17.21	1.4	15	PASS
CCB7	CCB	1	0.75	23.399	15	<PQL	0.24	40.703	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	16.12	1.611	15	PASS	14.76	2.844	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	66 Zn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.18	12.171	15	PASS	0.09	37.559	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.56	4.963	15	PASS	0.48	11.57	15	PASS
Std3-5/50 ppb	ICAL	1	5.05	0.839	15	PASS	4.91	1.328	15	PASS
Std4-10/100 ppb	ICAL	1	10.28	4.325	15	PASS	10.28	2.719	15	PASS
Std5-20/200 ppb	ICAL	1	20.17	1.614	15	PASS	20	2.701	15	PASS
Std6-40/400 ppb	ICAL	1	40.24	0.786	15	PASS	40.16	0.822	15	PASS
Std7-100/1000 ppb	ICAL	1	100.14	2.558	15	PASS	99.72	0.148	15	PASS
Std8-200/2000 ppb	ICAL	1	199.85	1.767	15	PASS	200.1	1.169	15	PASS
ICV	ICV	1	10.72	6.777	15	PASS	10.43	2.415	15	PASS
ICB	ICB	1	0.04	137.133	15	<PQL	0.03	16.721	15	<PQL
LLICV	CCV1	1	10.15	2.19	20	PASS	0.14	31.102	20	NR!
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	18.18	3.736	15	PASS	21.28	1.212	15	PASS
LLICV	CCV1	1	10.16	4.185	20	PASS	0.18	49.816	20	NR!
CCV1	CCV	1	19.45	1.166	15	PASS	19.9	1.781	15	PASS
CCB1	CCB	1	0.06	10.994	15	PASS	0.1	34.546	15	<PQL
CCV2	CCV	1	19.74	3.153	15	PASS	20.17	1.846	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.18	15.463	15	NR!
CCV3	CCV	1	19.05	1.474	15	PASS	19.82	3.809	15	PASS
CCB3	CCB	1	0.04	114.184	15	<PQL	0.16	4.453	15	PASS
CCV4	CCV	1	18.12	1.582	15	PASS	19.25	0.547	15	PASS
CCB4	CCB	1	0.02	87.259	15	<PQL	0.17	21.164	15	NR!
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.13	33.543	15	NR!
ICSAB2	ICSAB	1	16.56	2.782	15	PASS	20.47	3.841	15	PASS
MB-75562	MBLK	1	<0.000	N/A	15	<PQL	0.22	30.112	15	NR!
LCS-75562	LCS	1	9.57	5.591	15	PASS	10.25	2.759	15	PASS
N037709-001B	SAMP	1	0.19	168.791	15	<PQL	1.73	1.103	15	PASS
N037709-001B	SAMP	5	0.06	110.384	15	<PQL	0.41	13.123	15	PASS
N037709-001B	SAMP	25	0.02	241.934	15	<PQL	0.2	26.678	15	NR!
N037709-001B-PS	PS	1	9.33	3.337	15	PASS	11.95	2.973	15	PASS
N037709-001B-PS	PS	5	1.9	8.339	15	PASS	2.65	5.657	15	PASS
N037709-001B-MS	MS	1	9.06	2.738	15	PASS	11.58	0.46	15	PASS
N037709-001B-MS	MS	5	2.03	6.567	15	PASS	2.42	9.09	15	PASS
N037709-001B-MSD	MSD	1	9.28	4.562	15	PASS	11.83	0.967	15	PASS
CCV5	CCV	1	18.7	0.818	15	PASS	19.42	2.898	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.15	14.035	15	PASS
N037709-001B-MSD	MSD	5	1.91	5.908	15	PASS	2.51	6.863	15	PASS
N037709-002B	SAMP	1	2.89	2.91	15	PASS	2.08	8.674	15	PASS
N037709-002B	SAMP	5	0.59	19.336	15	<PQL	0.52	14.452	15	PASS
N037709-003B	SAMP	1	<0.000	N/A	15	<PQL	1.35	6.407	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	66 Zn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	<0.000	N/A	15	<PQL	0.36	7.37	15	PASS
N037723-001B	SAMP	1	<0.000	N/A	15	<PQL	5.94	0.297	15	PASS
N037723-001B	SAMP	5	<0.000	N/A	15	<PQL	1.29	5.925	15	PASS
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.3	3.47	15	PASS
N037723-002B	SAMP	5	<0.000	N/A	15	<PQL	0.62	9.187	15	PASS
N037723-003B	SAMP	1	<0.000	N/A	15	<PQL	2.01	8.478	15	PASS
CCV6	CCV	1	18.19	0.853	15	PASS	19.5	1.719	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.17	25.954	15	NR!
N037723-003B	SAMP	5	<0.000	N/A	15	<PQL	0.55	6.822	15	PASS
N037723-004B	SAMP	1	13.08	3.245	15	PASS	1.79	10.416	15	PASS
N037723-004B	SAMP	5	2.8	1.409	15	PASS	0.53	10.744	15	PASS
N037735-001B	SAMP	1	<0.000	N/A	15	<PQL	1.65	6.089	15	PASS
N037735-001B	SAMP	5	<0.000	N/A	15	<PQL	0.42	1.276	15	PASS
N037756-001B	SAMP	1	1.61	10.474	15	PASS	1.57	5.147	15	PASS
N037756-001B	SAMP	5	0.33	12.725	15	PASS	0.51	22.052	15	NR!
CCV7	CCV	1	17.98	3.003	15	PASS	18.98	0.431	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.16	6.228	15	PASS
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.17	18.129	15	NR!
ICSAB3	ICSAB	1	16.31	2.125	15	PASS	20.31	2.751	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				9 Be [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0	N/A	15	<PQL	0.09	4.914	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.35	50.99	15	<PQL	0.47	3.835	15	PASS
Std3-5/50 ppb	ICAL	1	4.98	15.431	15	NR!	4.95	1.658	15	PASS
Std4-10/100 ppb	ICAL	1	9.4	7.219	15	PASS	9.91	0.905	15	PASS
Std5-20/200 ppb	ICAL	1	20.94	5.992	15	PASS	20.03	1.048	15	PASS
Std6-40/400 ppb	ICAL	1	41.36	8.487	15	PASS	39.92	0.683	15	PASS
Std7-100/1000 ppb	ICAL	1	98.83	2.462	15	PASS	100.04	0.471	15	PASS
Std8-200/2000 ppb	ICAL	1	200.25	1.349	15	PASS	213.05	0.485	15	PASS
ICV	ICV	1	9.07	4.617	15	PASS	10.64	8.591	15	PASS
ICB	ICB	1	0	N/A	15	<PQL	0.01	29.922	15	<PQL
LLICV	CCV1	1	0.66	26.38	20	NR!	0.48	2.027	20	PASS
ICSA1	ICSA	1	0.11	123.282	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.93	14.599	15	PASS	22.18	0.389	15	PASS
LLICV	CCV1	1	0.63	43.039	20	NR!	0.54	13.594	20	PASS
CCV1	CCV	1	18.51	6.498	15	PASS	21.5	9.293	15	PASS
CCB1	CCB	1	0.02	173.205	15	<PQL	0.02	35.169	15	<PQL
CCV2	CCV	1	19.13	8.913	15	PASS	20.04	0.81	15	PASS
CCB2	CCB	1	0.09	173.205	15	<PQL	0	334.635	15	<PQL
CCV3	CCV	1	21.07	2.238	15	PASS	20.11	1.395	15	PASS
CCB3	CCB	1	0.11	124.388	15	<PQL	0	707.078	15	<PQL
CCV4	CCV	1	20.54	1.181	15	PASS	20.13	0.731	15	PASS
CCB4	CCB	1	0.07	173.205	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.05	173.205	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.65	10.646	15	PASS	21.41	0.773	15	PASS
MB-75562	MBLK	1	0.06	173.205	15	<PQL	<0.000	N/A	15	<PQL
LCS-75562	LCS	1	10.36	11.924	15	PASS	10.15	0.371	15	PASS
N037709-001B	SAMP	1	6.31	9.225	15	PASS	0	239.327	15	<PQL
N037709-001B	SAMP	5	1.13	33.392	15	NR!	<0.000	N/A	15	<PQL
N037709-001B	SAMP	25	0.45	65.129	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B-PS	PS	1	17.2	11.524	15	PASS	11.88	1.316	15	PASS
N037709-001B-PS	PS	5	4.07	20.255	15	NR!	2.26	2.624	15	PASS
N037709-001B-MS	MS	1	18.64	9.945	15	PASS	11.79	1.574	15	PASS
N037709-001B-MS	MS	5	3.33	11.753	15	PASS	2.26	2.264	15	PASS
N037709-001B-MSD	MSD	1	17.91	6.604	15	PASS	11.76	0.672	15	PASS
CCV5	CCV	1	20.61	3.415	15	PASS	20.08	0.604	15	PASS
CCB5	CCB	1	0.07	173.205	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B-MSD	MSD	5	3.26	35.543	15	NR!	2.18	1.841	15	PASS
N037709-002B	SAMP	1	7.29	11.729	15	PASS	<0.000	N/A	15	<PQL
N037709-002B	SAMP	5	1.34	32.421	15	NR!	<0.000	N/A	15	<PQL
N037709-003B	SAMP	1	5.68	13.023	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				9 Be [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	0.5	12.561	15	PASS	<0.000	N/A	15	<PQL
N037723-001B	SAMP	1	0.23	42.143	15	<PQL	<0.000	N/A	15	<PQL
N037723-001B	SAMP	5	0.05	86.64	15	<PQL	<0.000	N/A	15	<PQL
N037723-002B	SAMP	1	0.82	34.684	15	NR!	0.01	68.009	15	<PQL
N037723-002B	SAMP	5	0.17	79.082	15	<PQL	<0.000	N/A	15	<PQL
N037723-003B	SAMP	1	0.24	123.345	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	19.09	6.891	15	PASS	20.28	0.063	15	PASS
CCB6	CCB	1	0.02	173.205	15	<PQL	<0.000	N/A	15	<PQL
N037723-003B	SAMP	5	0.07	173.205	15	<PQL	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	4.03	11.442	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	5	0.97	35.45	15	NR!	<0.000	N/A	15	<PQL
N037735-001B	SAMP	1	0.18	89.268	15	<PQL	<0.000	N/A	15	<PQL
N037735-001B	SAMP	5	0.1	173.205	15	<PQL	<0.000	N/A	15	<PQL
N037756-001B	SAMP	1	1.83	19.789	15	NR!	<0.000	N/A	15	<PQL
N037756-001B	SAMP	5	0.41	56.18	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.25	3.231	15	PASS	19.62	0.419	15	PASS
CCB7	CCB	1	0.05	173.205	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.08	100.155	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.06	7.089	15	PASS	21.05	0.275	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.09	37.211	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.53	0.662	15	PASS
Std3-5/50 ppb	ICAL	1	4.84	2.476	15	PASS
Std4-10/100 ppb	ICAL	1	9.86	2.463	15	PASS
Std5-20/200 ppb	ICAL	1	19.84	1.787	15	PASS
Std6-40/400 ppb	ICAL	1	39.86	1.266	15	PASS
Std7-100/1000 ppb	ICAL	1	99.73	1.302	15	PASS
Std8-200/2000 ppb	ICAL	1	200.19	0.382	15	PASS
ICV	ICV	1	10.42	1.091	15	PASS
ICB	ICB	1	0.1	7.117	15	PASS
LLICV	CCV1	1	0.54	4.565	20	PASS
ICSA1	ICSA	1	0.05	33.66	15	<PQL
ICSAB1	ICSAB	1	22.49	0.623	15	PASS
LLICV	CCV1	1	0.67	5.167	20	PASS
CCV1	CCV	1	20.41	1.369	15	PASS
CCB1	CCB	1	0.21	15.253	15	<PQL
CCV2	CCV	1	19.93	1.767	15	PASS
CCB2	CCB	1	0.13	8.186	15	PASS
CCV3	CCV	1	20.1	0.705	15	PASS
CCB3	CCB	1	0.13	10.405	15	PASS
CCV4	CCV	1	20.41	0.803	15	PASS
CCB4	CCB	1	0.18	16.908	15	<PQL
ICSA2	ICSA	1	0.09	17.449	15	<PQL
ICSAB2	ICSAB	1	22.43	1.022	15	PASS
MB-75562	MBLK	1	0.18	32.952	15	<PQL
LCS-75562	LCS	1	10.52	2.311	15	PASS
N037709-001B	SAMP	1	4.82	3.866	15	PASS
N037709-001B	SAMP	5	0.96	6.914	15	PASS
N037709-001B	SAMP	25	0.18	13.463	15	PASS
N037709-001B-PS	PS	1	15.89	0.718	15	PASS
N037709-001B-PS	PS	5	3.2	0.804	15	PASS
N037709-001B-MS	MS	1	15.74	0.725	15	PASS
N037709-001B-MS	MS	5	3.17	4.543	15	PASS
N037709-001B-MSD	MSD	1	15.73	1.325	15	PASS
CCV5	CCV	1	20.11	1.184	15	PASS
CCB5	CCB	1	0.19	21.835	15	<PQL
N037709-001B-MSD	MSD	5	3.11	2.021	15	PASS
N037709-002B	SAMP	1	18.18	0.88	15	PASS
N037709-002B	SAMP	5	3.67	1.86	15	PASS
N037709-003B	SAMP	1	5.29	2.621	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	1.04	1.368	15	PASS
N037723-001B	SAMP	1	88.7	0.636	15	PASS
N037723-001B	SAMP	5	18.03	1.437	15	PASS
N037723-002B	SAMP	1	190.44	0.847	15	PASS
N037723-002B	SAMP	5	38.11	2.007	15	PASS
N037723-003B	SAMP	1	59.88	0.834	15	PASS
CCV6	CCV	1	20.36	0.34	15	PASS
CCB6	CCB	1	0.25	12.337	15	PASS
N037723-003B	SAMP	5	11.7	1.569	15	PASS
N037723-004B	SAMP	1	13.9	1.224	15	PASS
N037723-004B	SAMP	5	2.9	1.043	15	PASS
N037735-001B	SAMP	1	13.08	2.222	15	PASS
N037735-001B	SAMP	5	2.79	6.932	15	PASS
N037756-001B	SAMP	1	11.29	4.856	15	PASS
N037756-001B	SAMP	5	2.32	3.131	15	PASS
CCV7	CCV	1	20.31	1.488	15	PASS
CCB7	CCB	1	0.16	6.193	15	PASS
ICSA3	ICSA	1	0.06	30.515	15	<PQL
ICSAB3	ICSAB	1	22.48	0.483	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				51 V [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	20.015	15	<PQL	0.21	26.808	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.51	9.562	15	PASS	0.59	9.083	15	PASS
Std3-5/50 ppb	ICAL	1	5.02	1.211	15	PASS	5.08	2.746	15	PASS
Std4-10/100 ppb	ICAL	1	9.95	1.972	15	PASS	10.33	1.223	15	PASS
Std5-20/200 ppb	ICAL	1	20.26	0.918	15	PASS	20.58	2.462	15	PASS
Std6-40/400 ppb	ICAL	1	40.73	0.258	15	PASS	40.22	1.515	15	PASS
Std7-100/1000 ppb	ICAL	1	100.47	0.081	15	PASS	102.4	1.529	15	PASS
Std8-200/2000 ppb	ICAL	1	199.59	0.347	15	PASS	198.68	0.751	15	PASS
ICV	ICV	1	10.28	1.395	15	PASS	10.36	1.01	15	PASS
ICB	ICB	1	0	293.126	15	<PQL	0.15	31.279	15	<PQL
LLICV	CCV1	1	1.07	5.717	20	PASS	1.07	6.894	20	PASS
ICSA1	ICSA	1	0.34	8.224	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.11	1.089	15	PASS	20.65	0.622	15	PASS
LLICV	CCV1	1	1.02	2.397	20	PASS	0.95	8.771	20	PASS
MB-75562	MBLK	1	0.01	46.549	15	<PQL	<0.000	N/A	15	<PQL
LCS-75562	LCS	1	10.23	1.475	15	PASS	10.24	0.478	15	PASS
CCV1	CCV	1	20.41	0.956	15	PASS	20.03	2.096	15	PASS
CCB1	CCB	1	0.01	45.968	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B	SAMP	1	54.69	0.374	15	PASS	12.81	2.004	15	PASS
N037709-001B	SAMP	5	11.17	0.989	15	PASS	2.44	1.232	15	PASS
N037709-001B-PS	PS	1	66.28	0.2	15	PASS	23.54	1.424	15	PASS
N037709-001B-MS	MS	1	63.83	2.117	15	PASS	23.06	0.193	15	PASS
N037709-001B-MSD	MSD	1	63.93	1.049	15	PASS	22.97	0.675	15	PASS
N037709-002B	SAMP	1	48.68	0.684	15	PASS	13.56	1.087	15	PASS
N037709-003B	SAMP	1	49.57	0.761	15	PASS	8.25	3.192	15	PASS
N037723-001B	SAMP	1	19.34	1.441	15	PASS	5.69	3.464	15	PASS
N037723-002B	SAMP	1	27.76	0.532	15	PASS	3	1.764	15	PASS
N037723-003B	SAMP	1	20.9	0.823	15	PASS	0.75	11.283	15	PASS
CCV2	CCV	1	21.07	0.327	15	PASS	19.38	1.512	15	PASS
CCB2	CCB	1	0.01	92.481	15	<PQL	<0.000	N/A	15	<PQL
MB-75562	MBLK	1	0	183.114	15	<PQL	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	39.28	0.592	15	PASS	0.9	7.052	15	PASS
N037756-001B	SAMP	1	56.85	0.725	15	PASS	6.37	1.125	15	PASS
N037723-002B	SAMP	1	27.77	1.533	15	PASS	2.88	3.846	15	PASS
N037756-001B	SAMP	1	56.02	0.621	15	PASS	6.35	2.261	15	PASS
CCV3	CCV	1	21.4	0.463	15	PASS	19.66	1.408	15	PASS
CCB3	CCB	1	0.02	93.63	15	<PQL	<0.000	N/A	15	<PQL
N037723-002B	SAMP	1	27.67	0.783	15	PASS	3.17	3.164	15	PASS
N037723-002B	SAMP	1	28.18	0.734	15	PASS	3.25	1.379	15	PASS
N037723-002B	SAMP	1	28.09	0.263	15	PASS	3.25	1.213	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				51 V [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037723-002B	SAMP	1	28.11	1.212	15	PASS	3.22	2.497	15	PASS
N037723-002B	SAMP	1	27.96	1.054	15	PASS	3.23	1.733	15	PASS
CCV4	CCV	1	21.56	0.846	15	PASS	19.51	0.758	15	PASS
CCB4	CCB	1	0.02	31.9	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.33	10.295	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	22.25	0.642	15	PASS	20.46	1.426	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.04	188.693	15	<PQL	0.11	31.346	15	NR!
Std2-0.5/5 ppb	ICAL	1	0.19	54.59	15	<PQL	0.54	11.73	15	PASS
Std3-5/50 ppb	ICAL	1	4.63	2.508	15	PASS	5.02	2.171	15	PASS
Std4-10/100 ppb	ICAL	1	10.38	3.011	15	PASS	10.12	1.283	15	PASS
Std5-20/200 ppb	ICAL	1	20.35	1.571	15	PASS	20.34	1.971	15	PASS
Std6-40/400 ppb	ICAL	1	40.49	0.883	15	PASS	40.28	1.731	15	PASS
Std7-100/1000 ppb	ICAL	1	99.72	1.828	15	PASS	100.73	2.122	15	PASS
Std8-200/2000 ppb	ICAL	1	200	1.345	15	PASS	199.54	0.931	15	PASS
ICV	ICV	1	10.28	1.853	15	PASS	10.5	1.423	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.02	160.433	15	<PQL
LLICV	CCV1	1	0.87	11.776	20	PASS	0.14	8.171	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.38	1.665	15	PASS	21.12	2.575	15	PASS
LLICV	CCV1	1	1.44	5.914	20	PASS	0.11	48.731	20	NR!
MB-75562	MBLK	1	2.09	14.51	15	PASS	<0.000	N/A	15	<PQL
LCS-75562	LCS	1	10.98	1.931	15	PASS	10.45	3.603	15	PASS
CCV1	CCV	1	19.88	2.191	15	PASS	20.85	0.622	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B	SAMP	1	1.71	2.348	15	PASS	1.72	0.289	15	PASS
N037709-001B	SAMP	5	0.11	181.678	15	<PQL	0.32	10.59	15	PASS
N037709-001B-PS	PS	1	11.29	1.065	15	PASS	12.21	1.121	15	PASS
N037709-001B-MS	MS	1	11.84	1.198	15	PASS	12.22	1.827	15	PASS
N037709-001B-MSD	MSD	1	12.91	2.477	15	PASS	12.65	2.788	15	PASS
N037709-002B	SAMP	1	8.46	4.864	15	PASS	2.12	3.574	15	PASS
N037709-003B	SAMP	1	2.18	4.378	15	PASS	1.29	6.019	15	PASS
N037723-001B	SAMP	1	<0.000	N/A	15	<PQL	6.37	3.828	15	PASS
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.66	4.929	15	PASS
N037723-003B	SAMP	1	<0.000	N/A	15	<PQL	2.03	5.39	15	PASS
CCV2	CCV	1	20.93	2.331	15	PASS	20.65	1.984	15	PASS
CCB2	CCB	1	0.36	41.254	15	<PQL	0.01	607.855	15	<PQL
MB-75562	MBLK	1	<0.000	N/A	15	<PQL	0.01	82.45	15	<PQL
N037723-004B	SAMP	1	2.01	13.311	15	PASS	1.75	5.208	15	PASS
N037756-001B	SAMP	1	3.63	3.182	15	PASS	1.46	0.611	15	PASS
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.44	4.152	15	PASS
N037756-001B	SAMP	1	4.25	4.26	15	PASS	1.53	4.092	15	PASS
CCV3	CCV	1	20	2.158	15	PASS	20.55	0.558	15	PASS
CCB3	CCB	1	0.11	49.981	15	<PQL	0	1100.217	15	<PQL
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.23	3.345	15	PASS
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.26	3.234	15	PASS
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.33	7.596	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.1	3.123	15	PASS
N037723-002B	SAMP	1	<0.000	N/A	15	<PQL	2.3	7.287	15	PASS
CCV4	CCV	1	20.42	0.691	15	PASS	20.73	0.336	15	PASS
CCB4	CCB	1	0.03	293.893	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.28	3.043	15	PASS	21.38	3.206	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.13	83.678	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.57	9.679	15	PASS
Std3-5/50 ppb	ICAL	1	4.53	13.876	15	PASS
Std4-10/100 ppb	ICAL	1	9.18	6.15	15	PASS
Std5-20/200 ppb	ICAL	1	20.58	1.035	15	PASS
Std6-40/400 ppb	ICAL	1	40.23	3.778	15	PASS
Std7-100/1000 ppb	ICAL	1	100.07	2.928	15	PASS
Std8-200/2000 ppb	ICAL	1	199.92	3.297	15	PASS
ICV	ICV	1	10.75	4	15	PASS
ICB	ICB	1	0.09	86.586	15	<PQL
LLICV	CCV1	1	0.5	4.64	20	PASS
ICSA1	ICSA	1	0	1761.856	15	<PQL
ICSAB1	ICSAB	1	20.99	12.989	15	PASS
LLICV	CCV1	1	0.47	56.07	20	<PQL
MB-75562	MBLK	1	<0.000	N/A	15	<PQL
LCS-75562	LCS	1	9.24	5.38	15	PASS
CCV1	CCV	1	19.95	5.339	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL
N037709-001B	SAMP	1	5.8	11.169	15	PASS
N037709-001B	SAMP	5	1.45	34.126	15	NR!
N037709-001B-PS	PS	1	14.51	2.816	15	PASS
N037709-001B-MS	MS	1	16.38	5.93	15	PASS
N037709-001B-MSD	MSD	1	14.88	10.613	15	PASS
N037709-002B	SAMP	1	6.3	4.605	15	PASS
N037709-003B	SAMP	1	4.67	6.496	15	PASS
N037723-001B	SAMP	1	0.03	162.943	15	<PQL
N037723-002B	SAMP	1	0.59	20.937	15	NR!
N037723-003B	SAMP	1	0.08	92.737	15	<PQL
CCV2	CCV	1	18.69	5.775	15	PASS
CCB2	CCB	1	0.04	228.247	15	<PQL
MB-75562	MBLK	1	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	4.16	4.989	15	PASS
N037756-001B	SAMP	1	1.93	26.531	15	NR!
N037723-002B	SAMP	1	0.8	22.383	15	NR!
N037756-001B	SAMP	1	2.32	4.505	15	PASS
CCV3	CCV	1	20.33	1.894	15	PASS
CCB3	CCB	1	0.07	95.604	15	<PQL
N037723-002B	SAMP	1	0.6	62.84	15	NR!
N037723-002B	SAMP	1	0.61	18.768	15	NR!
N037723-002B	SAMP	1	0.56	20.1	15	NR!

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
N037723-002B	SAMP	1	0.45	17.788	15	<PQL
N037723-002B	SAMP	1	0.41	35.208	15	<PQL
CCV4	CCV	1	18.81	6.142	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.41	1.945	15	PASS

PERCENT RSD SUMMARY: 191015A

Instrument ID: ICPMS-02

Sample Name	Type	DF	63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.01	1212.435	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.26	34.744	15	<PQL
Std3-5/50 ppb	ICAL	1	4.78	0.693	15	PASS
Std4-10/100 ppb	ICAL	1	10.02	3.535	15	PASS
Std5-20/200 ppb	ICAL	1	20.57	0.336	15	PASS
Std6-40/400 ppb	ICAL	1	42.81	1.65	15	PASS
Std7-100/1000 ppb	ICAL	1	101.26	1.373	15	PASS
Std8-200/2000 ppb	ICAL	1	198.75	1.292	15	PASS
ICV	ICV	1	9.78	3.527	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.64	10.638	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	16.92	2.155	15	PASS
LLICV	CCV1	1	1.07	9.023	20	PASS
MB-75562	MBLK	1	0.09	153.422	15	<PQL
LCS-75562	LCS	1	11.38	1.808	15	PASS
CCV1	CCV	1	20.16	1.402	15	PASS
CCB1	CCB	1	0.22	14.679	15	PASS
N037709-001B	SAMP	1	<0.000	N/A	15	<PQL
N037709-001B	SAMP	5	<0.000	N/A	15	<PQL
N037709-001B-PS	PS	1	6.32	2.448	15	PASS
N037709-001B-MS	MS	1	7.07	1.493	15	PASS
N037709-001B-MSD	MSD	1	7.56	4.748	15	PASS
N037709-002B	SAMP	1	<0.000	N/A	15	<PQL
CCV2	CCV	1	21.79	1.85	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.58	3.766	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011001.D	RINSE	RINSE	1	10/11/19 4:22 PM
B1011002.D	Cal Blank	IBLK	1	10/11/19 4:26 PM
B1011003.D	Std1-0.1/1 ppb	ICAL	1	10/11/19 4:31 PM
B1011004.D	Std2-0.5/5 ppb	ICAL	1	10/11/19 4:36 PM
B1011005.D	Std3-5/50 ppb	ICAL	1	10/11/19 4:41 PM
B1011006.D	Std4-10/100 ppb	ICAL	1	10/11/19 4:46 PM
B1011007.D	Std5-20/200 ppb	ICAL	1	10/11/19 4:51 PM
B1011008.D	Std6-40/400 ppb	ICAL	1	10/11/19 4:55 PM
B1011009.D	Std7-100/1000 ppb	ICAL	1	10/11/19 5:00 PM
B1011010.D	Std8-200/2000 ppb	ICAL	1	10/11/19 5:05 PM
B1011011.D	ICV	ICV	1	10/11/19 5:11 PM
B1011012.D	ICB	ICB	1	10/11/19 5:16 PM
B1011013.D	LLICV	CCV1	1	10/11/19 5:20 PM
B1011014.D	ICSA1	ICSA	1	10/11/19 5:25 PM
B1011015.D	ICSAB1	ICSAB	1	10/11/19 5:30 PM
B1011016.D	LLICV	CCV1	1	10/11/19 5:35 PM
B1011017.D	MB-75625	MBLK	1	10/11/19 5:39 PM
B1011018.D	LCS-75625	LCS	1	10/11/19 5:44 PM
B1011019.D	N037828-001A	SAMP	1	10/11/19 5:48 PM
B1011020.D	N037828-001A	SAMP	5	10/11/19 5:54 PM
B1011021.D	N037828-001A	SAMP	25	10/11/19 5:59 PM
B1011022.D	N037828-001A-PS	PS	1	10/11/19 6:04 PM
B1011023.D	N037828-001A-PS	PS	5	10/11/19 6:09 PM
B1011024.D	N037828-001A-MS	MS	1	10/11/19 6:14 PM
B1011025.D	N037828-001A-MS	MS	5	10/11/19 6:19 PM
B1011026.D	N037828-001A-MSD	MSD	1	10/11/19 6:25 PM
B1011027.D	CCV1	CCV	1	10/11/19 6:30 PM
B1011028.D	CCB1	CCB	1	10/11/19 6:34 PM
B1011029.D	N037828-001A-MSD	MSD	5	10/11/19 6:39 PM
B1011030.D	N037828-002A	SAMP	1	10/11/19 6:44 PM
B1011031.D	N037828-002A	SAMP	5	10/11/19 6:49 PM
B1011032.D	MB-75605	MBLK	1	10/11/19 6:54 PM
B1011033.D	LCS-75605	LCS	1	10/11/19 6:58 PM
B1011034.D	N037801-001B	SAMP	1	10/11/19 7:03 PM
B1011035.D	N037801-002B	SAMP	1	10/11/19 7:08 PM
B1011036.D	N037801-003B	SAMP	1	10/11/19 7:12 PM
B1011037.D	N037801-004B	SAMP	1	10/11/19 7:17 PM
B1011038.D	N037801-004B	SAMP	5	10/11/19 7:22 PM
B1011039.D	CCV2	CCV	1	10/11/19 7:27 PM
B1011040.D	CCB2	CCB	1	10/11/19 7:32 PM
B1011041.D	N037801-004B-PS	PS	1	10/11/19 7:36 PM
B1011042.D	N037801-004B-MS	MS	1	10/11/19 7:41 PM

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011043.D	N037801-004B-MSD	MSD	1	10/11/19 7:46 PM
B1011044.D	N037801-005B	SAMP	1	10/11/19 7:50 PM
B1011045.D	N037801-006B	SAMP	1	10/11/19 7:55 PM
B1011046.D	N037801-007B	SAMP	1	10/11/19 8:01 PM
B1011047.D	N037813-001B	SAMP	1	10/11/19 8:06 PM
B1011048.D	N037813-002B	SAMP	1	10/11/19 8:11 PM
B1011049.D	N037813-003B	SAMP	1	10/11/19 8:16 PM
B1011050.D	N037813-004B	SAMP	1	10/11/19 8:21 PM
B1011051.D	CCV3	CCV	1	10/11/19 8:26 PM
B1011052.D	CCB3	CCB	1	10/11/19 8:31 PM
B1011053.D	N037813-005B	SAMP	1	10/11/19 8:36 PM
B1011054.D	N037813-006B	SAMP	1	10/11/19 8:41 PM
B1011055.D	N037813-007B	SAMP	1	10/11/19 8:46 PM
B1011056.D	N037813-008B	SAMP	1	10/11/19 8:50 PM
B1011057.D	N037813-009B	SAMP	1	10/11/19 8:56 PM
B1011058.D	N037813-009B	SAMP	5	10/11/19 9:01 PM
B1011059.D	N037813-009B-PS	PS	1	10/11/19 9:06 PM
B1011060.D	N037813-009B-MS	MS	1	10/11/19 9:11 PM
B1011061.D	N037813-009B-MSD	MSD	1	10/11/19 9:16 PM
B1011062.D	N037813-010B	SAMP	1	10/11/19 9:21 PM
B1011063.D	CCV4	CCV	1	10/11/19 9:26 PM
B1011064.D	CCB4	CCB	1	10/11/19 9:31 PM
B1011065.D	ICSA2	ICSA	1	10/11/19 9:35 PM
B1011066.D	ICSAB2	ICSAB	1	10/11/19 9:40 PM
B1011067.D	MB-75562	MBLK	1	10/11/19 9:45 PM
B1011068.D	LCS-75562	LCS	1	10/11/19 9:49 PM
B1011069.D	N037709-001B	SAMP	1	10/11/19 9:54 PM
B1011070.D	N037709-001B	SAMP	5	10/11/19 9:59 PM
B1011071.D	N037709-001B	SAMP	25	10/11/19 10:04 PM
B1011072.D	N037709-001B-PS	PS	1	10/11/19 10:09 PM
B1011073.D	N037709-001B-PS	PS	5	10/11/19 10:14 PM
B1011074.D	N037709-001B-MS	MS	1	10/11/19 10:19 PM
B1011075.D	N037709-001B-MS	MS	5	10/11/19 10:24 PM
B1011076.D	N037709-001B-MSD	MSD	1	10/11/19 10:29 PM
B1011077.D	CCV5	CCV	1	10/11/19 10:34 PM
B1011078.D	CCB5	CCB	1	10/11/19 10:39 PM
B1011079.D	N037709-001B-MSD	MSD	5	10/11/19 10:43 PM
B1011080.D	N037709-002B	SAMP	1	10/11/19 10:48 PM
B1011081.D	N037709-002B	SAMP	5	10/11/19 10:53 PM
B1011082.D	N037709-003B	SAMP	1	10/11/19 10:58 PM
B1011083.D	N037709-003B	SAMP	5	10/11/19 11:03 PM
B1011084.D	N037723-001B	SAMP	1	10/11/19 11:07 PM

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011085.D	N037723-001B	SAMP	5	10/11/19 11:12 PM
B1011086.D	N037723-002B	SAMP	1	10/11/19 11:17 PM
B1011087.D	N037723-002B	SAMP	5	10/11/19 11:22 PM
B1011088.D	N037723-003B	SAMP	1	10/11/19 11:28 PM
B1011089.D	CCV6	CCV	1	10/11/19 11:33 PM
B1011090.D	CCB6	CCB	1	10/11/19 11:37 PM
B1011091.D	N037723-003B	SAMP	5	10/11/19 11:42 PM
B1011092.D	N037723-004B	SAMP	1	10/11/19 11:47 PM
B1011093.D	N037723-004B	SAMP	5	10/11/19 11:52 PM
B1011094.D	N037735-001B	SAMP	1	10/11/19 11:57 PM
B1011095.D	N037735-001B	SAMP	5	10/12/19 12:02 AM
B1011096.D	N037756-001B	SAMP	1	10/12/19 12:07 AM
B1011097.D	N037756-001B	SAMP	5	10/12/19 12:12 AM
B1011098.D	CCV7	CCV	1	10/12/19 12:17 AM
B1011099.D	CCB7	CCB	1	10/12/19 12:22 AM
B1011100.D	ICSA3	ICSA	1	10/12/19 12:26 AM
B1011101.D	ICSAB3	ICSAB	1	10/12/19 12:31 AM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014001.D	RINSE	RINSE	1	10/14/19 12:32 PM
B1014002.D	Cal Blank	IBLK	1	10/14/19 12:37 PM
B1014003.D	Std1-0.1/1 ppb	ICAL	1	10/14/19 12:42 PM
B1014004.D	Std2-0.5/5 ppb	ICAL	1	10/14/19 12:49 PM
B1014005.D	Std3-5/50 ppb	ICAL	1	10/14/19 12:54 PM
B1014006.D	Std4-10/100 ppb	ICAL	1	10/14/19 12:59 PM
B1014007.D	Std5-20/200 ppb	ICAL	1	10/14/19 1:04 PM
B1014008.D	Std6-40/400 ppb	ICAL	1	10/14/19 1:09 PM
B1014009.D	Std7-100/1000 ppb	ICAL	1	10/14/19 1:14 PM
B1014010.D	Std8-200/2000 ppb	ICAL	1	10/14/19 1:20 PM
B1014011.D	ICV	ICV	1	10/14/19 1:25 PM
B1014012.D	ICB	ICB	1	10/14/19 1:29 PM
B1014013.D	LLICV	CCV1	1	10/14/19 1:34 PM
B1014014.D	ICSA1	ICSA	1	10/14/19 1:39 PM
B1014015.D	ICSAB1	ICSAB	1	10/14/19 1:44 PM
B1014016.D	LLICV	CCV1	1	10/14/19 1:59 PM
B1014017.D	MB-75625	MBLK	1	10/14/19 2:04 PM
B1014018.D	LCS-75625	LCS	1	10/14/19 2:08 PM
B1014019.D	N037828-001A	SAMP	1	10/14/19 2:13 PM
B1014020.D	N037828-001A	SAMP	5	10/14/19 2:18 PM
B1014021.D	N037828-001A-PS	PS	1	10/14/19 2:23 PM
B1014022.D	N037828-001A-MS	MS	1	10/14/19 2:28 PM
B1014023.D	N037828-001A-MSD	MSD	1	10/14/19 2:33 PM
B1014024.D	N037828-002A	SAMP	1	10/14/19 2:39 PM
B1014025.D	MB-75562	MBLK	1	10/14/19 2:44 PM
B1014026.D	LCS-75562	LCS	1	10/14/19 2:49 PM
B1014027.D	CCV1	CCV	1	10/14/19 2:54 PM
B1014028.D	CCB1	CCB	1	10/14/19 2:59 PM
B1014029.D	N037709-001B	SAMP	1	10/14/19 3:04 PM
B1014030.D	N037709-001B	SAMP	5	10/14/19 3:09 PM
B1014031.D	N037709-001B-PS	PS	1	10/14/19 3:14 PM
B1014032.D	N037709-001B-MS	MS	1	10/14/19 3:19 PM
B1014033.D	N037709-001B-MSD	MSD	1	10/14/19 3:24 PM
B1014034.D	N037709-002B	SAMP	1	10/14/19 3:29 PM
B1014035.D	N037709-003B	SAMP	1	10/14/19 3:34 PM
B1014036.D	N037723-001B	SAMP	1	10/14/19 3:39 PM
B1014037.D	N037723-002B	SAMP	1	10/14/19 3:45 PM
B1014038.D	N037723-003B	SAMP	1	10/14/19 3:50 PM
B1014039.D	CCV2	CCV	1	10/14/19 3:55 PM
B1014040.D	CCB2	CCB	1	10/14/19 4:00 PM
B1014041.D	MB-75562	MBLK	1	10/14/19 4:05 PM
B1014042.D	N037723-004B	SAMP	1	10/14/19 4:10 PM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014043.D	N037756-001B	SAMP	1	10/14/19 4:16 PM
B1014044.D	N037828-002A	SAMP	1	10/14/19 4:21 PM
B1014045.D	N037723-002B	SAMP	1	10/14/19 4:26 PM
B1014046.D	N037756-001B	SAMP	1	10/14/19 4:31 PM
B1014047.D	N037828-002A	SAMP	1	10/14/19 4:36 PM
B1014048.D	N037666-003B	SAMP	1	10/14/19 4:41 PM
B1014049.D	N037666-006B	SAMP	1	10/14/19 4:46 PM
B1014050.D	N037666-007B	SAMP	1	10/14/19 4:51 PM
B1014051.D	CCV3	CCV	1	10/14/19 4:57 PM
B1014052.D	CCB3	CCB	1	10/14/19 5:02 PM
B1014053.D	N037828-002A	SAMP	1	10/14/19 5:06 PM
B1014054.D	N037723-002B	SAMP	1	10/14/19 5:12 PM
B1014055.D	N037666-006B	SAMP	1	10/14/19 5:17 PM
B1014056.D	N037828-002A	SAMP	1	10/14/19 5:22 PM
B1014057.D	N037723-002B	SAMP	1	10/14/19 5:27 PM
B1014058.D	N037723-002B	SAMP	1	10/14/19 5:32 PM
B1014059.D	N037723-002B	SAMP	1	10/14/19 5:37 PM
B1014060.D	N037723-002B	SAMP	1	10/14/19 5:43 PM
B1014061.D	CCV4	CCV	1	10/14/19 5:48 PM
B1014062.D	CCB4	CCB	1	10/14/19 5:53 PM
B1014063.D	ICSA2	ICSA	1	10/14/19 5:58 PM
B1014064.D	ICSAB2	ICSAB	1	10/14/19 6:03 PM

INJECTION LOG: 191015A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1015001.D	RINSE	RINSE	1	10/15/19 10:33 AM
A1015002.D	Cal Blank	IBLK	1	10/15/19 10:38 AM
A1015003.D	Std1-0.1/1 ppb	ICAL	1	10/15/19 10:42 AM
A1015004.D	Std2-0.5/5 ppb	ICAL	1	10/15/19 10:47 AM
A1015005.D	Std3-5/50 ppb	ICAL	1	10/15/19 10:52 AM
A1015006.D	Std4-10/100 ppb	ICAL	1	10/15/19 10:57 AM
A1015007.D	Std5-20/200 ppb	ICAL	1	10/15/19 11:02 AM
A1015008.D	Std6-40/400 ppb	ICAL	1	10/15/19 11:06 AM
A1015009.D	Std7-100/1000 ppb	ICAL	1	10/15/19 11:11 AM
A1015010.D	Std8-200/2000 ppb	ICAL	1	10/15/19 11:16 AM
A1015011.D	ICV	ICV	1	10/15/19 11:22 AM
A1015012.D	ICB	ICB	1	10/15/19 11:27 AM
A1015013.D	LLICV	CCV1	1	10/15/19 11:32 AM
A1015014.D	ICSA1	ICSA	1	10/15/19 11:36 AM
A1015015.D	ICSAB1	ICSAB	1	10/15/19 11:41 AM
A1015016.D	LLICV	CCV1	1	10/15/19 11:47 AM
A1015017.D	MB-75625	MBLK	1	10/15/19 11:52 AM
A1015018.D	LCS-75625	LCS	1	10/15/19 11:57 AM
A1015019.D	N037828-001A	SAMP	1	10/15/19 12:03 PM
A1015020.D	N037828-001A	SAMP	5	10/15/19 12:09 PM
A1015021.D	N037828-001A-PS	PS	1	10/15/19 12:13 PM
A1015022.D	N037828-001A-MS	MS	1	10/15/19 12:18 PM
A1015023.D	N037828-001A-MSD	MSD	1	10/15/19 12:24 PM
A1015024.D	N037828-002A	SAMP	1	10/15/19 12:29 PM
A1015025.D	MB-75562	MBLK	1	10/15/19 12:34 PM
A1015026.D	LCS-75562	LCS	1	10/15/19 12:39 PM
A1015027.D	CCV1	CCV	1	10/15/19 12:44 PM
A1015028.D	CCB1	CCB	1	10/15/19 12:48 PM
A1015029.D	N037709-001B	SAMP	1	10/15/19 12:53 PM
A1015030.D	N037709-001B	SAMP	5	10/15/19 12:58 PM
A1015031.D	N037709-001B-PS	PS	1	10/15/19 1:03 PM
A1015032.D	N037709-001B-MS	MS	1	10/15/19 1:08 PM
A1015033.D	N037709-001B-MSD	MSD	1	10/15/19 1:13 PM
A1015034.D	N037709-002B	SAMP	1	10/15/19 1:18 PM
A1015035.D	CCV2	CCV	1	10/15/19 1:24 PM
A1015036.D	CCB2	CCB	1	10/15/19 1:28 PM
A1015037.D	ICSA2	ICSA	1	10/15/19 1:33 PM
A1015038.D	ICSAB2	ICSAB	1	10/15/19 1:38 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/7/2019 8:31:50 A**
Prep End Date: **10/7/2019 12:45:00**
Prep Batch **75562** Prep Code: **3010_W_MSDI**

Reviewed/ Date: JRB 10/27/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.0**	**02-2**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75562	Aqueous		25	☐	25	1.000		
MB-75562	Aqueous		25	☐	25	1.000		
N037709-001B	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-002B	Groundwater	<2	25	☐	25	1.000		
N037709-003B	Groundwater	<2	25	☐	25	1.000		
N037723-001B	Groundwater	<2	25	☐	25	1.000		
N037723-002B	Groundwater	<2	25	☐	25	1.000		
N037723-003B	Groundwater	<2	25	☐	25	1.000		
N037723-004B	Groundwater	<2	25	☐	25	1.000		
N037735-001B	Groundwater	<2	25	☐	25	1.000		
N037756-001B	Groundwater	<2	25	☐	25	1.000		

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

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2019 02:38:43 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	96050.50	0.00	
24 Mg	212058.00	0.00	
25 Mg	27559.70	0.00	
26 Mg	32141.80	0.00	
59 Co	186908.00	0.00	
115 In	253394.00	0.00	
206 Pb	84354.30	0.00	
207 Pb	74840.20	0.00	
208 Pb	182447.00	0.00	

RSD (%)

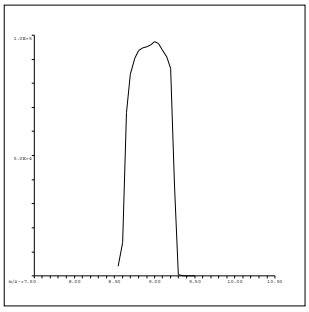
Element	Actual	Required	Flag
9 Be	0.84	5.00	
24 Mg	0.54	5.00	
25 Mg	1.61	5.00	
26 Mg	1.77	5.00	
59 Co	1.27	5.00	
115 In	0.69	5.00	
206 Pb	0.89	5.00	
207 Pb	0.47	5.00	
208 Pb	0.82	5.00	

Ion Ratio

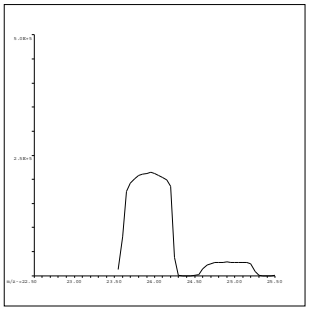
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

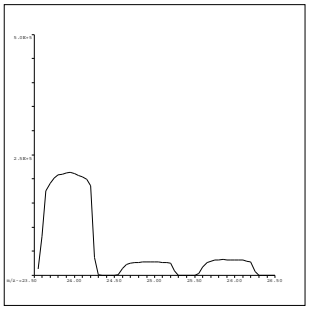
Element	Actual	Required	Flag



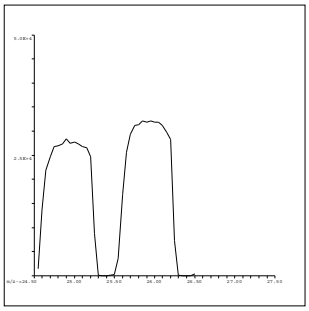
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



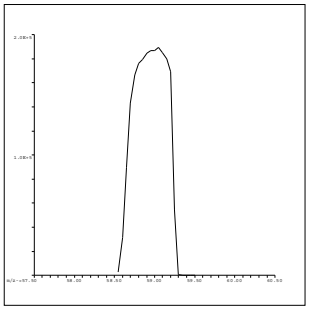
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



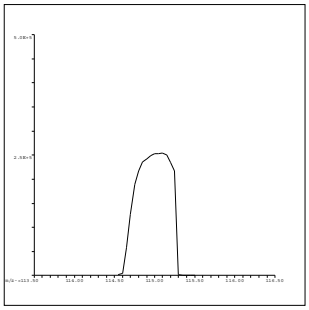
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



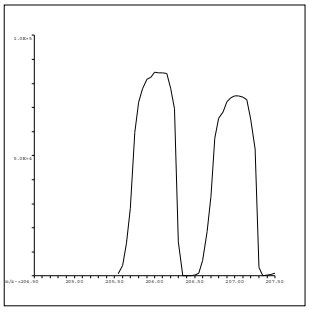
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



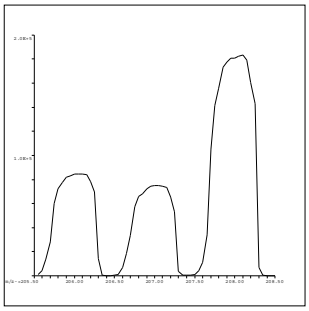
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



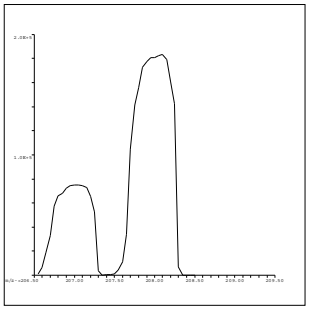
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Oct 2019 08:29:10 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	72409.90	0.00	
24 Mg	265407.00	0.00	
25 Mg	34485.40	0.00	
26 Mg	39923.50	0.00	
59 Co	229056.00	0.00	
115 In	366181.00	0.00	
206 Pb	109296.00	0.00	
207 Pb	96870.30	0.00	
208 Pb	236666.00	0.00	

RSD (%)

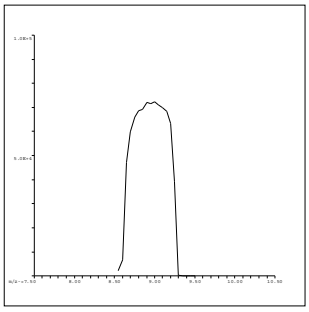
Element	Actual	Required	Flag
9 Be	0.81	5.00	
24 Mg	1.53	5.00	
25 Mg	2.48	5.00	
26 Mg	0.72	5.00	
59 Co	0.96	5.00	
115 In	0.58	5.00	
206 Pb	0.84	5.00	
207 Pb	0.59	5.00	
208 Pb	0.62	5.00	

Ion Ratio

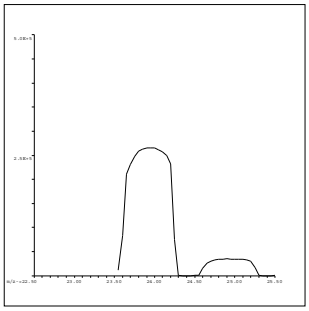
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

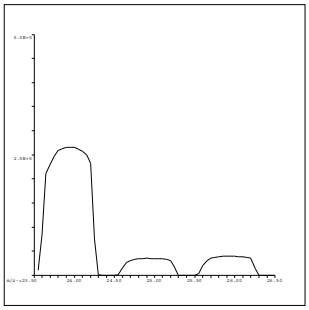
Element	Actual	Required	Flag



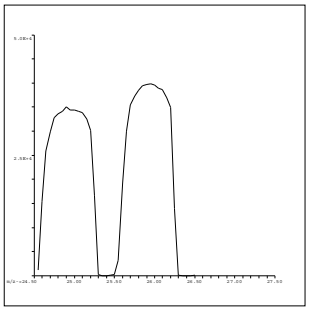
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



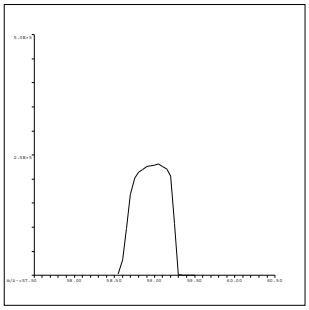
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



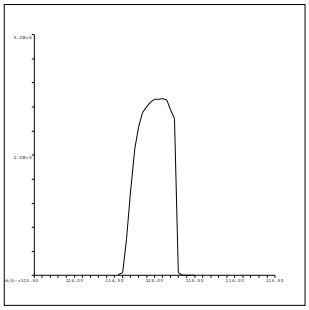
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



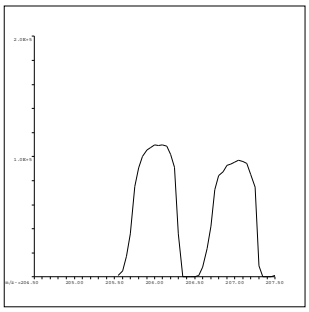
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



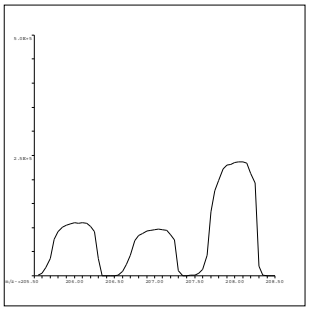
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



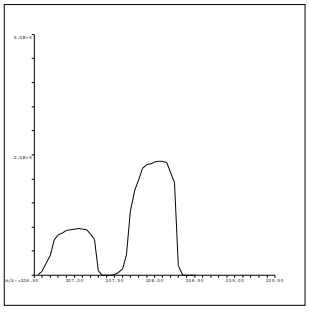
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 15 Oct 2019 10:02:48 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	76153.30	0.00	
24	Mg	163122.00	0.00	
25	Mg	21359.80	0.00	
26	Mg	24538.10	0.00	
59	Co	157954.00	0.00	
115	In	208723.00	0.00	
206	Pb	69710.40	0.00	
207	Pb	60825.90	0.00	
208	Pb	152357.00	0.00	

RSD (%)

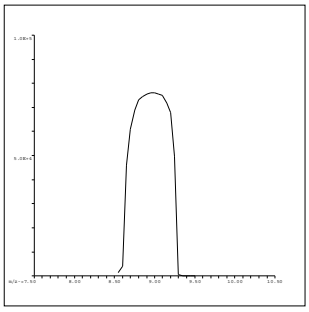
Element		Actual	Required	Flag
9	Be	0.63	5.00	
24	Mg	0.53	5.00	
25	Mg	2.35	5.00	
26	Mg	0.64	5.00	
59	Co	0.81	5.00	
115	In	0.65	5.00	
206	Pb	1.76	5.00	
207	Pb	1.73	5.00	
208	Pb	1.50	5.00	

Ion Ratio

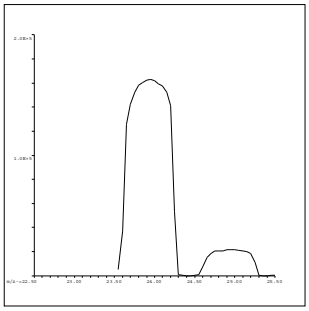
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

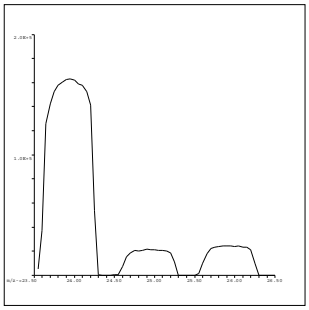
Element	Actual	Required	Flag



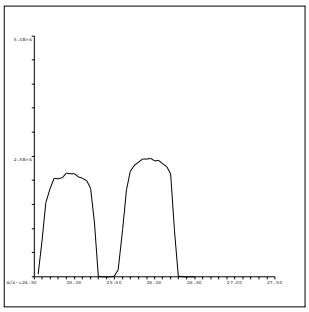
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



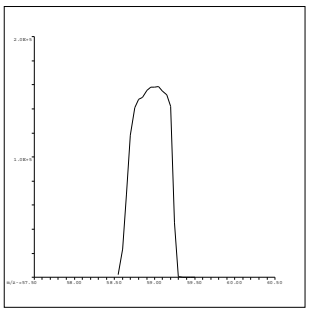
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



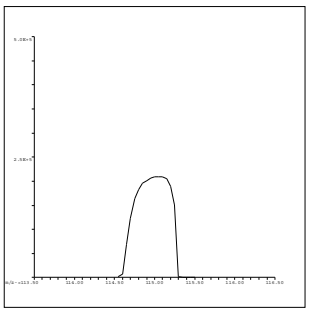
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



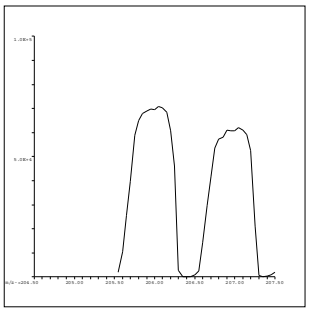
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



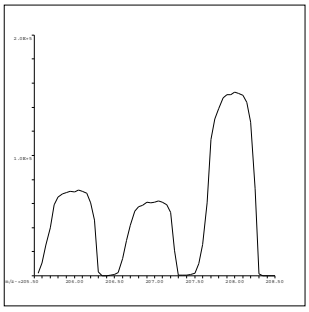
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



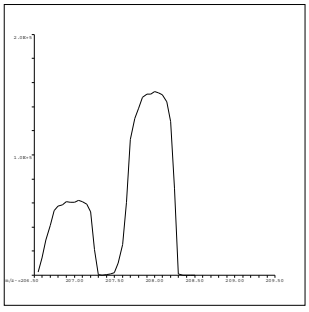
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191011B

Instrument ID: ICPMS-02

Analyte	Data File	B1011002.D	B1011003.D	B1011004.D	B1011005.D	B1011006.D	B1011007.D	B1011008.D	B1011009.D	B1011010.D	
	Acq. Date-Time	10/11/2019 04:26 PM	10/11/2019 04:31 PM	10/11/2019 04:36 PM	10/11/2019 04:41 PM	10/11/2019 04:46 PM	10/11/2019 04:51 PM	10/11/2019 04:55 PM	10/11/2019 05:00 PM	10/11/2019 05:05 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
6 Li (ISTD) [3]	CPS	824789.7		822082.3	830386.8	825913.7	821684.1	819602.2	809618.9	794657.6	
9 Be [3]	CPS	352.2		3387.2	32934.9	65241.4	130817.7	259696.7	642448.1	1342485.7	1.0000
45 Sc (ISTD) [2]	CPS	47299.4		47746.1	48066	48900.7	48837.3	48629.8	48604	48951.9	
59 Co [2]	CPS	6.5		2284.6	23259.3	46839.6	92304.5	185259.8	458221.6	910900.3	1.0000
55 Mn [2]	CPS	38.4		798.5	7840.1	16113.2	31685	63847.8	158536.8	314555.4	1.0000
52 Cr [2]	CPS	415.5		1921.2	15615.2	30896.9	60882.5	121055.3	297755.9	593695.9	1.0000
51 V [2]	CPS	4004		5784.6	16999.4	28986.2	52806.3	101200.2	242814.2	478344.2	1.0000
72 Ge (ISTD) [1]	CPS	13284.9		13489.4	14012.1	14026.6	13638.5	13852	13772	13923.2	
78 Se [1]	CPS	0		16.7	242.2	457.8	990.1	1989.1	4725.4	9675.5	0.9999
72 Ge (ISTD) [2]	CPS	22263.8	22784.5	23120.5	23241.9	23081.8	22937	23148.3	23011.5	23011.6	
75 As [2]	CPS	46.7	81.3	221.3	1829.5	3750.7	7204.3	14552.4	35845.5	71869.1	1.0000
66 Zn [2]	CPS	57.9		362.3	2803.2	5597.9	10866.3	21814.1	53860.4	107438	1.0000
63 Cu [2]	CPS	10934.6		11549.4	26775.1	44102	78743.5	147943.2	348959	685033.5	1.0000
60 Ni [2]	CPS	4924.2		6167.9	11277	17383	29653.2	53857.9	127435.1	248851.7	1.0000
103 Rh (ISTD) [2]	CPS	528382.5		534713.4	536738.7	539558	536487.9	540658.8	536347.1	534410	
95 Mo [2]	CPS	27.8		736.7	6571.6	13439.5	26853.4	54337.6	134826.6	269609.7	1.0000
103 Rh (ISTD) [3]	CPS	841520.3		843859	847662	847658.2	851354.9	846600.2	844988.2	835530.4	
107 Ag [3]	CPS	73.8		3689.3	35679.3	71705.6	143162.4	286227.5	714861.6	1532417.9	1.0000
115 In (ISTD) [3]	CPS	842039.6		844165.4	859543.7	863969.2	862691.6	864349.2	865328.2	852974.3	
121 Sb [3]	CPS	161.1		3379.4	32245.2	65091.1	131445.7	263488.4	662874.3	1315067.4	1.0000
111 Cd [3]	CPS	26.7		865.6	8200.3	15638.4	31945.5	63701.5	158727.1	311695.2	1.0000
159 Tb (ISTD) [3]	CPS	1367594.6		1338554.7	1412685.4	1451301.2	1314817.7	1334136.8	1427229.3	1416023.4	
137 Ba [3]	CPS	32.2		1152.3	10644.2	21788.3	43240.2	86260.1	216403	427612.8	0.9999
209 Bi (ISTD) [3]	CPS	990659.6		995733	1005897.8	1013722.7	1016659.9	1026385.9	1029586.9	1019715.4	
208 Pb [3]	CPS	683.8		12369	120156.3	238846.9	480192.6	964138.7	2415387.9	5096790.3	1.0000
205 Tl [3]	CPS	232.2		8649.6	84464.1	168306.2	340793.5	680836	1870671.6	3648740.5	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 191014B

Instrument ID: ICPMS-02

Analyte	Data File	B1014002.D	B1014003.D	B1014004.D	B1014005.D	B1014006.D	B1014007.D	B1014008.D	B1014009.D	B1014010.D	
	Acq. Date-Time	10/14/2019 12:37 PM	10/14/2019 12:42 PM	10/14/2019 12:49 PM	10/14/2019 12:54 PM	10/14/2019 12:59 PM	10/14/2019 01:04 PM	10/14/2019 01:09 PM	10/14/2019 01:14 PM	10/14/2019 01:20 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	57258.5		57814	56095.6	54862.6	55206.9	55677.4	54497	55390	
51 V [2]	CPS	5021		6901.7	20223.1	35255.1	65848.2	125142.5	304428.9	595917.6	0.9999
72 Ge (ISTD) [1]	CPS	20186.6		20431.4	19781.7	19693.8	19282.2	18764.9	19045.2	18984	
78 Se [1]	CPS	2.2		44.4	326.7	657.8	1441.2	2739.2	6914	13762	1.0000
72 Ge (ISTD) [2]	CPS	34779.3	34644.6	35180.2	34833.9	33890.8	34126.9	34050	33880.6	33819.5	
75 As [2]	CPS	91.6	147.6	380	2734.9	5272.9	10581.8	20813.8	51657.9	102069.5	1.0000
60 Ni [2]	CPS	2423.4		2756.8	9845.9	18557.6	34363.6	65854.7	157937.7	313811.5	1.0000
159 Tb (ISTD) [3]	CPS	2439783.7		2450523.9	2414504.1	2418341	2376429.5	2376050.8	2385138.6	2353404.5	
137 Ba [3]	CPS	50		1945.8	18310.4	36302.5	72553.3	145791.4	360939.9	707428.6	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 191015A

Instrument ID: ICPMS-02

Analyte	Data File	A1015002.D	A1015004.D	A1015005.D	A1015006.D	A1015007.D	A1015008.D	A1015009.D	A1015010.D	
	Acq. Date-Time	10/15/2019 10:38 AM	10/15/2019 10:47 AM	10/15/2019 10:52 AM	10/15/2019 10:57 AM	10/15/2019 11:02 AM	10/15/2019 11:06 AM	10/15/2019 11:11 AM	10/15/2019 11:16 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [2]	CPS	20336.8	22036.7	22255	22169.2	21797.6	22277.2	21378.2	21356	
63 Cu [2]	CPS	7552.9	9039	24420.7	41929.3	76120.6	152933.4	336327.5	651829.7	0.9999

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.855	0.50	10.00	0	109	90	110				
Beryllium	10.643	0.50	10.00	0	106	90	110				
Cadmium	10.607	0.50	10.00	0	106	90	110				
Cobalt	10.694	0.50	10.00	0	107	90	110				
Lead	10.542	1.0	10.00	0	105	90	110				
Manganese	108.438	0.50	100.0	0	108	90	110				
Molybdenum	10.416	0.50	10.00	0	104	90	110				
Silver	10.064	0.50	10.00	0	101	90	110				
Thallium	10.261	0.50	10.00	0	103	90	110				
Zinc	10.715	10	10.00	0	107	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ZZZZZZ** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.598	0.50	0.5000	0	120	80	120				
Beryllium	0.479	0.50	0.5000	0	95.8	80	120				
Cadmium	0.495	0.50	0.5000	0	99.0	80	120				
Cobalt	0.532	0.50	0.5000	0	106	80	120				
Lead	1.051	1.0	1.000	0	105	80	120				
Manganese	0.564	0.50	0.5000	0	113	80	120				
Molybdenum	0.537	0.50	0.5000	0	107	80	120				
Silver	0.534	0.50	0.5000	0	107	80	120				
Thallium	0.473	0.50	0.5000	0	94.6	80	120				
Zinc	10.153	10	10.00	0	102	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	19.774	0.50	20.00	0	98.9	90	110				
Beryllium	21.496	0.50	20.00	0	107	90	110				
Cadmium	19.900	0.50	20.00	0	99.5	90	110				
Cobalt	19.627	0.50	20.00	0	98.1	90	110				
Lead	19.978	1.0	20.00	0	99.9	90	110				
Manganese	20.500	0.50	20.00	0	102	90	110				
Molybdenum	20.415	0.50	20.00	0	102	90	110				
Silver	19.960	0.50	20.00	0	99.8	90	110				
Thallium	20.043	0.50	20.00	0	100	90	110				
Zinc	19.453	10	20.00	0	97.3	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	20.087	0.50	20.00	0	100	90	110				
Beryllium	20.041	0.50	20.00	0	100	90	110				
Cadmium	20.074	0.50	20.00	0	100	90	110				
Cobalt	20.147	0.50	20.00	0	101	90	110				
Lead	20.071	1.0	20.00	0	100	90	110				
Manganese	19.968	0.50	20.00	0	99.8	90	110				
Molybdenum	19.933	0.50	20.00	0	99.7	90	110				
Silver	19.968	0.50	20.00	0	99.8	90	110				
Thallium	19.997	0.50	20.00	0	100	90	110				
Zinc	19.739	10	20.00	0	98.7	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	20.097	0.50	20.00	0	100	90	110				
Beryllium	20.112	0.50	20.00	0	101	90	110				
Cadmium	19.958	0.50	20.00	0	99.8	90	110				
Cobalt	19.763	0.50	20.00	0	98.8	90	110				
Lead	20.135	1.0	20.00	0	101	90	110				
Manganese	20.524	0.50	20.00	0	103	90	110				
Molybdenum	20.104	0.50	20.00	0	101	90	110				
Silver	19.919	0.50	20.00	0	99.6	90	110				
Thallium	20.055	0.50	20.00	0	100	90	110				
Zinc	19.045	10	20.00	0	95.2	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	20.109	0.50	20.00	0	101	90	110				
Beryllium	20.135	0.50	20.00	0	101	90	110				
Cadmium	19.927	0.50	20.00	0	99.6	90	110				
Cobalt	20.164	0.50	20.00	0	101	90	110				
Lead	20.028	1.0	20.00	0	100	90	110				
Manganese	20.350	0.50	20.00	0	102	90	110				
Molybdenum	20.414	0.50	20.00	0	102	90	110				
Silver	19.978	0.50	20.00	0	99.9	90	110				
Thallium	19.954	0.50	20.00	0	99.8	90	110				
Zinc	18.116	10	20.00	0	90.6	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	20.185	0.50	20.00	0	101	90	110				
Beryllium	20.075	0.50	20.00	0	100	90	110				
Cadmium	20.005	0.50	20.00	0	100	90	110				
Cobalt	20.370	0.50	20.00	0	102	90	110				
Lead	20.085	1.0	20.00	0	100	90	110				
Manganese	20.285	0.50	20.00	0	101	90	110				
Molybdenum	20.112	0.50	20.00	0	101	90	110				
Silver	20.010	0.50	20.00	0	100	90	110				
Thallium	20.092	0.50	20.00	0	100	90	110				
Zinc	18.702	10	20.00	0	93.5	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	19.878	0.50	20.00	0	99.4	90	110				
Beryllium	20.277	0.50	20.00	0	101	90	110				
Cadmium	19.771	0.50	20.00	0	98.9	90	110				
Cobalt	20.118	0.50	20.00	0	101	90	110				
Lead	20.050	1.0	20.00	0	100	90	110				
Manganese	20.299	0.50	20.00	0	101	90	110				
Molybdenum	20.361	0.50	20.00	0	102	90	110				
Silver	20.003	0.50	20.00	0	100	90	110				
Thallium	20.081	0.50	20.00	0	100	90	110				
Zinc	18.194	10	20.00	0	91.0	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/12/2019** SeqNo: **3533849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	20.192	0.50	20.00	0	101	90	110				
Beryllium	19.616	0.50	20.00	0	98.1	90	110				
Cadmium	19.870	0.50	20.00	0	99.3	90	110				
Cobalt	20.669	0.50	20.00	0	103	90	110				
Lead	20.186	1.0	20.00	0	101	90	110				
Manganese	20.348	0.50	20.00	0	102	90	110				
Molybdenum	20.313	0.50	20.00	0	102	90	110				
Silver	19.823	0.50	20.00	0	99.1	90	110				
Thallium	20.228	0.50	20.00	0	101	90	110				
Zinc	17.976	10	20.00	0	89.9	90	110				S

Qualifiers:

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

%Rec of Zn in CCV7 failed, biased low. However, sample was closed by CCV6/CCB6. JRB 10/27/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.501	0.10	10.00	0	105	90	110				
Barium	10.276	1.0	10.00	0	103	90	110				
Nickel	10.277	1.0	10.00	0	103	90	110				
Selenium	10.752	0.50	10.00	0	108	90	110				
Vanadium	10.362	1.0	10.00	0	104	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535805**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.065	1.0	1.000	0	106	80	120				
Nickel	0.870	1.0	1.000	0	87.0	80	120				
Selenium	0.500	0.50	0.5000	0	100	80	120				
Vanadium	1.073	1.0	1.000	0	107	80	120				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.107	0.10	0.1000	0	107	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.851	0.10	20.00	0	104	90	110				
Barium	20.411	1.0	20.00	0	102	90	110				
Nickel	19.875	1.0	20.00	0	99.4	90	110				
Selenium	19.953	0.50	20.00	0	99.8	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	20.031	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.650	0.10	20.00	0	103	90	110				
Barium	21.070	1.0	20.00	0	105	90	110				
Nickel	20.927	1.0	20.00	0	105	90	110				
Selenium	18.686	0.50	20.00	0	93.4	90	110				
Vanadium	19.376	1.0	20.00	0	96.9	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.546	0.10	20.00	0	103	90	110				
Barium	21.396	1.0	20.00	0	107	90	110				
Nickel	20.002	1.0	20.00	0	100	90	110				
Selenium	20.327	0.50	20.00	0	102	90	110				
Vanadium	19.663	1.0	20.00	0	98.3	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.726	0.10	20.00	0	104	90	110				
Barium	21.558	1.0	20.00	0	108	90	110				
Nickel	20.416	1.0	20.00	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.811	0.50	20.00	0	94.1	90	110				
Vanadium	19.513	1.0	20.00	0	97.6	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **ICV**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536626**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	9.777	1.0	10.00	0	97.8	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **ZZZZZZ**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	1.068	1.0	1.000	0	107	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **CCV**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	20.160	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **CCV**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	21.790	1.0	20.00	0	109	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.949	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.101	1.0	1.000	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.605	1.0	20.00	0	98.0	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.091	1.0	20.00	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.737	1.0	20.00	0	98.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.912	1.0	20.00	0	99.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.287	1.0	20.00	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.152	1.0	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.525	1.0	20.00	0	103	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB** SampType: **ICB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICB** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **CCB1** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCB** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.195	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.193	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.181	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.181	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.199	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.177	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.249	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.191	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Nickel	0.364	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **ICB**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536627**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **CCB**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536643**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **CCB**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536651**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533672**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533688**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533700**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533712**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533724**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533738**

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

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533750**

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

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533759**

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

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSA** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSAB** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.177	0.50	20.00	0	106	80	120				
Beryllium	22.185	0.50	20.00	0	111	80	120				
Cadmium	20.680	0.50	20.00	0	103	80	120				
Cobalt	19.953	0.50	20.00	0	99.8	80	120				
Lead	18.869	1.0	20.00	0	94.3	80	120				
Manganese	19.465	0.50	20.00	0	97.3	80	120				
Molybdenum	22.485	0.50	20.00	0	112	80	120				
Silver	19.148	0.50	20.00	0	95.7	80	120				
Thallium	21.666	0.50	20.00	0	108	80	120				
Zinc	18.176	10	20.00	0	90.9	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.664	0.50	20.00	0	108	80	120				
Beryllium	21.409	0.50	20.00	0	107	80	120				
Cadmium	20.396	0.50	20.00	0	102	80	120				
Cobalt	20.371	0.50	20.00	0	102	80	120				
Lead	19.222	1.0	20.00	0	96.1	80	120				
Manganese	19.321	0.50	20.00	0	96.6	80	120				
Molybdenum	22.433	0.50	20.00	0	112	80	120				
Silver	19.084	0.50	20.00	0	95.4	80	120				
Thallium	21.824	0.50	20.00	0	109	80	120				
Zinc	16.563	10	20.00	0	82.8	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Zinc	ND	10									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.962	0.50	20.00	0	110	80	120				
Beryllium	21.048	0.50	20.00	0	105	80	120				
Cadmium	20.492	0.50	20.00	0	102	80	120				
Cobalt	20.791	0.50	20.00	0	104	80	120				
Lead	19.256	1.0	20.00	0	96.3	80	120				
Manganese	19.222	0.50	20.00	0	96.1	80	120				
Molybdenum	22.480	0.50	20.00	0	112	80	120				
Silver	19.246	0.50	20.00	0	96.2	80	120				
Thallium	21.818	0.50	20.00	0	109	80	120				
Zinc	16.306	10	20.00	0	81.5	80	120				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.335	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSAB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.118	0.10	20.00	0	106	80	120				
Barium	21.109	1.0	20.00	0	106	80	120				
Nickel	19.383	1.0	20.00	0	96.9	80	120				
Selenium	20.986	0.50	20.00	0	105	80	120				
Vanadium	20.653	1.0	20.00	0	103	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.330	1.0									
Nickel	ND	1.0									
Selenium	ND	0.50									
Vanadium	ND	1.0									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136952**
Client ID: **ICSAB** Batch ID: **R136952** TestNo: **EPA 6020** Analysis Date: **10/14/2019** SeqNo: **3535856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.376	0.10	20.00	0	107	80	120				
Barium	22.251	1.0	20.00	0	111	80	120				
Nickel	19.284	1.0	20.00	0	96.4	80	120				
Selenium	20.408	0.50	20.00	0	102	80	120				
Vanadium	20.460	1.0	20.00	0	102	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **ICSA**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536629**

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

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **ICSAB**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	16.916	1.0	20.00	0	84.6	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **ICSA**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536652**

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

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136971**
Client ID: **ICSAB**	Batch ID: **R136971**	TestNo: **EPA 6020**		Analysis Date: **10/15/2019**	SeqNo: **3536653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	21.580	1.0	20.00	0	108	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533674**

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

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.289	1.0	20.00	0	101	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533725**

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

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.665	1.0	20.00	0	103	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533760**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.918	1.0	20.00	0	105	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [3]					115 In (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	841520.3	841520.3	100	PASS	70-125	842039.6	842039.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	840577.2	841520.3	99.89	PASS	70-125	839511.7	842039.6	99.7	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	843859	841520.3	100.28	PASS	70-125	844165.4	842039.6	100.25	PASS	70-125
Std3-5/50 ppb	ICAL	1	847662	841520.3	100.73	PASS	70-125	859543.7	842039.6	102.08	PASS	70-125
Std4-10/100 ppb	ICAL	1	847658.2	841520.3	100.73	PASS	70-125	863969.2	842039.6	102.6	PASS	70-125
Std5-20/200 ppb	ICAL	1	851354.9	841520.3	101.17	PASS	70-125	862691.6	842039.6	102.45	PASS	70-125
Std6-40/400 ppb	ICAL	1	846600.2	841520.3	100.6	PASS	70-125	864349.2	842039.6	102.65	PASS	70-125
Std7-100/1000 ppb	ICAL	1	844988.2	841520.3	100.41	PASS	70-125	865328.2	842039.6	102.77	PASS	70-125
Std8-200/2000 ppb	ICAL	1	835530.4	841520.3	99.29	PASS	70-125	852974.3	842039.6	101.3	PASS	70-125
ICV	ICV	1	830746.5	841520.3	98.72	PASS	70-125	839616.7	842039.6	99.71	PASS	70-125
ICB	ICB	1	833283	841520.3	99.02	PASS	70-125	835468.2	842039.6	99.22	PASS	70-125
LLICV	CCV1	1	835577.5	841520.3	99.29	PASS	70-125	843150.3	842039.6	100.13	PASS	70-125
ICSA1	ICSA	1	844865.1	841520.3	100.4	PASS	70-125	861025.1	842039.6	102.25	PASS	70-125
ICSAB1	ICSAB	1	865167.2	841520.3	102.81	PASS	70-125	886778.8	842039.6	105.31	PASS	70-125
LLICV	CCV1	1	963485.3	841520.3	114.49	PASS	70-125	961197.1	842039.6	114.15	PASS	70-125
CCV1	CCV	1	914190.4	841520.3	108.64	PASS	70-125	933939.3	842039.6	110.91	PASS	70-125
CCB1	CCB	1	883883.6	841520.3	105.03	PASS	70-125	900618.9	842039.6	106.96	PASS	70-125
CCV2	CCV	1	891183.9	841520.3	105.9	PASS	70-125	919390.9	842039.6	109.19	PASS	70-125
CCB2	CCB	1	861498.5	841520.3	102.37	PASS	70-125	882570.1	842039.6	104.81	PASS	70-125
CCV3	CCV	1	901629.9	841520.3	107.14	PASS	70-125	938305.1	842039.6	111.43	PASS	70-125
CCB3	CCB	1	867949.8	841520.3	103.14	PASS	70-125	894979.3	842039.6	106.29	PASS	70-125
CCV4	CCV	1	860068.3	841520.3	102.2	PASS	70-125	905375.4	842039.6	107.52	PASS	70-125
CCB4	CCB	1	829224.5	841520.3	98.54	PASS	70-125	875286.4	842039.6	103.95	PASS	70-125
ICSA2	ICSA	1	777072.9	841520.3	92.34	PASS	70-125	825974.3	842039.6	98.09	PASS	70-125
ICSAB2	ICSAB	1	785819.1	841520.3	93.38	PASS	70-125	837149.6	842039.6	99.42	PASS	70-125
MB-75562	MBLK	1	889131.6	841520.3	105.66	PASS	70-125	919777.8	842039.6	109.23	PASS	70-125
LCS-75562	LCS	1	848666	841520.3	100.85	PASS	70-125	890860.7	842039.6	105.8	PASS	70-125
N037709-001B	SAMP	1	747546.7	841520.3	88.83	PASS	70-125	813773.2	842039.6	96.64	PASS	70-125
N037709-001B	SAMP	5	783916.4	841520.3	93.15	PASS	70-125	853405.9	842039.6	101.35	PASS	70-125
N037709-001B	SAMP	25	807399.3	841520.3	95.95	PASS	70-125	865009.8	842039.6	102.73	PASS	70-125
N037709-001B-PS	PS	1	763905.7	841520.3	90.78	PASS	70-125	831240.5	842039.6	98.72	PASS	70-125
N037709-001B-PS	PS	5	779040.2	841520.3	92.58	PASS	70-125	846787.1	842039.6	100.56	PASS	70-125
N037709-001B-MS	MS	1	761199.2	841520.3	90.46	PASS	70-125	831599.7	842039.6	98.76	PASS	70-125
N037709-001B-MS	MS	5	772995.1	841520.3	91.86	PASS	70-125	845612.6	842039.6	100.42	PASS	70-125
N037709-001B-MSD	MSD	1	755887.3	841520.3	89.82	PASS	70-125	822072.4	842039.6	97.63	PASS	70-125
CCV5	CCV	1	847594.6	841520.3	100.72	PASS	70-125	892159.5	842039.6	105.95	PASS	70-125
CCB5	CCB	1	816718.1	841520.3	97.05	PASS	70-125	856938.1	842039.6	101.77	PASS	70-125
N037709-001B-MSD	MSD	5	749858.5	841520.3	89.11	PASS	70-125	821293.4	842039.6	97.54	PASS	70-125
N037709-002B	SAMP	1	720920.6	841520.3	85.67	PASS	70-125	792745.2	842039.6	94.15	PASS	70-125
N037709-002B	SAMP	5	760013.5	841520.3	90.31	PASS	70-125	827296.6	842039.6	98.25	PASS	70-125
N037709-003B	SAMP	1	740933.4	841520.3	88.05	PASS	70-125	810543.5	842039.6	96.26	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [3]					115 In (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	759703.5	841520.3	90.28	PASS	70-125	830239.5	842039.6	98.6	PASS	70-125
N037723-001B	SAMP	1	700242.8	841520.3	83.21	PASS	70-125	756097.5	842039.6	89.79	PASS	70-125
N037723-001B	SAMP	5	814471	841520.3	96.79	PASS	70-125	873570.2	842039.6	103.74	PASS	70-125
N037723-002B	SAMP	1	680245.5	841520.3	80.84	PASS	70-125	733231.8	842039.6	87.08	PASS	70-125
N037723-002B	SAMP	5	795770.7	841520.3	94.56	PASS	70-125	853755.5	842039.6	101.39	PASS	70-125
N037723-003B	SAMP	1	751322.3	841520.3	89.28	PASS	70-125	804241.2	842039.6	95.51	PASS	70-125
CCV6	CCV	1	920590.7	841520.3	109.4	PASS	70-125	973265.3	842039.6	115.58	PASS	70-125
CCB6	CCB	1	882696.6	841520.3	104.89	PASS	70-125	930771.4	842039.6	110.54	PASS	70-125
N037723-003B	SAMP	5	775747.3	841520.3	92.18	PASS	70-125	838919	842039.6	99.63	PASS	70-125
N037723-004B	SAMP	1	756340.5	841520.3	89.88	PASS	70-125	825454.2	842039.6	98.03	PASS	70-125
N037723-004B	SAMP	5	806741.3	841520.3	95.87	PASS	70-125	873813.9	842039.6	103.77	PASS	70-125
N037735-001B	SAMP	1	734886.2	841520.3	87.33	PASS	70-125	799815.6	842039.6	94.99	PASS	70-125
N037735-001B	SAMP	5	789566	841520.3	93.83	PASS	70-125	854871.5	842039.6	101.52	PASS	70-125
N037756-001B	SAMP	1	749366	841520.3	89.05	PASS	70-125	821148.7	842039.6	97.52	PASS	70-125
N037756-001B	SAMP	5	774716.4	841520.3	92.06	PASS	70-125	850820.8	842039.6	101.04	PASS	70-125
CCV7	CCV	1	851995.3	841520.3	101.24	PASS	70-125	903968.9	842039.6	107.35	PASS	70-125
CCB7	CCB	1	845503.2	841520.3	100.47	PASS	70-125	891520.9	842039.6	105.88	PASS	70-125
ICSA3	ICSA	1	760331.8	841520.3	90.35	PASS	70-125	813727.4	842039.6	96.64	PASS	70-125
ICSAB3	ICSAB	1	756535	841520.3	89.9	PASS	70-125	816233.6	842039.6	96.94	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					209 Bi (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	1367594.6	1367594.6	100	PASS	70-125	990659.6	990659.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	1403352.1	1367594.6	102.61	PASS	70-125	989528.6	990659.6	99.89	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	1338554.7	1367594.6	97.88	PASS	70-125	995733	990659.6	100.51	PASS	70-125
Std3-5/50 ppb	ICAL	1	1412685.4	1367594.6	103.3	PASS	70-125	1005897.8	990659.6	101.54	PASS	70-125
Std4-10/100 ppb	ICAL	1	1451301.2	1367594.6	106.12	PASS	70-125	1013722.7	990659.6	102.33	PASS	70-125
Std5-20/200 ppb	ICAL	1	1314817.7	1367594.6	96.14	PASS	70-125	1016659.9	990659.6	102.62	PASS	70-125
Std6-40/400 ppb	ICAL	1	1334136.8	1367594.6	97.55	PASS	70-125	1026385.9	990659.6	103.61	PASS	70-125
Std7-100/1000 ppb	ICAL	1	1427229.3	1367594.6	104.36	PASS	70-125	1029586.9	990659.6	103.93	PASS	70-125
Std8-200/2000 ppb	ICAL	1	1416023.4	1367594.6	103.54	PASS	70-125	1019715.4	990659.6	102.93	PASS	70-125
ICV	ICV	1	1257743.2	1367594.6	91.97	PASS	70-125	969578.2	990659.6	97.87	PASS	70-125
ICB	ICB	1	1369405.9	1367594.6	100.13	PASS	70-125	987924.8	990659.6	99.72	PASS	70-125
LLICV	CCV1	1	1415244.4	1367594.6	103.48	PASS	70-125	983926.3	990659.6	99.32	PASS	70-125
ICSA1	ICSA	1	1442132.3	1367594.6	105.45	PASS	70-125	931473.9	990659.6	94.03	PASS	70-125
ICSAB1	ICSAB	1	1488586.2	1367594.6	108.85	PASS	70-125	943951	990659.6	95.29	PASS	70-125
LLICV	CCV1	1	1672359.8	1367594.6	122.28	PASS	70-125	1064266	990659.6	107.43	PASS	70-125
CCV1	CCV	1	1574632.2	1367594.6	115.14	PASS	70-125	1068675.9	990659.6	107.88	PASS	70-125
CCB1	CCB	1	1540201.1	1367594.6	112.62	PASS	70-125	1033109.3	990659.6	104.28	PASS	70-125
CCV2	CCV	1	1534250	1367594.6	112.19	PASS	70-125	1062242.8	990659.6	107.23	PASS	70-125
CCB2	CCB	1	1565453.1	1367594.6	114.47	PASS	70-125	1030266.1	990659.6	104	PASS	70-125
CCV3	CCV	1	1638611.7	1367594.6	119.82	PASS	70-125	1067941.6	990659.6	107.8	PASS	70-125
CCB3	CCB	1	1587486.2	1367594.6	116.08	PASS	70-125	1030010.5	990659.6	103.97	PASS	70-125
CCV4	CCV	1	1494352.6	1367594.6	109.27	PASS	70-125	1028906.5	990659.6	103.86	PASS	70-125
CCB4	CCB	1	1292142.9	1367594.6	94.48	PASS	70-125	994163.4	990659.6	100.35	PASS	70-125
ICSA2	ICSA	1	1390639.6	1367594.6	101.69	PASS	70-125	883635.6	990659.6	89.2	PASS	70-125
ICSAB2	ICSAB	1	1358148.7	1367594.6	99.31	PASS	70-125	882313.3	990659.6	89.06	PASS	70-125
MB-75562	MBLK	1	1569764.7	1367594.6	114.78	PASS	70-125	1011367.8	990659.6	102.09	PASS	70-125
LCS-75562	LCS	1	1406801.2	1367594.6	102.87	PASS	70-125	994631.5	990659.6	100.4	PASS	70-125
N037709-001B	SAMP	1	1330159.8	1367594.6	97.26	PASS	70-125	891460.6	990659.6	89.99	PASS	70-125
N037709-001B	SAMP	5	1349110.7	1367594.6	98.65	PASS	70-125	955546.4	990659.6	96.46	PASS	70-125
N037709-001B	SAMP	25	1387509.8	1367594.6	101.46	PASS	70-125	982176.3	990659.6	99.14	PASS	70-125
N037709-001B-PS	PS	1	1387139.8	1367594.6	101.43	PASS	70-125	913296.7	990659.6	92.19	PASS	70-125
N037709-001B-PS	PS	5	1340981.1	1367594.6	98.05	PASS	70-125	958264.7	990659.6	96.73	PASS	70-125
N037709-001B-MS	MS	1	1337002.9	1367594.6	97.76	PASS	70-125	913274.9	990659.6	92.19	PASS	70-125
N037709-001B-MS	MS	5	1387825.2	1367594.6	101.48	PASS	70-125	951175.4	990659.6	96.01	PASS	70-125
N037709-001B-MSD	MSD	1	1354632.4	1367594.6	99.05	PASS	70-125	903670.5	990659.6	91.22	PASS	70-125
CCV5	CCV	1	1419181.1	1367594.6	103.77	PASS	70-125	1017714.4	990659.6	102.73	PASS	70-125
CCB5	CCB	1	1361874.4	1367594.6	99.58	PASS	70-125	983619.6	990659.6	99.29	PASS	70-125
N037709-001B-MSD	MSD	5	1351124.4	1367594.6	98.8	PASS	70-125	937189.1	990659.6	94.6	PASS	70-125
N037709-002B	SAMP	1	1308568.3	1367594.6	95.68	PASS	70-125	885352.7	990659.6	89.37	PASS	70-125
N037709-002B	SAMP	5	1289278.3	1367594.6	94.27	PASS	70-125	944222.9	990659.6	95.31	PASS	70-125
N037709-003B	SAMP	1	1344447.8	1367594.6	98.31	PASS	70-125	907337.3	990659.6	91.59	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					209 Bi (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	1352635.1	1367594.6	98.91	PASS	70-125	946889.9	990659.6	95.58	PASS	70-125
N037723-001B	SAMP	1	1231422.3	1367594.6	90.04	PASS	70-125	800487.9	990659.6	80.8	PASS	70-125
N037723-001B	SAMP	5	1373725.8	1367594.6	100.45	PASS	70-125	927849.5	990659.6	93.66	PASS	70-125
N037723-002B	SAMP	1	1171461.1	1367594.6	85.66	PASS	70-125	748946.7	990659.6	75.6	PASS	70-125
N037723-002B	SAMP	5	1357885.6	1367594.6	99.29	PASS	70-125	887486.8	990659.6	89.59	PASS	70-125
N037723-003B	SAMP	1	1283508.8	1367594.6	93.85	PASS	70-125	811311.6	990659.6	81.9	PASS	70-125
CCV6	CCV	1	1624816.7	1367594.6	118.81	PASS	70-125	1042015.8	990659.6	105.18	PASS	70-125
CCB6	CCB	1	1593711.4	1367594.6	116.53	PASS	70-125	1006206.9	990659.6	101.57	PASS	70-125
N037723-003B	SAMP	5	1317311.5	1367594.6	96.32	PASS	70-125	896896	990659.6	90.54	PASS	70-125
N037723-004B	SAMP	1	1327123.2	1367594.6	97.04	PASS	70-125	857403.2	990659.6	86.55	PASS	70-125
N037723-004B	SAMP	5	1487917.4	1367594.6	108.8	PASS	70-125	934094.1	990659.6	94.29	PASS	70-125
N037735-001B	SAMP	1	1283517.6	1367594.6	93.85	PASS	70-125	827460	990659.6	83.53	PASS	70-125
N037735-001B	SAMP	5	1355748.2	1367594.6	99.13	PASS	70-125	911588.4	990659.6	92.02	PASS	70-125
N037756-001B	SAMP	1	1322823.3	1367594.6	96.73	PASS	70-125	861801	990659.6	86.99	PASS	70-125
N037756-001B	SAMP	5	1406792.7	1367594.6	102.87	PASS	70-125	925524.7	990659.6	93.43	PASS	70-125
CCV7	CCV	1	1509154.9	1367594.6	110.35	PASS	70-125	999909.4	990659.6	100.93	PASS	70-125
CCB7	CCB	1	1511594.4	1367594.6	110.53	PASS	70-125	982340.7	990659.6	99.16	PASS	70-125
ICSA3	ICSA	1	1324757.8	1367594.6	96.87	PASS	70-125	856056.9	990659.6	86.41	PASS	70-125
ICSAB3	ICSAB	1	1324830.5	1367594.6	96.87	PASS	70-125	859550.3	990659.6	86.77	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	47299.4	47299.4	100	PASS	70-125	22263.8	22263.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	47669.4	47299.4	100.78	PASS	70-125	22784.5	22263.8	102.34	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	47746.1	47299.4	100.94	PASS	70-125	23120.5	22263.8	103.85	PASS	70-125
Std3-5/50 ppb	ICAL	1	48066	47299.4	101.62	PASS	70-125	23241.9	22263.8	104.39	PASS	70-125
Std4-10/100 ppb	ICAL	1	48900.7	47299.4	103.39	PASS	70-125	23081.8	22263.8	103.67	PASS	70-125
Std5-20/200 ppb	ICAL	1	48837.3	47299.4	103.25	PASS	70-125	22937	22263.8	103.02	PASS	70-125
Std6-40/400 ppb	ICAL	1	48629.8	47299.4	102.81	PASS	70-125	23148.3	22263.8	103.97	PASS	70-125
Std7-100/1000 ppb	ICAL	1	48604	47299.4	102.76	PASS	70-125	23011.5	22263.8	103.36	PASS	70-125
Std8-200/2000 ppb	ICAL	1	48951.9	47299.4	103.49	PASS	70-125	23011.6	22263.8	103.36	PASS	70-125
ICV	ICV	1	43981.5	47299.4	92.99	PASS	70-125	21139	22263.8	94.95	PASS	70-125
ICB	ICB	1	47435.3	47299.4	100.29	PASS	70-125	22338.3	22263.8	100.33	PASS	70-125
LLICV	CCV1	1	47112.2	47299.4	99.6	PASS	70-125	22606.4	22263.8	101.54	PASS	70-125
ICSA1	ICSA	1	50400.7	47299.4	106.56	PASS	70-125	23733.6	22263.8	106.6	PASS	70-125
ICSAB1	ICSAB	1	53205.1	47299.4	112.49	PASS	70-125	24810.9	22263.8	111.44	PASS	70-125
LLICV	CCV1	1	55627.5	47299.4	117.61	PASS	70-125	26623.8	22263.8	119.58	PASS	70-125
CCV1	CCV	1	54353.2	47299.4	114.91	PASS	70-125	25932.7	22263.8	116.48	PASS	70-125
CCB1	CCB	1	51230	47299.4	108.31	PASS	70-125	24536	22263.8	110.21	PASS	70-125
CCV2	CCV	1	52371.2	47299.4	110.72	PASS	70-125	25248.2	22263.8	113.4	PASS	70-125
CCB2	CCB	1	49797.7	47299.4	105.28	PASS	70-125	24697.3	22263.8	110.93	PASS	70-125
CCV3	CCV	1	52674.6	47299.4	111.36	PASS	70-125	25807.9	22263.8	115.92	PASS	70-125
CCB3	CCB	1	50310.3	47299.4	106.37	PASS	70-125	25172.5	22263.8	113.07	PASS	70-125
CCV4	CCV	1	51338.3	47299.4	108.54	PASS	70-125	25919.3	22263.8	116.42	PASS	70-125
CCB4	CCB	1	48825.9	47299.4	103.23	PASS	70-125	24625	22263.8	110.61	PASS	70-125
ICSA2	ICSA	1	48307.8	47299.4	102.13	PASS	70-125	23881.7	22263.8	107.27	PASS	70-125
ICSAB2	ICSAB	1	49450	47299.4	104.55	PASS	70-125	24938.8	22263.8	112.02	PASS	70-125
MB-75562	MBLK	1	52845.9	47299.4	111.73	PASS	70-125	26573.7	22263.8	119.36	PASS	70-125
LCS-75562	LCS	1	50494.4	47299.4	106.75	PASS	70-125	25963.8	22263.8	116.62	PASS	70-125
N037709-001B	SAMP	1	44847.2	47299.4	94.82	PASS	70-125	22895.8	22263.8	102.84	PASS	70-125
N037709-001B	SAMP	5	48828.1	47299.4	103.23	PASS	70-125	24806.5	22263.8	111.42	PASS	70-125
N037709-001B	SAMP	25	48740	47299.4	103.05	PASS	70-125	24488.2	22263.8	109.99	PASS	70-125
N037709-001B-PS	PS	1	46978.7	47299.4	99.32	PASS	70-125	23555.8	22263.8	105.8	PASS	70-125
N037709-001B-PS	PS	5	49212.5	47299.4	104.05	PASS	70-125	24749.6	22263.8	111.17	PASS	70-125
N037709-001B-MS	MS	1	46452.6	47299.4	98.21	PASS	70-125	23640.1	22263.8	106.18	PASS	70-125
N037709-001B-MS	MS	5	49443.3	47299.4	104.53	PASS	70-125	25163.6	22263.8	113.03	PASS	70-125
N037709-001B-MSD	MSD	1	45912.2	47299.4	97.07	PASS	70-125	23541.2	22263.8	105.74	PASS	70-125
CCV5	CCV	1	51300.2	47299.4	108.46	PASS	70-125	25920.3	22263.8	116.42	PASS	70-125
CCB5	CCB	1	48334.5	47299.4	102.19	PASS	70-125	24666.1	22263.8	110.79	PASS	70-125
N037709-001B-MSD	MSD	5	46463.8	47299.4	98.23	PASS	70-125	23910.6	22263.8	107.4	PASS	70-125
N037709-002B	SAMP	1	44300	47299.4	93.66	PASS	70-125	22668.8	22263.8	101.82	PASS	70-125
N037709-002B	SAMP	5	47865.5	47299.4	101.2	PASS	70-125	24434.7	22263.8	109.75	PASS	70-125
N037709-003B	SAMP	1	45553.5	47299.4	96.31	PASS	70-125	23146.1	22263.8	103.96	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	47730.7	47299.4	100.91	PASS	70-125	24371.3	22263.8	109.47	PASS	70-125
N037723-001B	SAMP	1	43243	47299.4	91.42	PASS	70-125	21383.7	22263.8	96.05	PASS	70-125
N037723-001B	SAMP	5	51188.6	47299.4	108.22	PASS	70-125	25185.9	22263.8	113.12	PASS	70-125
N037723-002B	SAMP	1	44627.6	47299.4	94.35	PASS	70-125	22039	22263.8	98.99	PASS	70-125
N037723-002B	SAMP	5	51753.7	47299.4	109.42	PASS	70-125	25293.8	22263.8	113.61	PASS	70-125
N037723-003B	SAMP	1	49412.1	47299.4	104.47	PASS	70-125	24223.3	22263.8	108.8	PASS	70-125
CCV6	CCV	1	55921.5	47299.4	118.23	PASS	70-125	28600.6	22263.8	128.46	NR!	70-125
CCB6	CCB	1	53597.1	47299.4	113.31	PASS	70-125	27211.3	22263.8	122.22	PASS	70-125
N037723-003B	SAMP	5	49482.2	47299.4	104.61	PASS	70-125	25101.3	22263.8	112.74	PASS	70-125
N037723-004B	SAMP	1	49744.4	47299.4	105.17	PASS	70-125	24716.3	22263.8	111.02	PASS	70-125
N037723-004B	SAMP	5	52463.6	47299.4	110.92	PASS	70-125	26471.2	22263.8	118.9	PASS	70-125
N037735-001B	SAMP	1	47582.5	47299.4	100.6	PASS	70-125	23536.7	22263.8	105.72	PASS	70-125
N037735-001B	SAMP	5	51189.7	47299.4	108.22	PASS	70-125	26184	22263.8	117.61	PASS	70-125
N037756-001B	SAMP	1	49228.5	47299.4	104.08	PASS	70-125	25173.7	22263.8	113.07	PASS	70-125
N037756-001B	SAMP	5	50375.1	47299.4	106.5	PASS	70-125	25556.4	22263.8	114.79	PASS	70-125
CCV7	CCV	1	50844.1	47299.4	107.49	PASS	70-125	26245.3	22263.8	117.88	PASS	70-125
CCB7	CCB	1	50856.3	47299.4	107.52	PASS	70-125	25970.4	22263.8	116.65	PASS	70-125
ICSA3	ICSA	1	48936.4	47299.4	103.46	PASS	70-125	24727.4	22263.8	111.07	PASS	70-125
ICSAB3	ICSAB	1	49123.5	47299.4	103.86	PASS	70-125	25212.6	22263.8	113.24	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					6 Li (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	13284.9	13284.9	100	PASS	70-125	824789.7	824789.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	13310.5	13284.9	100.19	PASS	70-125	820245.8	824789.7	99.45	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	13489.4	13284.9	101.54	PASS	70-125	822082.3	824789.7	99.67	PASS	70-125
Std3-5/50 ppb	ICAL	1	14012.1	13284.9	105.47	PASS	70-125	830386.8	824789.7	100.68	PASS	70-125
Std4-10/100 ppb	ICAL	1	14026.6	13284.9	105.58	PASS	70-125	825913.7	824789.7	100.14	PASS	70-125
Std5-20/200 ppb	ICAL	1	13638.5	13284.9	102.66	PASS	70-125	821684.1	824789.7	99.62	PASS	70-125
Std6-40/400 ppb	ICAL	1	13852	13284.9	104.27	PASS	70-125	819602.2	824789.7	99.37	PASS	70-125
Std7-100/1000 ppb	ICAL	1	13772	13284.9	103.67	PASS	70-125	809618.9	824789.7	98.16	PASS	70-125
Std8-200/2000 ppb	ICAL	1	13923.2	13284.9	104.8	PASS	70-125	794657.6	824789.7	96.35	PASS	70-125
ICV	ICV	1	12734.3	13284.9	95.86	PASS	70-125	808737.3	824789.7	98.05	PASS	70-125
ICB	ICB	1	13567.3	13284.9	102.13	PASS	70-125	828498.9	824789.7	100.45	PASS	70-125
LLICV	CCV1	1	13549.5	13284.9	101.99	PASS	70-125	825583.6	824789.7	100.1	PASS	70-125
ICSA1	ICSA	1	14986.4	13284.9	112.81	PASS	70-125	794509.4	824789.7	96.33	PASS	70-125
ICSAB1	ICSAB	1	16375.5	13284.9	123.26	PASS	70-125	805684.3	824789.7	97.68	PASS	70-125
LLICV	CCV1	1	17305.4	13284.9	130.26	NR!	70-125	864600.5	824789.7	104.83	PASS	70-125
CCV1	CCV	1	17110.8	13284.9	128.8	NR!	70-125	810428.4	824789.7	98.26	PASS	70-125
CCB1	CCB	1	15313.4	13284.9	115.27	PASS	70-125	828726.4	824789.7	100.48	PASS	70-125
CCV2	CCV	1	15105.4	13284.9	113.7	PASS	70-125	807057.7	824789.7	97.85	PASS	70-125
CCB2	CCB	1	14047.7	13284.9	105.74	PASS	70-125	787384.6	824789.7	95.46	PASS	70-125
CCV3	CCV	1	16414.4	13284.9	123.56	PASS	70-125	772238.3	824789.7	93.63	PASS	70-125
CCB3	CCB	1	14485.9	13284.9	109.04	PASS	70-125	753760.5	824789.7	91.39	PASS	70-125
CCV4	CCV	1	15155.4	13284.9	114.08	PASS	70-125	697082.8	824789.7	84.52	PASS	70-125
CCB4	CCB	1	13975.5	13284.9	105.2	PASS	70-125	688678.7	824789.7	83.5	PASS	70-125
ICSA2	ICSA	1	13222.6	13284.9	99.53	PASS	70-125	622873.7	824789.7	75.52	PASS	70-125
ICSAB2	ICSAB	1	13843.1	13284.9	104.2	PASS	70-125	618412.6	824789.7	74.98	PASS	70-125
MB-75562	MBLK	1	14985.3	13284.9	112.8	PASS	70-125	708447.9	824789.7	85.89	PASS	70-125
LCS-75562	LCS	1	14064.4	13284.9	105.87	PASS	70-125	690396.1	824789.7	83.71	PASS	70-125
N037709-001B	SAMP	1	12631	13284.9	95.08	PASS	70-125	539432.4	824789.7	65.4	NR!	70-125
N037709-001B	SAMP	5	13947.6	13284.9	104.99	PASS	70-125	614364.6	824789.7	74.49	PASS	70-125
N037709-001B	SAMP	25	13689.6	13284.9	103.05	PASS	70-125	647985.8	824789.7	78.56	PASS	70-125
N037709-001B-PS	PS	1	12862.3	13284.9	96.82	PASS	70-125	553629	824789.7	67.12	NR!	70-125
N037709-001B-PS	PS	5	13909.8	13284.9	104.7	PASS	70-125	608749.1	824789.7	73.81	PASS	70-125
N037709-001B-MS	MS	1	12651	13284.9	95.23	PASS	70-125	552115.6	824789.7	66.94	NR!	70-125
N037709-001B-MS	MS	5	14013.3	13284.9	105.48	PASS	70-125	606378.3	824789.7	73.52	PASS	70-125
N037709-001B-MSD	MSD	1	12520.8	13284.9	94.25	PASS	70-125	550709.8	824789.7	66.77	NR!	70-125
CCV5	CCV	1	14092.2	13284.9	106.08	PASS	70-125	668362.6	824789.7	81.03	PASS	70-125
CCB5	CCB	1	13194.8	13284.9	99.32	PASS	70-125	666936.6	824789.7	80.86	PASS	70-125
N037709-001B-MSD	MSD	5	12176.2	13284.9	91.65	PASS	70-125	602437	824789.7	73.04	PASS	70-125
N037709-002B	SAMP	1	12090.6	13284.9	91.01	PASS	70-125	530506	824789.7	64.32	NR!	70-125
N037709-002B	SAMP	5	12834.5	13284.9	96.61	PASS	70-125	597795	824789.7	72.48	PASS	70-125
N037709-003B	SAMP	1	12113.9	13284.9	91.19	PASS	70-125	531480.5	824789.7	64.44	NR!	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					6 Li (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	13383.9	13284.9	100.75	PASS	70-125	598837.2	824789.7	72.6	PASS	70-125
N037723-001B	SAMP	1	11199.9	13284.9	84.31	PASS	70-125	446343.4	824789.7	54.12	NR!	70-125
N037723-001B	SAMP	5	14106.6	13284.9	106.19	PASS	70-125	592509.2	824789.7	71.84	PASS	70-125
N037723-002B	SAMP	1	11622.4	13284.9	87.49	PASS	70-125	346673.9	824789.7	42.03	NR!	70-125
N037723-002B	SAMP	5	14884	13284.9	112.04	PASS	70-125	564506.1	824789.7	68.44	NR!	70-125
N037723-003B	SAMP	1	13472.8	13284.9	101.41	PASS	70-125	474692.3	824789.7	57.55	NR!	70-125
CCV6	CCV	1	15916.2	13284.9	119.81	PASS	70-125	725738.1	824789.7	87.99	PASS	70-125
CCB6	CCB	1	14493.7	13284.9	109.1	PASS	70-125	699006.6	824789.7	84.75	PASS	70-125
N037723-003B	SAMP	5	13120.3	13284.9	98.76	PASS	70-125	564046	824789.7	68.39	NR!	70-125
N037723-004B	SAMP	1	12718.8	13284.9	95.74	PASS	70-125	483791	824789.7	58.66	NR!	70-125
N037723-004B	SAMP	5	13610.8	13284.9	102.45	PASS	70-125	584688.7	824789.7	70.89	PASS	70-125
N037735-001B	SAMP	1	12182.8	13284.9	91.7	PASS	70-125	419275.7	824789.7	50.83	NR!	70-125
N037735-001B	SAMP	5	13199.2	13284.9	99.35	PASS	70-125	576532.3	824789.7	69.9	NR!	70-125
N037756-001B	SAMP	1	12925.7	13284.9	97.3	PASS	70-125	501204.5	824789.7	60.77	NR!	70-125
N037756-001B	SAMP	5	13098	13284.9	98.59	PASS	70-125	584506.7	824789.7	70.87	PASS	70-125
CCV7	CCV	1	13539.5	13284.9	101.92	PASS	70-125	657062.1	824789.7	79.66	PASS	70-125
CCB7	CCB	1	13341.6	13284.9	100.43	PASS	70-125	670166.7	824789.7	81.25	PASS	70-125
ICSA3	ICSA	1	12754.4	13284.9	96.01	PASS	70-125	597118.9	824789.7	72.4	PASS	70-125
ICSAB3	ICSAB	1	12814.5	13284.9	96.46	PASS	70-125	588238.9	824789.7	71.32	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	528382.5	528382.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	531282	528382.5	100.55	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	534713.4	528382.5	101.2	PASS	70-125
Std3-5/50 ppb	ICAL	1	536738.7	528382.5	101.58	PASS	70-125
Std4-10/100 ppb	ICAL	1	539558	528382.5	102.12	PASS	70-125
Std5-20/200 ppb	ICAL	1	536487.9	528382.5	101.53	PASS	70-125
Std6-40/400 ppb	ICAL	1	540658.8	528382.5	102.32	PASS	70-125
Std7-100/1000 ppb	ICAL	1	536347.1	528382.5	101.51	PASS	70-125
Std8-200/2000 ppb	ICAL	1	534410	528382.5	101.14	PASS	70-125
ICV	ICV	1	499367.1	528382.5	94.51	PASS	70-125
ICB	ICB	1	528393.8	528382.5	100	PASS	70-125
LLICV	CCV1	1	531330.8	528382.5	100.56	PASS	70-125
ICSA1	ICSA	1	512103.3	528382.5	96.92	PASS	70-125
ICSAB1	ICSAB	1	535124.8	528382.5	101.28	PASS	70-125
LLICV	CCV1	1	603020.7	528382.5	114.13	PASS	70-125
CCV1	CCV	1	571996.2	528382.5	108.25	PASS	70-125
CCB1	CCB	1	559078.5	528382.5	105.81	PASS	70-125
CCV2	CCV	1	568068.9	528382.5	107.51	PASS	70-125
CCB2	CCB	1	556602.8	528382.5	105.34	PASS	70-125
CCV3	CCV	1	567757.4	528382.5	107.45	PASS	70-125
CCB3	CCB	1	553388.2	528382.5	104.73	PASS	70-125
CCV4	CCV	1	550505.2	528382.5	104.19	PASS	70-125
CCB4	CCB	1	540585.3	528382.5	102.31	PASS	70-125
ICSA2	ICSA	1	499834.2	528382.5	94.6	PASS	70-125
ICSAB2	ICSAB	1	510594.1	528382.5	96.63	PASS	70-125
MB-75562	MBLK	1	580173.3	528382.5	109.8	PASS	70-125
LCS-75562	LCS	1	560142.8	528382.5	106.01	PASS	70-125
N037709-001B	SAMP	1	461750.6	528382.5	87.39	PASS	70-125
N037709-001B	SAMP	5	513529.3	528382.5	97.19	PASS	70-125
N037709-001B	SAMP	25	531517.9	528382.5	100.59	PASS	70-125
N037709-001B-PS	PS	1	482324.4	528382.5	91.28	PASS	70-125
N037709-001B-PS	PS	5	516061.7	528382.5	97.67	PASS	70-125
N037709-001B-MS	MS	1	482112.2	528382.5	91.24	PASS	70-125
N037709-001B-MS	MS	5	515062.8	528382.5	97.48	PASS	70-125
N037709-001B-MSD	MSD	1	478444.5	528382.5	90.55	PASS	70-125
CCV5	CCV	1	564247.8	528382.5	106.79	PASS	70-125
CCB5	CCB	1	547042.5	528382.5	103.53	PASS	70-125
N037709-001B-MSD	MSD	5	498730.5	528382.5	94.39	PASS	70-125
N037709-002B	SAMP	1	465258.7	528382.5	88.05	PASS	70-125
N037709-002B	SAMP	5	505954.5	528382.5	95.76	PASS	70-125
N037709-003B	SAMP	1	472923.9	528382.5	89.5	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	509898.4	528382.5	96.5	PASS	70-125
N037723-001B	SAMP	1	435766.4	528382.5	82.47	PASS	70-125
N037723-001B	SAMP	5	523759.4	528382.5	99.13	PASS	70-125
N037723-002B	SAMP	1	432175	528382.5	81.79	PASS	70-125
N037723-002B	SAMP	5	505560.5	528382.5	95.68	PASS	70-125
N037723-003B	SAMP	1	474073.5	528382.5	89.72	PASS	70-125
CCV6	CCV	1	600391.5	528382.5	113.63	PASS	70-125
CCB6	CCB	1	589095.7	528382.5	111.49	PASS	70-125
N037723-003B	SAMP	5	512325.7	528382.5	96.96	PASS	70-125
N037723-004B	SAMP	1	494152.8	528382.5	93.52	PASS	70-125
N037723-004B	SAMP	5	537481.4	528382.5	101.72	PASS	70-125
N037735-001B	SAMP	1	475565.9	528382.5	90	PASS	70-125
N037735-001B	SAMP	5	524224.5	528382.5	99.21	PASS	70-125
N037756-001B	SAMP	1	492603.6	528382.5	93.23	PASS	70-125
N037756-001B	SAMP	5	522654.7	528382.5	98.92	PASS	70-125
CCV7	CCV	1	561398.4	528382.5	106.25	PASS	70-125
CCB7	CCB	1	566173.3	528382.5	107.15	PASS	70-125
ICSA3	ICSA	1	510759.6	528382.5	96.66	PASS	70-125
ICSAB3	ICSAB	1	510352.1	528382.5	96.59	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	2439783.7	2439783.7	100	PASS	70-125	57258.5	57258.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	2409557	2439783.7	98.76	PASS	70-125	56587.2	57258.5	98.83	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	2450523.9	2439783.7	100.44	PASS	70-125	57814	57258.5	100.97	PASS	70-125
Std3-5/50 ppb	ICAL	1	2414504.1	2439783.7	98.96	PASS	70-125	56095.6	57258.5	97.97	PASS	70-125
Std4-10/100 ppb	ICAL	1	2418341	2439783.7	99.12	PASS	70-125	54862.6	57258.5	95.82	PASS	70-125
Std5-20/200 ppb	ICAL	1	2376429.5	2439783.7	97.4	PASS	70-125	55206.9	57258.5	96.42	PASS	70-125
Std6-40/400 ppb	ICAL	1	2376050.8	2439783.7	97.39	PASS	70-125	55677.4	57258.5	97.24	PASS	70-125
Std7-100/1000 ppb	ICAL	1	2385138.6	2439783.7	97.76	PASS	70-125	54497	57258.5	95.18	PASS	70-125
Std8-200/2000 ppb	ICAL	1	2353404.5	2439783.7	96.46	PASS	70-125	55390	57258.5	96.74	PASS	70-125
ICV	ICV	1	2343271.3	2439783.7	96.04	PASS	70-125	53604	57258.5	93.62	PASS	70-125
ICB	ICB	1	2365843.1	2439783.7	96.97	PASS	70-125	52520.6	57258.5	91.73	PASS	70-125
LLICV	CCV1	1	2369129.3	2439783.7	97.1	PASS	70-125	52279.9	57258.5	91.31	PASS	70-125
ICSA1	ICSA	1	2329842.7	2439783.7	95.49	PASS	70-125	55190.5	57258.5	96.39	PASS	70-125
ICSAB1	ICSAB	1	2344735.8	2439783.7	96.1	PASS	70-125	57803.6	57258.5	100.95	PASS	70-125
LLICV	CCV1	1	2438370.1	2439783.7	99.94	PASS	70-125	55082.5	57258.5	96.2	PASS	70-125
MB-75562	MBLK	1	2507766.5	2439783.7	102.79	PASS	70-125	62974.6	57258.5	109.98	PASS	70-125
LCS-75562	LCS	1	2453876.4	2439783.7	100.58	PASS	70-125	58573.9	57258.5	102.3	PASS	70-125
CCV1	CCV	1	2457135.1	2439783.7	100.71	PASS	70-125	58613.2	57258.5	102.37	PASS	70-125
CCB1	CCB	1	2422347.5	2439783.7	99.29	PASS	70-125	56953.1	57258.5	99.47	PASS	70-125
N037709-001B	SAMP	1	2383935.4	2439783.7	97.71	PASS	70-125	56379.9	57258.5	98.47	PASS	70-125
N037709-001B	SAMP	5	2505736.4	2439783.7	102.7	PASS	70-125	60468.5	57258.5	105.61	PASS	70-125
N037709-001B-PS	PS	1	2462892.4	2439783.7	100.95	PASS	70-125	58287.7	57258.5	101.8	PASS	70-125
N037709-001B-MS	MS	1	2485348.5	2439783.7	101.87	PASS	70-125	59438.1	57258.5	103.81	PASS	70-125
N037709-001B-MSD	MSD	1	2481000.6	2439783.7	101.69	PASS	70-125	60194.2	57258.5	105.13	PASS	70-125
N037709-002B	SAMP	1	2392003.5	2439783.7	98.04	PASS	70-125	58140.5	57258.5	101.54	PASS	70-125
N037709-003B	SAMP	1	2435233.4	2439783.7	99.81	PASS	70-125	57964.4	57258.5	101.23	PASS	70-125
N037723-001B	SAMP	1	2165949.4	2439783.7	88.78	PASS	70-125	55936.3	57258.5	97.69	PASS	70-125
N037723-002B	SAMP	1	2023483	2439783.7	82.94	PASS	70-125	53646.6	57258.5	93.69	PASS	70-125
N037723-003B	SAMP	1	2200299.1	2439783.7	90.18	PASS	70-125	57144.8	57258.5	99.8	PASS	70-125
CCV2	CCV	1	2512859.3	2439783.7	103	PASS	70-125	66767.1	57258.5	116.61	PASS	70-125
CCB2	CCB	1	2475779.8	2439783.7	101.48	PASS	70-125	64679.7	57258.5	112.96	PASS	70-125
MB-75562	MBLK	1	2464499.3	2439783.7	101.01	PASS	70-125	63342.9	57258.5	110.63	PASS	70-125
N037723-004B	SAMP	1	2323870.3	2439783.7	95.25	PASS	70-125	59556.5	57258.5	104.01	PASS	70-125
N037756-001B	SAMP	1	2386915.6	2439783.7	97.83	PASS	70-125	61312.8	57258.5	107.08	PASS	70-125
N037723-002B	SAMP	1	1966174.2	2439783.7	80.59	PASS	70-125	53759.2	57258.5	93.89	PASS	70-125
N037756-001B	SAMP	1	2398767.9	2439783.7	98.32	PASS	70-125	62350.1	57258.5	108.89	PASS	70-125
CCV3	CCV	1	2452965.7	2439783.7	100.54	PASS	70-125	66786.1	57258.5	116.64	PASS	70-125
CCB3	CCB	1	2419503.7	2439783.7	99.17	PASS	70-125	64499.3	57258.5	112.65	PASS	70-125
N037723-002B	SAMP	1	1955182.7	2439783.7	80.14	PASS	70-125	52812.7	57258.5	92.24	PASS	70-125
N037723-002B	SAMP	1	1890382.1	2439783.7	77.48	PASS	70-125	52496.3	57258.5	91.68	PASS	70-125
N037723-002B	SAMP	1	1891199.3	2439783.7	77.52	PASS	70-125	52616.6	57258.5	91.89	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037723-002B	SAMP	1	1877546.7	2439783.7	76.96	PASS	70-125	52418	57258.5	91.55	PASS	70-125
N037723-002B	SAMP	1	1889453.7	2439783.7	77.44	PASS	70-125	52583.2	57258.5	91.83	PASS	70-125
CCV4	CCV	1	2442217	2439783.7	100.1	PASS	70-125	67470.8	57258.5	117.84	PASS	70-125
CCB4	CCB	1	2421057.7	2439783.7	99.23	PASS	70-125	64402.3	57258.5	112.48	PASS	70-125
ICSA2	ICSA	1	2265291	2439783.7	92.85	PASS	70-125	61065.2	57258.5	106.65	PASS	70-125
ICSAB2	ICSAB	1	2266006.2	2439783.7	92.88	PASS	70-125	60303.6	57258.5	105.32	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	34779.3	34779.3	100	PASS	70-125	20186.6	20186.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	34644.6	34779.3	99.61	PASS	70-125	20518.1	20186.6	101.64	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	35180.2	34779.3	101.15	PASS	70-125	20431.4	20186.6	101.21	PASS	70-125
Std3-5/50 ppb	ICAL	1	34833.9	34779.3	100.16	PASS	70-125	19781.7	20186.6	97.99	PASS	70-125
Std4-10/100 ppb	ICAL	1	33890.8	34779.3	97.45	PASS	70-125	19693.8	20186.6	97.56	PASS	70-125
Std5-20/200 ppb	ICAL	1	34126.9	34779.3	98.12	PASS	70-125	19282.2	20186.6	95.52	PASS	70-125
Std6-40/400 ppb	ICAL	1	34050	34779.3	97.9	PASS	70-125	18764.9	20186.6	92.96	PASS	70-125
Std7-100/1000 ppb	ICAL	1	33880.6	34779.3	97.42	PASS	70-125	19045.2	20186.6	94.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	33819.5	34779.3	97.24	PASS	70-125	18984	20186.6	94.04	PASS	70-125
ICV	ICV	1	32716	34779.3	94.07	PASS	70-125	18584.7	20186.6	92.07	PASS	70-125
ICB	ICB	1	32417.6	34779.3	93.21	PASS	70-125	18296.5	20186.6	90.64	PASS	70-125
LLICV	CCV1	1	32433.3	34779.3	93.25	PASS	70-125	18501.2	20186.6	91.65	PASS	70-125
ICSA1	ICSA	1	32988.9	34779.3	94.85	PASS	70-125	18251.9	20186.6	90.42	PASS	70-125
ICSAB1	ICSAB	1	35087.8	34779.3	100.89	PASS	70-125	19879.5	20186.6	98.48	PASS	70-125
LLICV	CCV1	1	33587.7	34779.3	96.57	PASS	70-125	19124.2	20186.6	94.74	PASS	70-125
MB-75562	MBLK	1	38093.4	34779.3	109.53	PASS	70-125	23233	20186.6	115.09	PASS	70-125
LCS-75562	LCS	1	35753.6	34779.3	102.8	PASS	70-125	21815.4	20186.6	108.07	PASS	70-125
CCV1	CCV	1	35578.9	34779.3	102.3	PASS	70-125	20799.5	20186.6	103.04	PASS	70-125
CCB1	CCB	1	34702.4	34779.3	99.78	PASS	70-125	20601.5	20186.6	102.06	PASS	70-125
N037709-001B	SAMP	1	34041.1	34779.3	97.88	PASS	70-125	19931.8	20186.6	98.74	PASS	70-125
N037709-001B	SAMP	5	37331.6	34779.3	107.34	PASS	70-125	22393.9	20186.6	110.93	PASS	70-125
N037709-001B-PS	PS	1	36249.2	34779.3	104.23	PASS	70-125	21162.3	20186.6	104.83	PASS	70-125
N037709-001B-MS	MS	1	36795.9	34779.3	105.8	PASS	70-125	21090	20186.6	104.48	PASS	70-125
N037709-001B-MSD	MSD	1	36038.8	34779.3	103.62	PASS	70-125	21442.7	20186.6	106.22	PASS	70-125
N037709-002B	SAMP	1	35564.3	34779.3	102.26	PASS	70-125	21207.9	20186.6	105.06	PASS	70-125
N037709-003B	SAMP	1	36038.6	34779.3	103.62	PASS	70-125	22046.9	20186.6	109.22	PASS	70-125
N037723-001B	SAMP	1	33222.9	34779.3	95.52	PASS	70-125	19234.3	20186.6	95.28	PASS	70-125
N037723-002B	SAMP	1	32087	34779.3	92.26	PASS	70-125	18727	20186.6	92.77	PASS	70-125
N037723-003B	SAMP	1	33801.7	34779.3	97.19	PASS	70-125	20466.9	20186.6	101.39	PASS	70-125
CCV2	CCV	1	39561.5	34779.3	113.75	PASS	70-125	24784.2	20186.6	122.78	PASS	70-125
CCB2	CCB	1	38982.2	34779.3	112.08	PASS	70-125	23478.9	20186.6	116.31	PASS	70-125
MB-75562	MBLK	1	38341.8	34779.3	110.24	PASS	70-125	22872.6	20186.6	113.31	PASS	70-125
N037723-004B	SAMP	1	35617.9	34779.3	102.41	PASS	70-125	20597.2	20186.6	102.03	PASS	70-125
N037756-001B	SAMP	1	37221.4	34779.3	107.02	PASS	70-125	21568.3	20186.6	106.84	PASS	70-125
N037723-002B	SAMP	1	31576.1	34779.3	90.79	PASS	70-125	18386.6	20186.6	91.08	PASS	70-125
N037756-001B	SAMP	1	36990.7	34779.3	106.36	PASS	70-125	21810.9	20186.6	108.05	PASS	70-125
CCV3	CCV	1	40077.3	34779.3	115.23	PASS	70-125	24009.5	20186.6	118.94	PASS	70-125
CCB3	CCB	1	38564.5	34779.3	110.88	PASS	70-125	22688.8	20186.6	112.4	PASS	70-125
N037723-002B	SAMP	1	31641.7	34779.3	90.98	PASS	70-125	18010.7	20186.6	89.22	PASS	70-125
N037723-002B	SAMP	1	31255.3	34779.3	89.87	PASS	70-125	17572.3	20186.6	87.05	PASS	70-125
N037723-002B	SAMP	1	30985	34779.3	89.09	PASS	70-125	17212	20186.6	85.26	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037723-002B	SAMP	1	31116.1	34779.3	89.47	PASS	70-125	17067.4	20186.6	84.55	PASS	70-125
N037723-002B	SAMP	1	31146.4	34779.3	89.55	PASS	70-125	17354.4	20186.6	85.97	PASS	70-125
CCV4	CCV	1	39936.8	34779.3	114.83	PASS	70-125	24163.2	20186.6	119.7	PASS	70-125
CCB4	CCB	1	38828.4	34779.3	111.64	PASS	70-125	23856.1	20186.6	118.18	PASS	70-125
ICSA2	ICSA	1	36648.8	34779.3	105.38	PASS	70-125	21572.9	20186.6	106.87	PASS	70-125
ICSAB2	ICSAB	1	36033.1	34779.3	103.61	PASS	70-125	21304.7	20186.6	105.54	PASS	70-125

INTERNAL STANDARD: 191015A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	20336.8	20336.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	21980.1	20336.8	108.08	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	22036.7	20336.8	108.36	PASS	70-125
Std3-5/50 ppb	ICAL	1	22255	20336.8	109.43	PASS	70-125
Std4-10/100 ppb	ICAL	1	22169.2	20336.8	109.01	PASS	70-125
Std5-20/200 ppb	ICAL	1	21797.6	20336.8	107.18	PASS	70-125
Std6-40/400 ppb	ICAL	1	22277.2	20336.8	109.54	PASS	70-125
Std7-100/1000 ppb	ICAL	1	21378.2	20336.8	105.12	PASS	70-125
Std8-200/2000 ppb	ICAL	1	21356	20336.8	105.01	PASS	70-125
ICV	ICV	1	21527.3	20336.8	105.85	PASS	70-125
ICB	ICB	1	21363.6	20336.8	105.05	PASS	70-125
LLICV	CCV1	1	21410.3	20336.8	105.28	PASS	70-125
ICSA1	ICSA	1	22746.7	20336.8	111.85	PASS	70-125
ICSAB1	ICSAB	1	23896.2	20336.8	117.5	PASS	70-125
LLICV	CCV1	1	21442.7	20336.8	105.44	PASS	70-125
MB-75562	MBLK	1	24315.7	20336.8	119.57	PASS	70-125
LCS-75562	LCS	1	23182.8	20336.8	113.99	PASS	70-125
CCV1	CCV	1	23455.5	20336.8	115.34	PASS	70-125
CCB1	CCB	1	22037.9	20336.8	108.36	PASS	70-125
N037709-001B	SAMP	1	22594.2	20336.8	111.1	PASS	70-125
N037709-001B	SAMP	5	24332.4	20336.8	119.65	PASS	70-125
N037709-001B-PS	PS	1	23484.4	20336.8	115.48	PASS	70-125
N037709-001B-MS	MS	1	24298.9	20336.8	119.48	PASS	70-125
N037709-001B-MSD	MSD	1	24569.4	20336.8	120.81	PASS	70-125
N037709-002B	SAMP	1	23625.7	20336.8	116.17	PASS	70-125
CCV2	CCV	1	25077.9	20336.8	123.31	PASS	70-125
CCB2	CCB	1	21378.1	20336.8	105.12	PASS	70-125
ICSA2	ICSA	1	23260.6	20336.8	114.38	PASS	70-125
ICSAB2	ICSAB	1	23274.1	20336.8	114.44	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037709
Test Method: EPA 6020
Analysis Date: 10/11,14,15/2019

Matrix: Groundwater
Batch No.: 75562

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037709-001B DT 5x	Antimony	Sb	µg/L	0	NA	0		10
N037709-001B DT 5x	Cadmium	Cd	µg/L	0	NA	0		10
N037709-001B DT 5x	Cobalt	Co	µg/L	0	NA	0		10
N037709-001B DT 5x	Lead	Pb	µg/L	0	NA	0		10
N037709-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N037709-001B DT 5x	Molybdenum	Mo	µg/L	4.817372	NA	4.820541	0.07%	10
N037709-001B DT 5x	Silver	Ag	µg/L	0	NA	0		10
N037709-001B DT 5x	Thallium	Tl	µg/L	0	NA	0		10
N037709-001B DT 5x	Zinc	Zn	µg/L	0	NA	0		10
N037709-001B DT 5x	Chromium	Cr	µg/L	149.6198	PASS	147.4822	1.45%	10
N037709-001B DT 25x	Beryllium	Be	µg/L	0	NA	0		10
N037709-001B DT 5x	Arsenic	As	µg/L	1.608673	NA	1.722009	6.58%	10
N037709-001B DT 5x	Barium	Ba	µg/L	55.85403	NA	54.69229	2.12%	10
N037709-001B DT 5x	Nickel	Ni	µg/L	0	NA	1.705822	100.00%	10
N037709-001B DT 5x	Selenium	Se	µg/L	7.237082	NA	5.803332	24.71%	10
N037709-001B DT 5x	Vanadium	Va	µg/L	12.22253	NA	12.81037	4.59%	10
N037709-001B DT 5x	Copper	Cu	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.128	0.50	10.00	0	111	80	120				
Cadmium	10.044	0.50	10.00	0	100	80	120				
Cobalt	9.544	0.50	10.00	0	95.4	80	120				
Lead	10.198	1.0	10.00	0	102	80	120				
Manganese	83.531	0.50	100.0	0	83.5	80	120				
Molybdenum	15.886	0.50	10.00	4.821	111	80	120				
Silver	10.194	0.50	10.00	0	102	80	120				
Thallium	10.497	0.50	10.00	0	105	80	120				
Zinc	9.328	10	10.00	0	93.3	80	120				

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	11.277	2.5	10.00	0	113	80	120				

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.211	0.10	10.00	1.722	105	80	120				
Barium	66.279	1.0	10.00	54.69	116	80	120				
Nickel	11.286	1.0	10.00	1.706	95.8	80	120				
Selenium	14.509	0.50	10.00	5.803	87.1	80	120				
Vanadium	23.538	1.0	10.00	12.81	107	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136971
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/15/2019	SeqNo:	3536646

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	6.320	1.0	10.00	0	63.2	80	120				S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533732

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

MDL STUDY

Method Detection Limit

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

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

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

Method Detection Limit

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

Matrix: Water
Units: ug/L

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

EPA 7470A
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75542
ASSET #: N037709

Instrument ID: AA-02
Analyst: DBJ
Date Analyzed: 10/03/2019

Method:

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

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

Comments:

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

1st Level Reviewer DBJ Date: 10/4/2019

2nd Level Reviewer NS 10/4/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

WORKORDER NO: N037709
TEST METHOD: EPA 7470
MATRIX: Groundwater

FORMULA:

Calculate the Mercury concentration in ug/L in the sample is as follows:

Mercury, ug/L = A * DF

where:
A = ug/L, instrument calculated concentration
DF = Dilution factor

For Sample **N037709-002B** , the concentration in ug/L is calculated as follows:

Mercury, ug/L = -0.056 * 1

Mercury, ug/L = -0.056

Reporting results in two significant figures,

Mercury, ug/L = 0

Since reporting limit is 0.2 ug/L,

Mercury, ug/L = ND

% RSD SUMMARY

RSD SUMMARY: 191003WA

Instrument ID: AA-02

Sample Name	Type	DF	Concentration	RSD	Criteria	Comment
Calibration Blank	IBLK	1	0	6.76	20	PASS
Standard #1	ICAL	1	0.2	1.83	20	PASS
Standard #2	ICAL	1	1	1.49	20	PASS
Standard #3	ICAL	1	5	0.32	20	PASS
Standard #4	ICAL	1	10	0.35	20	PASS
Standard #5	ICAL	1	20	0.43	20	PASS
ICV	ICV	1	9.97	0.63	20	PASS
ICB	ICB	1	-0.093	7.58	20	PASS
MB-75542	MBLK	1	-0.05	11.82	20	PASS
MB-75540 TCLP	MBLK	1	-0.051	9.69	20	PASS
LCS-75542	LCS	1	4.9	0.44	20	PASS
N037718-003C-MS	MS	1	4.74	0.77	20	PASS
N037718-003C-MSD	MSD	1	4.83	0.45	20	PASS
N037718-003C-PS	PS	1	4.74	0.51	20	PASS
N037718-003C	SAMP	1	-0.057	11.02	20	PASS
N037718-003C	SAMP	5	-0.061	1.85	20	PASS
N037727-001A	SAMP	1	-0.058	9.57	20	PASS
N037727-002A	SAMP	1	-0.062	8.36	20	PASS
CCV1	CCV	1	10.2	0.42	20	PASS
CCB1	CCB	1	-0.109	5.83	20	PASS
N037727-003A	SAMP	1	-0.06	7.74	20	PASS
N037730-001A	SAMP	1	-0.049	5.33	20	PASS
N037709-002B	SAMP	1	-0.056	6.5	20	PASS
N037722-001C	SAMP	1	-0.075	7.68	20	PASS
N037722-002C	SAMP	1	-0.049	4.2	20	PASS
CCV2	CCV	1	10.3	0.51	20	PASS
CCB2	CCB	1	-0.091	4.3	20	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191003WA

Instrument ID: AA-02

Sample ID	Type	DF	Date	Time	Comments
Calibration Blank	IBLK	1	10/3/2019	11:29:22	Reported
Standard #1	ICAL	1	10/3/2019	11:32:44	Reported
Standard #2	ICAL	1	10/3/2019	11:36:06	Reported
Standard #3	ICAL	1	10/3/2019	11:39:28	Reported
Standard #4	ICAL	1	10/3/2019	11:42:51	Reported
Standard #5	ICAL	1	10/3/2019	11:46:14	Reported
ICV	ICV	1	10/3/2019	11:49:38	Reported
ICB	ICB	1	10/3/2019	11:53:02	Reported
MB-75542	MBLK	1	10/3/2019	11:56:24	Reported
MB-75540 TCLP	MBLK	1	10/3/2019	11:59:46	Reported
LCS-75542	LCS	1	10/3/2019	12:03:08	Reported
N037718-003C-MS	MS	1	10/3/2019	12:06:31	Reported
N037718-003C-MSD	MSD	1	10/3/2019	12:09:54	Reported
N037718-003C-PS	PS	1	10/3/2019	12:13:16	Reported
N037718-003C	SAMP	1	10/3/2019	12:16:39	Reported
N037718-003C	SAMP	5	10/3/2019	12:20:02	Reported
N037727-001A	SAMP	1	10/3/2019	12:23:25	Reported
N037727-002A	SAMP	1	10/3/2019	12:26:49	Reported
CCV1	CCV	1	10/3/2019	12:30:13	Reported
CCB1	CCB	1	10/3/2019	12:33:38	Reported
N037727-003A	SAMP	1	10/3/2019	12:37:01	Reported
N037730-001A	SAMP	1	10/3/2019	12:40:24	Reported
N037709-002B	SAMP	1	10/3/2019	12:43:47	Reported
N037722-001C	SAMP	1	10/3/2019	12:47:11	Reported
N037722-002C	SAMP	1	10/3/2019	12:50:35	Reported
CCV2	CCV	1	10/3/2019	12:54:00	Reported
CCB2	CCB	1	10/3/2019	12:57:25	Reported

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/2/2019 4:00:00 P**
Prep End Date: **10/2/2019 6:30:00 P**
Prep Batch **75542** Prep Code: **7470_PR**

Reviewed/ Date: JRB 10/24/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.0**	**01-54**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75542	Aqueous		25	☐	50	2.000		
MB-7554 TCLP	Extract		25	☐	50	2.000		
MB-75542	Aqueous		25	☐	50	2.000		
N037709-002B	Groundwater	<2	25	☐	50	2.000		
N037718-003C	Water	<2	25	☐	50	2.000		
N037718-003C-MS	Water	<2	25	☐	50	2.000		
N037718-003C-MS	Water	<2	25	☐	50	2.000		
N037722-001C	Groundwater	<2	25	☐	50	2.000		
N037722-002C	Groundwater	<2	25	☐	50	2.000		
N037727-001A	Wastewater	<2	25	☐	50	2.000		
N037727-002A	Wastewater	<2	25	☐	50	2.000		
N037727-003A	Wastewater	<2	25	☐	50	2.000		
N037730-001A	Extract	<2	25	☐	50	2.000		

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

Number	Reagent Name
8541	Potassium Persulfate
9657	POTASSIUM PERMANGANATE
10901	sulfuric acid
10906	HYDROXYGLAMINE HCl
11079	SODIUM CHLORIDE
11430	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190910	500 ppb Hg ICV/LCS/LCSD/MS/MSD	ICV/LCS/LCSD	0.25
2MWST-190910	500 ppb Hg ICAL/CCV	ICAL/CCV	0.25

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191003WA

Instrument ID: AA-02

	Stock	Working
Standard Concentration:	1,000 PPM	500 PPB
ICAL Standard:	2MSST-180205A	2MWST-190910B

Comments:

Calibration Acceptance Criteria: > 0.995 Correlation

Sample ID	Date	Time	Analyte	Concentration	Units	Comments	Ave Absorbance	R
Calibration Blank	10/03/2019	11:29:22	Hg	0	PPB		196	
Standard #1,	10/03/2019	11:32:44	Hg	0.2	PPB		789	
Standard #2,	10/03/2019	11:36:06	Hg	1	PPB		2229	
Standard #3,	10/03/2019	11:39:28	Hg	5	PPB		10556	
Standard #4,	10/03/2019	11:42:51	Hg	10	PPB		21158	
Standard #5,	10/03/2019	11:46:14	Hg	20	PPB		40551	1.000

* Please note that the instrument printout for the 'Average Absorbance' were represented in three significant figures. The exact values are represented in the ICAL Summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136760**
Client ID: **ICV**	Batch ID: **R136760**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.970	0.20	10.00	0	99.7	90	110				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136760**
Client ID: **CCV**	Batch ID: **R136760**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.200	0.20	10.00	0	102	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136760**
Client ID: **CCV**	Batch ID: **R136760**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.300	0.20	10.00	0	103	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136760**
Client ID: **ICB**	Batch ID: **R136760**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	-0.093	0.20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136760**
Client ID: **CCB**	Batch ID: **R136760**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	-0.109	0.20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136760**
Client ID: **CCB**	Batch ID: **R136760**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**	SeqNo: **3525912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	-0.091	0.20									

Qualifiers:

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

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

AA-Metals in Water

Dilution Test Summary

Work Order No.: N037709
Test Method: EPA 7470
Analysis Date: 10/3/2019

Matrix: Groundwater
Batch No.: 75542

Instrument ID: AA-02
Instrument Description: CETAC Hg

Comments:

Analyzed By: Diane Jetajobe

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

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037718-003C DT 5x	Mercury	Hg	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037709
Project: PG&E Topock - BCW, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID **N037718-003C-PS**	SampType: **PS**	TestCode: **7470_W_DIS**	Units: **µg/L**	Prep Date:				RunNo: **136760**				
Client ID: **ZZZZZZ**	Batch ID: **75542**	TestNo: **EPA 7470A**		Analysis Date: **10/3/2019**				SeqNo: **3525899**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	4.740	0.20	5.000	0	94.8	75	125					

Qualifiers:

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

MDL STUDY

Method Detection Limits

Method Name: Mercury
Method Number: EPA Method 7470/245.1
Date of Analysis: 9/21, 9/25, 9/26/2017
Analyst: Claire Ignacio/ Mark Gesmundo

Matrix: Water
Spike Concentration: 0.2 ug/L

Compound	#1	#2	#3	#4	#5	#6	#7	SD	MDL	LOD	PQL
Mercury, ug/L	0.24	0.24	0.25	0.28	0.26	0.24	0.25	0.015	0.0458	0.10	0.20

Method Blank

MDL of Method Blanks using 99 percentile = 0.13358 ug/L (see separate sheet)

MDL 0.13358 ug/L

LOD Verification @ 0.10 ug/L

Spike Amount: ug/L	0.100
Actual Amount: ug/L	0.160
% Recovery:	**160%**

LOQ Verification @ 0.20 ug/L

Spike Amount: ug/L	0.200
Actual Amount: ug/L	0.240
% Recovery:	**120%**

October 16, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N037723

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 01, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Ribucan for

Puri Romualdo
Laboratory Director

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

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037709-001B-MS and N037709-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037723
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037723-001A	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-001B	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-001C	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-001D	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-002A	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-002B	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-002C	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-002D	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-003A	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-003B	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-003C	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-003D	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-004A	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-004B	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-004C	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-004D	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-005A	EB-708-Q319	Groundwater	10/1/2019 3:23:00 PM	10/1/2019	10/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 9:54:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037718-003ADUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:				RunNo: **136731**		
Client ID: **ZZZZZZ**	Batch ID: **R136731**	TestNo: **EPA 120.1**		Analysis Date: **10/2/2019**				SeqNo: **3524286**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	37400.000	0.10						37500	0.267	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	6.2	0.033	0.20		µg/L	1	10/3/2019 03:01 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	6.3	0.13	1.0		µg/L	1	10/11/2019 11:07 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	6.0	0.17	1.0		µg/L	5	10/3/2019 05:14 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	6.1	0.13	1.0		µg/L	1	10/11/2019 11:17 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 9:54:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/3/2019 03:39 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	10/11/2019 11:28 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	490	3.3	20		µg/L	100	10/3/2019 03:58 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	530	0.65	5.0		µg/L	5	10/11/2019 11:52 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-708-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 3:23:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/3/2019 04:17 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136776	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	PBW	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526503

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

Sample ID	LCS-R136776	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	LCSW	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526504

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.934	0.20	5.000	0	98.7	90	110				

Sample ID	N037721-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	ZZZZZZ	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526505

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5577.300	100	2500	3100	99.1	90	110				

Sample ID	N037722-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	ZZZZZZ	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526507

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.517	0.20	1.000	0.4304	109	90	110				

Sample ID	N037722-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	ZZZZZZ	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526509

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.966	0.20	1.000	0.9687	99.7	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037721-001BMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5598.200	100	2500	3100	99.9	90	110	5577	0.374	20	

Sample ID **N037722-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.957	0.20						0.9687	1.20	20	

Sample ID **N037723-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526516**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.274	0.20	5.000	6.163	102	90	110				

Sample ID **N037723-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.075	0.20	1.000	0	107	90	110				

Sample ID **N037723-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1000.860	20	500.0	492.1	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037723-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID **N037723-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.010	1.0	5.000	5.996	100	90	110				

Sample ID **N037718-002CMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID **N037718-003BMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.605	1.0	5.000	0	92.1	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533727

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

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.661	1.0	10.00	0	107	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533734

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	152.511	1.0	10.00	147.5	50.3	75	125				S

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533736

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	153.869	1.0	10.00	147.5	63.9	75	125	152.5	0.886	20	S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037709-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID:	**ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.1	0.032	0.050		mg/L	1	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 9:54:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	4.7	0.16	0.25		mg/L	5	10/12/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136983	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	PBW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536757

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

Sample ID	LCS-R136983	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	LCSW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536758

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.496	0.050	0.5000	0	99.2	85	115				

Sample ID	N037723-001CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536807

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03870	0	20	

Sample ID	N037679-006BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536809

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	25.814	1.0	10.00	15.25	106	75	125				

Sample ID	N037679-006BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536810

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	26.802	1.0	10.00	15.25	116	75	125	25.81	3.76	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_191014B** QC Batch: **75562** PrepDate: **10/7/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	6.4	0.081	0.10		µg/L	1	10/14/2019 03:39 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 11:07 PM
Molybdenum	89	0.21	0.50		µg/L	1	10/11/2019 11:07 PM
Selenium	ND	0.36	0.50		µg/L	1	10/14/2019 03:39 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Molybdenum	190	1.1	2.5		µg/L	5	10/11/2019 11:22 PM
Selenium	ND	0.36	0.50		µg/L	1	10/14/2019 05:37 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 9:54:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Arsenic	2.0	0.081	0.10		µg/L	1	10/14/2019 03:50 PM
Manganese	64	0.26	0.50		µg/L	1	10/11/2019 11:28 PM
Molybdenum	60	0.21	0.50		µg/L	1	10/11/2019 11:28 PM
Selenium	ND	0.36	0.50		µg/L	1	10/14/2019 03:50 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Arsenic	1.8	0.081	0.10		µg/L	1	10/14/2019 04:10 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 11:47 PM
Molybdenum	14	0.21	0.50		µg/L	1	10/11/2019 11:47 PM
Selenium	4.2	0.36	0.50		µg/L	1	10/14/2019 04:10 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75562**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533818**

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

Sample ID **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.815	0.50	100.0	0	108	85	115				
Molybdenum	10.518	0.50	10.00	0	105	85	115				

Sample ID **N037709-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	83.952	0.50	100.0	0	84.0	75	125				
Molybdenum	15.737	0.50	10.00	4.821	109	75	125				

Sample ID **N037709-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	84.416	0.50	100.0	0	84.4	75	125	83.95	0.552	20	
Molybdenum	15.725	0.50	10.00	4.821	109	75	125	15.74	0.0725	20	

Sample ID **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.449	0.10	10.00	0	104	85	115				
Selenium	9.240	0.50	10.00	0	92.4	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.217	0.10	10.00	1.722	105	75	125				
Selenium	16.378	0.50	10.00	5.803	106	75	125				

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.652	0.10	10.00	1.722	109	75	125	12.22	3.50	20	
Selenium	14.879	0.50	10.00	5.803	90.8	75	125	16.38	9.59	20	

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535833

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Qualifiers:

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

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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ASSET Laboratories

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

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

Cooler Received/Opened On:	10/1/2019	Workorder:	N037723
Rep sample Temp (Deg C):	2.3/2.0	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

LG 100919

Checklist Completed By: YR

Reviewed By:

ASSET Laboratories

WORK ORDER Summary

02-Oct-19

WorkOrder: N037723

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037723-001A	MW-44-115-Q319	10/1/2019 10:59:00 AM	10/15/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-001B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-001C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-001D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-002A	MW-46-175-Q319	10/1/2019 11:46:00 AM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-002B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-002C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-002D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-003A	MW-34-100-Q319	10/1/2019 9:54:00 AM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-003B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-003C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-003D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-004A	MW-62-065-Q319	10/1/2019 8:26:00 AM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-004B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

02-Oct-19

WorkOrder: N037723

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037723-004B	MW-62-065-Q319	10/1/2019 8:26:00 AM	10/15/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-004C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-004D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-005A	EB-708-Q319	10/1/2019 3:23:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-006A	FOLDER	10/15/2019	10/15/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037723

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 16, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N037723

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 01, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Sibucao for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037723

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037709-001B-MS and N037709-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *16-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037723
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037723-001A	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-001B	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-001C	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-001D	MW-44-115-Q319	Groundwater	10/1/2019 10:59:00 AM	10/1/2019	10/16/2019
N037723-002A	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-002B	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-002C	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-002D	MW-46-175-Q319	Groundwater	10/1/2019 11:46:00 AM	10/1/2019	10/16/2019
N037723-003A	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-003B	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-003C	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-003D	MW-34-100-Q319	Groundwater	10/1/2019 9:54:00 AM	10/1/2019	10/16/2019
N037723-004A	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-004B	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-004C	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-004D	MW-62-065-Q319	Groundwater	10/1/2019 8:26:00 AM	10/1/2019	10/16/2019
N037723-005A	EB-708-Q319	Groundwater	10/1/2019 3:23:00 PM	10/1/2019	10/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 9:54:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191002C**	QC Batch: **R136731**			PrepDate:			Analyst: **LR**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	10/2/2019 02:10 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037718-003ADUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:				RunNo: **136731**		
Client ID: **ZZZZZZ**	Batch ID: **R136731**	TestNo: **EPA 120.1**		Analysis Date: **10/2/2019**				SeqNo: **3524286**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	37400.000	0.10						37500	0.267	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	6.2	0.033	0.20		µg/L	1	10/3/2019 03:01 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	6.3	0.13	1.0		µg/L	1	10/11/2019 11:07 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	6.0	0.17	1.0		µg/L	5	10/3/2019 05:14 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	6.1	0.13	1.0		µg/L	1	10/11/2019 11:17 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 9:54:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/3/2019 03:39 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	10/11/2019 11:28 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	490	3.3	20		µg/L	100	10/3/2019 03:58 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	530	0.65	5.0		µg/L	5	10/11/2019 11:52 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-708-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 3:23:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191003A**	QC Batch: **R136776**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/3/2019 04:17 PM

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136776	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	PBW	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526503

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

Sample ID	LCS-R136776	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	LCSW	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526504

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.934	0.20	5.000	0	98.7	90	110				

Sample ID	N037721-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	ZZZZZZ	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526505

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5577.300	100	2500	3100	99.1	90	110				

Sample ID	N037722-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	ZZZZZZ	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526507

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.517	0.20	1.000	0.4304	109	90	110				

Sample ID	N037722-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136776
Client ID:	ZZZZZZ	Batch ID:	R136776	TestNo:	EPA 218.6			Analysis Date:	10/3/2019	SeqNo:	3526509

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.966	0.20	1.000	0.9687	99.7	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037721-001BMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5598.200	100	2500	3100	99.9	90	110	5577	0.374	20	

Sample ID **N037722-002ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.957	0.20						0.9687	1.20	20	

Sample ID **N037723-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526516**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.274	0.20	5.000	6.163	102	90	110				

Sample ID **N037723-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.075	0.20	1.000	0	107	90	110				

Sample ID **N037723-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1000.860	20	500.0	492.1	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037723-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID **N037723-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.010	1.0	5.000	5.996	100	90	110				

Sample ID **N037718-002CMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID **N037718-003BMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136776**
Client ID: **ZZZZZZ** Batch ID: **R136776** TestNo: **EPA 218.6** Analysis Date: **10/3/2019** SeqNo: **3526532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.605	1.0	5.000	0	92.1	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533727

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

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.661	1.0	10.00	0	107	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533734

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	152.511	1.0	10.00	147.5	50.3	75	125				S

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533736

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	153.869	1.0	10.00	147.5	63.9	75	125	152.5	0.886	20	S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037709-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID:	**ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.1	0.032	0.050		mg/L	1	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 9:54:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	10/12/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191012A**	QC Batch: **R136983**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	4.7	0.16	0.25		mg/L	5	10/12/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136983	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	PBW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536757

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

Sample ID	LCS-R136983	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	LCSW	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536758

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.496	0.050	0.5000	0	99.2	85	115				

Sample ID	N037723-001CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536807

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03870	0	20	

Sample ID	N037679-006BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536809

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	25.814	1.0	10.00	15.25	106	75	125				

Sample ID	N037679-006BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136983
Client ID:	ZZZZZZ	Batch ID:	R136983	TestNo:	SM4500-NO3			Analysis Date:	10/12/2019	SeqNo:	3536810

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	26.802	1.0	10.00	15.25	116	75	125	25.81	3.76	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 10:59:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Arsenic	6.4	0.081	0.10		µg/L	1	10/14/2019 03:39 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 11:07 PM
Molybdenum	89	0.21	0.50		µg/L	1	10/11/2019 11:07 PM
Selenium	ND	0.36	0.50		µg/L	1	10/14/2019 03:39 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 11:46:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Molybdenum	190	1.1	2.5		µg/L	5	10/11/2019 11:22 PM
Selenium	ND	0.36	0.50		µg/L	1	10/14/2019 05:37 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037723
Project: PG&E Topock - GMP, 30019131
Lab ID: N037723-003

Client Sample ID: MW-34-100-Q319
Collection Date: 10/1/2019 9:54:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191014B**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Arsenic	2.0	0.081	0.10		µg/L	1	10/14/2019 03:50 PM
Manganese	64	0.26	0.50		µg/L	1	10/11/2019 11:28 PM
Molybdenum	60	0.21	0.50		µg/L	1	10/11/2019 11:28 PM
Selenium	ND	0.36	0.50		µg/L	1	10/14/2019 03:50 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q319
Lab Order:	N037723	**Collection Date:**	10/1/2019 8:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037723-004		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_191014B** QC Batch: **75562** PrepDate: **10/7/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	1.8	0.081	0.10		µg/L	1	10/14/2019 04:10 PM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 11:47 PM
Molybdenum	14	0.21	0.50		µg/L	1	10/11/2019 11:47 PM
Selenium	4.2	0.36	0.50		µg/L	1	10/14/2019 04:10 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-75562	**MBLK**	**6020_DIS**	**µg/L**	**10/7/2019**	**136915**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533818**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-75562	**LCS**	**6020_DIS**	**µg/L**	**10/7/2019**	**136915**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.815	0.50	100.0	0	108	85	115				
Molybdenum	10.518	0.50	10.00	0	105	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037709-001B-MS	**MS**	**6020_DIS**	**µg/L**	**10/7/2019**	**136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	83.952	0.50	100.0	0	84.0	75	125				
Molybdenum	15.737	0.50	10.00	4.821	109	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037709-001B-MSD	**MSD**	**6020_DIS**	**µg/L**	**10/7/2019**	**136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	84.416	0.50	100.0	0	84.4	75	125	83.95	0.552	20	
Molybdenum	15.725	0.50	10.00	4.821	109	75	125	15.74	0.0725	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-75562	**LCS**	**6020_DIS**	**µg/L**	**10/7/2019**	**136952**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	LCS-75562	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	LCSW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.449	0.10	10.00	0	104	85	115				
Selenium	9.240	0.50	10.00	0	92.4	85	115				

Sample ID	N037709-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.217	0.10	10.00	1.722	105	75	125				
Selenium	16.378	0.50	10.00	5.803	106	75	125				

Sample ID	N037709-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.652	0.10	10.00	1.722	109	75	125	12.22	3.50	20	
Selenium	14.879	0.50	10.00	5.803	90.8	75	125	16.38	9.59	20	

Sample ID	MB-75562	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/7/2019	RunNo:	136952
Client ID:	PBW	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535833

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Qualifiers:

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

Calculations are based on raw values

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

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

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Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Joe Gatel		P.O.# SWA-ASSET-C9817-051	Others ✓	LEVEL III	3. Container Intact ✓
Title: Scientist 1	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date: 10/1/19	Sampled By:			Regulatory	5. IR number 1
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Global ID:	Specify State:	6. Method of Cooling: ice
Project Name: PG&E Topock - GMP	Signature: 10/1/2019				Sample Temp: 2.3°C, 2.0°C
Project Number: 30019131					Courier: ASSET
					Tracking No.: —

Matrix: Ground | Potable | NPDES | Surface | x Sediment | Soil | Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037723-01	MW-44-115-Q319	10/1/2019	10:59		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-46-175-Q319	10/1/2019	11:46		X			X		X	X	X		X						E	4	P	BNS	
3	-03	MW-34-100-Q319	10/1/2019	9:54		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-04	MW-62-065-Q319	10/1/2019	8:26		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-05	EB-708-Q319	10/1/2019	15:23		X															E	1	P	B	
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name): KEVIN T. Date/Time: 10-1-19 1644
Relinquished by (Signature and Printed Name): JULIA BUNDALIAN Date/Time: 10/01/19 1644
Relinquished by (Signature and Printed Name): JULIA BUNDALIAN Date/Time: 10/1/19 1830
Relinquished by (Signature and Printed Name): JULIA BUNDALIAN Date/Time: 10/1/19 1936

Turn Around Time (TAT)

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

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

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

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

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	10/1/2019	Workorder:	N037723
Rep sample Temp (Deg C):	2.3/2.0	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

LG 100919

Checklist Completed By: YR

Reviewed By:

ASSET Laboratories

WORK ORDER Summary

02-Oct-19

WorkOrder: N037723

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037723-001A	MW-44-115-Q319	10/1/2019 10:59:00 AM	10/15/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-001B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-001C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-001D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-002A	MW-46-175-Q319	10/1/2019 11:46:00 AM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-002B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-002C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-002D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-003A	MW-34-100-Q319	10/1/2019 9:54:00 AM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-003B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-003C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-003D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-004A	MW-62-065-Q319	10/1/2019 8:26:00 AM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-004B			10/15/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/15/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

02-Oct-19

WorkOrder: N037723

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 10/1/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037723-004B	MW-62-065-Q319	10/1/2019 8:26:00 AM	10/15/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037723-004C			10/15/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037723-004D			10/15/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N037723-005A	EB-708-Q319	10/1/2019 3:23:00 PM	10/15/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037723-006A	FOLDER	10/15/2019	10/15/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB
			10/15/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037723

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1
Hanah Glodoviza	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136731 **Analyst:** LSR

ASSET #: N037723 **Date Analyzed:** 2-Oct

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 10/4/2019

2nd Level Reviewer: Mary 10/16/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 10/2/19 1410
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CINV - 190724B	10.04 @18.5°C	% Rec: (90-110%)
1410	D	1406 @18.5°C	
9985	F	9930 @18.4°C	
100033	CINV - 190904A	100200 @18.4°C	

	Sample ID	Matrix	Reading	Comments
1	N037718-1B	H2O	7150 @18.5°C	MB = 0.37
2	2B		6970 @18.1°C	
3	3A		37500 @18.7°C	
4	3ADUP		37400 @18.9°C	
5	N037722-1D		7380 @18.3°C	
6	2D		7070 @18.5°C	
7	N037723-1D		10840 @18.5°C	
8	2D		17390 @18.7°C	
9	3D		10250 @18.0°C	
10	4D		6170 @18.2°C	
Dup	1413 uS/cm	CINV - 190726A	1447 @18.9°C	RPD Criteria: 2%
Std Chk:	10000	190724G	10130 @19.2°C	% Rec: (90-110%)
	99999	190524A	96500 @19.5°C	

Date: 10/3/19 1355
Analyst: LSR

Julia Ramit 10/4/2019

Standard	Std ID	Reading	Comments
9.98 uS/cm	CINV - 190724B	10.04 @18.3°C	% Rec: (90-110%)
1410	D	1435 @18.3°C	
9985	F	9930 @18.2°C	
100033	CINV - 190904A	99800 @18.2°C	

	Sample ID	Matrix	Reading	Comments
1	N037736-1D	H2O	7310 @18.6°C	MB = 0.45
2	2D		7480 @18.3°C	
3	3D		7360 @18.1°C	
4	4D		7290 @18.2°C	
5	5D		7390 @18.2°C	
6	6D		7430 @18.1°C	
7	7D		7959 @18.5°C	
8	7D DUP		7920 @18.4°C	
9				
10	1413 uS/cm	CINV-190726A	1457 @19.3°C	
Dup	10000	190724G	10040 @19.2°C	RPD Criteria: 2%
Std Chk:	99999	190524A	99400 @19.4°C	% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136776
ASSET #: N037723

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 10/3/2019

Method:

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

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

Comments: Dilution was necessary in N037723-002A due to matrix interference.

SECOND LEVEL REVIEW:

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

1st Level Reviewer: HSG Date: 10/9/2019

2nd Level Reviewer: NS 10/9/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

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

where:

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

For Sample **N037723-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.1633 * 1$$

$$Cr^{+6}, \mu g/L = 6.1633$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 6.2}$$

ANALYSIS RUN LOG

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	10/03/19 11:57 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/19 12:08 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	10/03/19 12:17 PM	Reported
13	MB-R136776	MBLK	1	Hexavalent Chromium	10/03/19 12:27 PM	Reported
14	LCS-R136776	LCS	1	Hexavalent Chromium	10/03/19 12:36 PM	Reported
15	N037721-001BMS	MS	500	Hexavalent Chromium	10/03/19 1:25 PM	Reported
16	N037722-001A	SAMP	1	Hexavalent Chromium	10/03/19 1:36 PM	Reported
17	N037722-001AMS	MS	1	Hexavalent Chromium	10/03/19 1:46 PM	Reported
18	N037722-002A	SAMP	1	Hexavalent Chromium	10/03/19 1:55 PM	Reported
19	N037722-002AMS	MS	1	Hexavalent Chromium	10/03/19 2:04 PM	Reported
20	N037721-001B	SAMP	500	Hexavalent Chromium	10/03/19 2:14 PM	Reported
21	N037721-001BMSD	MSD	500	Hexavalent Chromium	10/03/19 2:23 PM	Reported
22	N037722-002ADUP	DUP	1	Hexavalent Chromium	10/03/19 2:33 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	10/03/19 2:42 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	10/03/19 2:52 PM	Reported
25	N037723-001A	SAMP	1	Hexavalent Chromium	10/03/19 3:01 PM	Reported
26	N037723-001AMS	MS	1	Hexavalent Chromium	10/03/19 3:11 PM	Reported
27	N037723-002A	SAMP	1	Hexavalent Chromium	10/03/19 3:20 PM	Not Reported
28	N037723-002AMS	MS	1	Hexavalent Chromium	10/03/19 3:30 PM	Not Reported
29	N037723-003A	SAMP	1	Hexavalent Chromium	10/03/19 3:39 PM	Reported
30	N037723-003AMS	MS	1	Hexavalent Chromium	10/03/19 3:49 PM	Reported
31	N037723-004A	SAMP	100	Hexavalent Chromium	10/03/19 3:58 PM	Reported
32	N037723-004AMS	MS	100	Hexavalent Chromium	10/03/19 4:07 PM	Reported
33	N037723-005A	SAMP	1	Hexavalent Chromium	10/03/19 4:17 PM	Reported
34	N037723-005AMS	MS	1	Hexavalent Chromium	10/03/19 4:26 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	10/03/19 4:36 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	10/03/19 4:45 PM	Reported
37	N037723-001A	SAMP	5	Hexavalent Chromium	10/03/19 4:55 PM	Not Reported
38	N037723-001AMS	MS	5	Hexavalent Chromium	10/03/19 5:04 PM	Not Reported
39	N037723-002A	SAMP	5	Hexavalent Chromium	10/03/19 5:14 PM	Reported
40	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 5:23 PM	Reported
41	N037723-003A	SAMP	5	Hexavalent Chromium	10/03/19 5:33 PM	Not Reported
42	N037723-003AMS	MS	5	Hexavalent Chromium	10/03/19 5:42 PM	Not Reported

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037718-001C	SAMP	50	Hexavalent Chromium	10/03/19 5:52 PM	Not Reported
44	N037718-001CMS	MS	50	Hexavalent Chromium	10/03/19 6:01 PM	Not Reported
45	N037718-002C	SAMP	1	Hexavalent Chromium	10/03/19 6:10 PM	Reported
46	N037718-002CMS	MS	1	Hexavalent Chromium	10/03/19 6:20 PM	Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	10/03/19 6:29 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	10/03/19 6:39 PM	Reported
49	N037718-003B	SAMP	5	Hexavalent Chromium	10/03/19 6:48 PM	Reported
50	N037718-003BMS	MS	5	Hexavalent Chromium	10/03/19 6:58 PM	Reported
51	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 7:07 PM	Not Reported
52	CCV-4	CCV	1	Hexavalent Chromium	10/03/19 7:17 PM	Reported
53	CCB-4	CCB	1	Hexavalent Chromium	10/03/19 7:26 PM	Reported
54	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 7:36 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191003B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Oct/19 09:29:25**
No. of Injections:	**57**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1	1	1000	Unknown		10/03/2019 11:57	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	2	1000	Unknown		10/03/2019 12:08	Finished	PQL @ 0.2ppb
12	ICB,ICB,1	3	1000	Unknown		10/03/2019 12:17	Finished	CCB R190830A
13	MB-H2O,MBLK,1,	4	1000	Unknown		10/03/2019 12:27	Finished	MB R190830A
14	LCS-H2O,LCS,1,	5	1000	Unknown		10/03/2019 12:36	Finished	LCS @5ppb, IWST-190702B
15	N037721-001BMS,MS	6	1000	Unknown		10/03/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
16	N037722-001A,SAMP	7	1000	Unknown		10/03/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
17	N037722-001AMS,MS	8	1000	Unknown		10/03/2019 13:46	Finished	MS (5ppb), IWST-190702B,10
18	N037722-002A,SAMP	9	1000	Unknown		10/03/2019 13:55	Finished	MS (1ppb), IWST-190702B,10
19	N037722-002AMS,MS	10	1000	Unknown		10/03/2019 14:04	Finished	SAMP, 2>10 mL
20	N037721-001B,SAMP	11	1000	Unknown		10/03/2019 14:14	Finished	MS (1ppb), IWST-190702B,2>1
21	N037721-001BMSD,M	12	1000	Unknown		10/03/2019 14:23	Finished	
22	N037722-002ADUP,D	13	1000	Unknown		10/03/2019 14:33	Finished	
23	CCV-1,CCV1,1,	14	1000	Unknown		10/03/2019 14:42	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	15	1000	Unknown		10/03/2019 14:52	Finished	CCB R190830A
25	N037723-001A,SAMP	16	1000	Unknown		10/03/2019 15:01	Finished	
26	N037723-001AMS,MS	17	1000	Unknown		10/03/2019 15:11	Finished	
27	N037723-002A,SAMP	18	1000	Unknown		10/03/2019 15:20	Finished	
28	N037723-002AMS,MS	19	1000	Unknown		10/03/2019 15:30	Finished	
29	N037723-003A,SAMP	20	1000	Unknown		10/03/2019 15:39	Finished	
30	N037723-003AMS,MS	21	1000	Unknown		10/03/2019 15:49	Finished	
31	N037723-004A,SAMP	22	1000	Unknown		10/03/2019 15:58	Finished	
32	N037723-004AMS,MS	23	1000	Unknown		10/03/2019 16:07	Finished	
33	N037723-005A,SAMP	24	1000	Unknown		10/03/2019 16:17	Finished	
34	N037723-005AMS,MS	25	1000	Unknown		10/03/2019 16:26	Finished	
35	CCV-2,CCV,1,	26	1000	Unknown		10/03/2019 16:36	Finished	CCV @5ppb, IWST-190702A
36	CCB-2,CCB,1,	27	1000	Unknown		10/03/2019 16:45	Finished	CCB R190830A
37	N037723-001A,SAMP	28	1000	Unknown		10/03/2019 16:55	Finished	
38	N037723-001AMS,MS	29	1000	Unknown		10/03/2019 17:04	Finished	
39	N037723-002A,SAMP	30	1000	Unknown		10/03/2019 17:14	Finished	
40	N037723-002AMS,MS	31	1000	Unknown		10/03/2019 17:23	Finished	
41	N037723-003A,SAMP	32	1000	Unknown		10/03/2019 17:33	Finished	
42	N037723-003AMS,MS	33	1000	Unknown		10/03/2019 17:42	Finished	
43	N037718-001C,SAMP	34	1000	Unknown		10/03/2019 17:52	Finished	
44	N037718-001CMS,MS	35	1000	Unknown		10/03/2019 18:01	Finished	
45	N037718-002C,SAMP	36	1000	Unknown		10/03/2019 18:10	Finished	
46	N037718-002CMS,MS	37	1000	Unknown		10/03/2019 18:20	Finished	
47	CCV-3,CCV1,1,	38	1000	Unknown		10/03/2019 18:29	Finished	CCV @10ppb, IWST-190702A
48	CCB-3,CCB,1,	39	1000	Unknown		10/03/2019 18:39	Finished	CCB R190830A
49	N037718-003C,SAMP	40	1000	Unknown		10/03/2019 18:48	Finished	
50	N037718-003CMS,MS	41	1000	Unknown		10/03/2019 18:58	Finished	
51	N037723-002AMS,MS	42	1000	Unknown		10/03/2019 19:07	Finished	
52	CCV-4,CCV,1,	43	1000	Unknown		10/03/2019 19:17	Finished	CCV @5ppb, IWST-190702A
53	CCB-4,CCB,1,	44	1000	Unknown		10/03/2019 19:26	Finished	CCB R190830A
54	BLANK	45	1000	Unknown		10/03/2019 19:36	Finished	BLANK
55	SHUTDOWN	46	1000	Unknown		10/03/2019 19:45	Finished	
56	Eluent: R190930D	47	1000	Unknown		n.a.	Finished	Eluent
57	PCR: R190930E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 10/01/19
Time Prepared: 1400
Prepared By: HG

SLOPE: 97.5%
pH 4: 4.02
7: 7.04
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R1909300
NH4OH + NH4SO4 buffer: R190830A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037709-1A	9.48	–	~250mL	~250mL		
2)	-2A	9.52	–	"	"		
3)	-3A	9.50	–	"	"		
4)	-4A	9.64	–	"	"		
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 10/02/19
Time Prepared: 1535
Prepared By: HG

SLOPE: 97.3%
pH 4: 4.01
7: 7.03
10: 10.02

Reagent ID: 6N NaOH: R190722A
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R1909300
NH4OH + NH4SO4 buffer: R190701B, R190830A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037721-1B	9.22	9.32	~250mL	~250mL	+1 DROP 6N	NaOH
2)	N037722-1A	9.51	–	"	"		
3)	2A	9.41	–	"	"		
4)	N037723-1A	9.36	–	"	"		
5)	2A	9.47	–	"	"		
6)	3A	9.26	9.31	"	"	+1 DROP 6N NaOH	
7)	4A	8.95	9.70	"	"	+4 DROPS 6N NaOH	
8)	5A	9.60	–	"	"		
9)	N037718-1F	7.54	–	~1000mL	~1000mL (HS)		UNFILTERED / UNPRESERVED
10)	-1C	–	9.48	~250mL	~250mL		LAB FILTERED / PRESERVED
11)	-2F	7.10	–	~1000mL			UNFILTERED / UNPRESERVED
12)	-2C	–	9.50	~250mL	~250mL		LAB FILTERED / PRESERVED
13)	-3D	7.80	–	~1000mL			UNFILTERED / UNPRESERVED
14)	-3B	–	9.30	~250mL	~250mL		LAB FILTERED / PRESERVED
15)							

Logbook No. 17

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 10/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0504	0.2845	1.2983	2.6645	4.0089	5.4295	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ICV**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.885	0.20	5.000	0	97.7	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.217	0.20	0.2000	0	108	80	120				

Sample ID **CCV-1**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.012	0.20	10.00	0	100	95	105				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **CCV**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.086	0.20	5.000	0	102	95	105				

Sample ID **CCV-3**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ZZZZZZ**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.123	0.20	10.00	0	101	95	105				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **CCV**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.077	0.20	5.000	0	102	95	105				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **ICB**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526502**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **CCB**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526514**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **CCB**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526524**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **CCB**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526530**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136776**
Client ID: **CCB**	Batch ID: **R136776**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3526534**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.881	
CCV-2	4.881	
CCV-3	4.881	
CCV-4	4.881	
Average	4.881	
Actual RT Window	4.801 - 4.961	
Applied RT Window	4.681 - 5.081	
MB-R136776	N.A.	N.A.
LCS-R136776	4.881	PASS
N037721-001BMS	4.881	PASS
N037722-001A	4.781	PASS
N037722-001AMS	4.773	PASS
N037722-002A	4.773	PASS
N037722-002AMS	4.773	PASS
N037721-001B	4.881	PASS
N037721-001BMSD	4.881	PASS
N037722-002ADUP	4.773	PASS
N037723-001A	4.698	PASS
N037723-001AMS	4.698	PASS
N037723-002A	N.A.	N.A.
N037723-002AMS	N.A.	N.A.
N037723-003A	N.A.	N.A.
N037723-003AMS	4.698	PASS
N037723-004A	4.881	PASS
N037723-004AMS	4.881	PASS
N037723-005A	N.A.	N.A.
N037723-005AMS	4.881	PASS
N037723-001A	4.865	PASS
N037723-001AMS	4.865	PASS
N037723-002A	4.840	PASS
N037723-002AMS	4.840	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.881	
CCV-2	4.881	
CCV-3	4.881	
CCV-4	4.881	
Average	4.881	
Actual RT Window	4.801 - 4.961	
Applied RT Window	4.681 - 5.081	
N037723-003A	N.A.	N.A.
N037723-003AMS	4.865	PASS
N037718-001C	4.881	PASS
N037718-001CMS	4.881	PASS
N037718-002C	N.A.	N.A.
N037718-002CMS	4.781	PASS
N037718-003B	N.A.	N.A.
N037718-003BMS	4.715	PASS
N037723-002AMS	4.840	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	10/03/19 11:57 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/19 12:08 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	10/03/19 12:17 PM	Reported
13	MB-R136776	MBLK	1	Hexavalent Chromium	10/03/19 12:27 PM	Reported
14	LCS-R136776	LCS	1	Hexavalent Chromium	10/03/19 12:36 PM	Reported
15	N037721-001BMS	MS	500	Hexavalent Chromium	10/03/19 1:25 PM	Reported
16	N037722-001A	SAMP	1	Hexavalent Chromium	10/03/19 1:36 PM	Reported
17	N037722-001AMS	MS	1	Hexavalent Chromium	10/03/19 1:46 PM	Reported
18	N037722-002A	SAMP	1	Hexavalent Chromium	10/03/19 1:55 PM	Reported
19	N037722-002AMS	MS	1	Hexavalent Chromium	10/03/19 2:04 PM	Reported
20	N037721-001B	SAMP	500	Hexavalent Chromium	10/03/19 2:14 PM	Reported
21	N037721-001BMSD	MSD	500	Hexavalent Chromium	10/03/19 2:23 PM	Reported
22	N037722-002ADUP	DUP	1	Hexavalent Chromium	10/03/19 2:33 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	10/03/19 2:42 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	10/03/19 2:52 PM	Reported
25	N037723-001A	SAMP	1	Hexavalent Chromium	10/03/19 3:01 PM	Reported
26	N037723-001AMS	MS	1	Hexavalent Chromium	10/03/19 3:11 PM	Reported
27	N037723-002A	SAMP	1	Hexavalent Chromium	10/03/19 3:20 PM	Not Reported
28	N037723-002AMS	MS	1	Hexavalent Chromium	10/03/19 3:30 PM	Not Reported
29	N037723-003A	SAMP	1	Hexavalent Chromium	10/03/19 3:39 PM	Reported
30	N037723-003AMS	MS	1	Hexavalent Chromium	10/03/19 3:49 PM	Reported
31	N037723-004A	SAMP	100	Hexavalent Chromium	10/03/19 3:58 PM	Reported
32	N037723-004AMS	MS	100	Hexavalent Chromium	10/03/19 4:07 PM	Reported
33	N037723-005A	SAMP	1	Hexavalent Chromium	10/03/19 4:17 PM	Reported
34	N037723-005AMS	MS	1	Hexavalent Chromium	10/03/19 4:26 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	10/03/19 4:36 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	10/03/19 4:45 PM	Reported
37	N037723-001A	SAMP	5	Hexavalent Chromium	10/03/19 4:55 PM	Not Reported
38	N037723-001AMS	MS	5	Hexavalent Chromium	10/03/19 5:04 PM	Not Reported
39	N037723-002A	SAMP	5	Hexavalent Chromium	10/03/19 5:14 PM	Reported
40	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 5:23 PM	Reported
41	N037723-003A	SAMP	5	Hexavalent Chromium	10/03/19 5:33 PM	Not Reported
42	N037723-003AMS	MS	5	Hexavalent Chromium	10/03/19 5:42 PM	Not Reported

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037718-001C	SAMP	50	Hexavalent Chromium	10/03/19 5:52 PM	Not Reported
44	N037718-001CMS	MS	50	Hexavalent Chromium	10/03/19 6:01 PM	Not Reported
45	N037718-002C	SAMP	1	Hexavalent Chromium	10/03/19 6:10 PM	Reported
46	N037718-002CMS	MS	1	Hexavalent Chromium	10/03/19 6:20 PM	Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	10/03/19 6:29 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	10/03/19 6:39 PM	Reported
49	N037718-003B	SAMP	5	Hexavalent Chromium	10/03/19 6:48 PM	Reported
50	N037718-003BMS	MS	5	Hexavalent Chromium	10/03/19 6:58 PM	Reported
51	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 7:07 PM	Not Reported
52	CCV-4	CCV	1	Hexavalent Chromium	10/03/19 7:17 PM	Reported
53	CCB-4	CCB	1	Hexavalent Chromium	10/03/19 7:26 PM	Reported
54	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 7:36 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191003B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Oct/19 09:29:25**
No. of Injections:	**57**	*Updated By:*	**ics 5000**

Injection Details

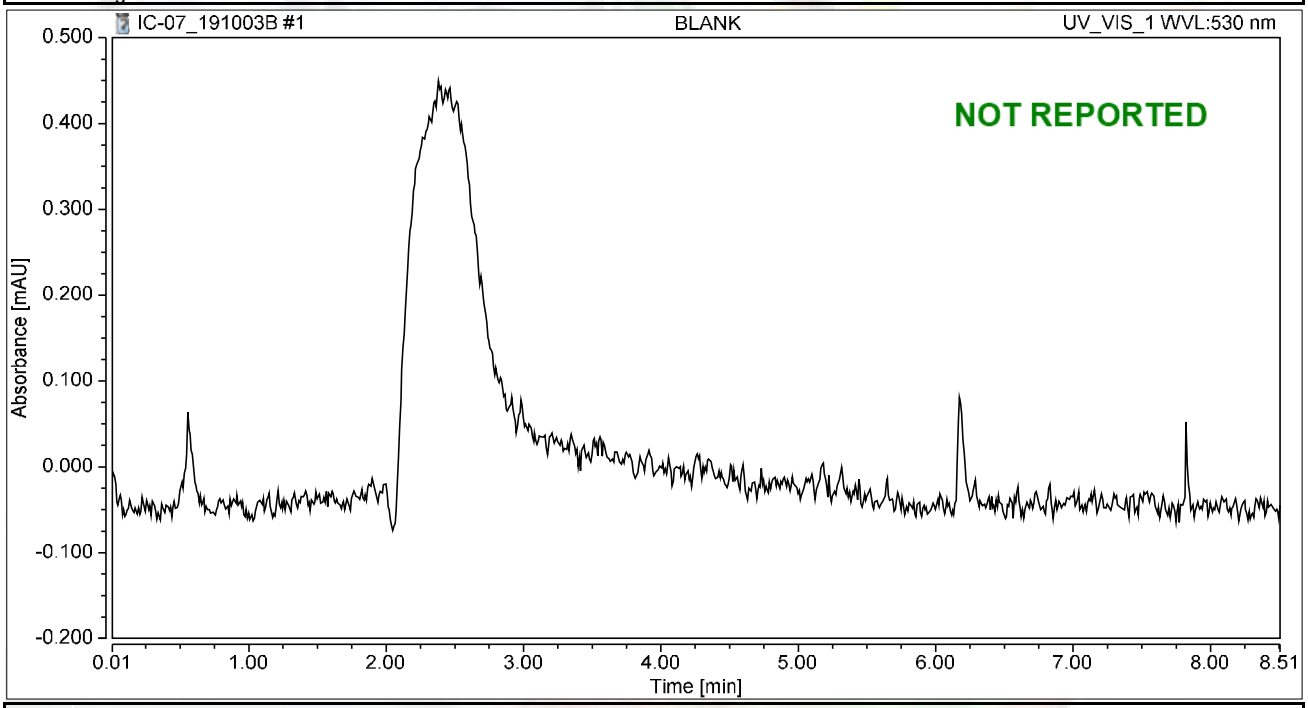
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1	1	1000	Unknown		10/03/2019 11:57	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	2	1000	Unknown		10/03/2019 12:08	Finished	PQL @ 0.2ppb
12	ICB,ICB,1	3	1000	Unknown		10/03/2019 12:17	Finished	CCB R190830A
13	MB-H2O,MBLK,1,	4	1000	Unknown		10/03/2019 12:27	Finished	MB R190830A
14	LCS-H2O,LCS,1,	5	1000	Unknown		10/03/2019 12:36	Finished	LCS @5ppb, IWST-190702B
15	N037721-001BMS,MS	6	1000	Unknown		10/03/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
16	N037722-001A,SAMF	7	1000	Unknown		10/03/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
17	N037722-001AMS,MS	8	1000	Unknown		10/03/2019 13:46	Finished	MS (5ppb), IWST-190702B,10
18	N037722-002A,SAMF	9	1000	Unknown		10/03/2019 13:55	Finished	MS (1ppb), IWST-190702B,10
19	N037722-002AMS,MS	10	1000	Unknown		10/03/2019 14:04	Finished	SAMP, 2>10 mL
20	N037721-001B,SAMF	11	1000	Unknown		10/03/2019 14:14	Finished	MS (1ppb), IWST-190702B,2>1
21	N037721-001BMSD,M	12	1000	Unknown		10/03/2019 14:23	Finished	
22	N037722-002ADUP,D	13	1000	Unknown		10/03/2019 14:33	Finished	
23	CCV-1,CCV1,1,	14	1000	Unknown		10/03/2019 14:42	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	15	1000	Unknown		10/03/2019 14:52	Finished	CCB R190830A
25	N037723-001A,SAMF	16	1000	Unknown		10/03/2019 15:01	Finished	
26	N037723-001AMS,MS	17	1000	Unknown		10/03/2019 15:11	Finished	
27	N037723-002A,SAMF	18	1000	Unknown		10/03/2019 15:20	Finished	
28	N037723-002AMS,MS	19	1000	Unknown		10/03/2019 15:30	Finished	
29	N037723-003A,SAMF	20	1000	Unknown		10/03/2019 15:39	Finished	
30	N037723-003AMS,MS	21	1000	Unknown		10/03/2019 15:49	Finished	
31	N037723-004A,SAMF	22	1000	Unknown		10/03/2019 15:58	Finished	
32	N037723-004AMS,MS	23	1000	Unknown		10/03/2019 16:07	Finished	
33	N037723-005A,SAMF	24	1000	Unknown		10/03/2019 16:17	Finished	
34	N037723-005AMS,MS	25	1000	Unknown		10/03/2019 16:26	Finished	
35	CCV-2,CCV,1,	26	1000	Unknown		10/03/2019 16:36	Finished	CCV @5ppb, IWST-190702A
36	CCB-2,CCB,1,	27	1000	Unknown		10/03/2019 16:45	Finished	CCB R190830A
37	N037723-001A,SAMF	28	1000	Unknown		10/03/2019 16:55	Finished	
38	N037723-001AMS,MS	29	1000	Unknown		10/03/2019 17:04	Finished	
39	N037723-002A,SAMF	30	1000	Unknown		10/03/2019 17:14	Finished	
40	N037723-002AMS,MS	31	1000	Unknown		10/03/2019 17:23	Finished	
41	N037723-003A,SAMF	32	1000	Unknown		10/03/2019 17:33	Finished	
42	N037723-003AMS,MS	33	1000	Unknown		10/03/2019 17:42	Finished	
43	N037718-001C,SAMF	34	1000	Unknown		10/03/2019 17:52	Finished	
44	N037718-001CMS,MS	35	1000	Unknown		10/03/2019 18:01	Finished	
45	N037718-002C,SAMF	36	1000	Unknown		10/03/2019 18:10	Finished	
46	N037718-002CMS,MS	37	1000	Unknown		10/03/2019 18:20	Finished	
47	CCV-3,CCV1,1,	38	1000	Unknown		10/03/2019 18:29	Finished	CCV @10ppb, IWST-190702A
48	CCB-3,CCB,1,	39	1000	Unknown		10/03/2019 18:39	Finished	CCB R190830A
49	N037718-003C,SAMF	40	1000	Unknown		10/03/2019 18:48	Finished	
50	N037718-003CMS,MS	41	1000	Unknown		10/03/2019 18:58	Finished	
51	N037723-002AMS,MS	42	1000	Unknown		10/03/2019 19:07	Finished	
52	CCV-4,CCV,1,	43	1000	Unknown		10/03/2019 19:17	Finished	CCV @5ppb, IWST-190702A
53	CCB-4,CCB,1,	44	1000	Unknown		10/03/2019 19:26	Finished	CCB R190830A
54	BLANK	45	1000	Unknown		10/03/2019 19:36	Finished	BLANK
55	SHUTDOWN	46	1000	Unknown		10/03/2019 19:45	Finished	
56	Eluent: R190930D	47	1000	Unknown		n.a.	Finished	Eluent
57	PCR: R190930E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

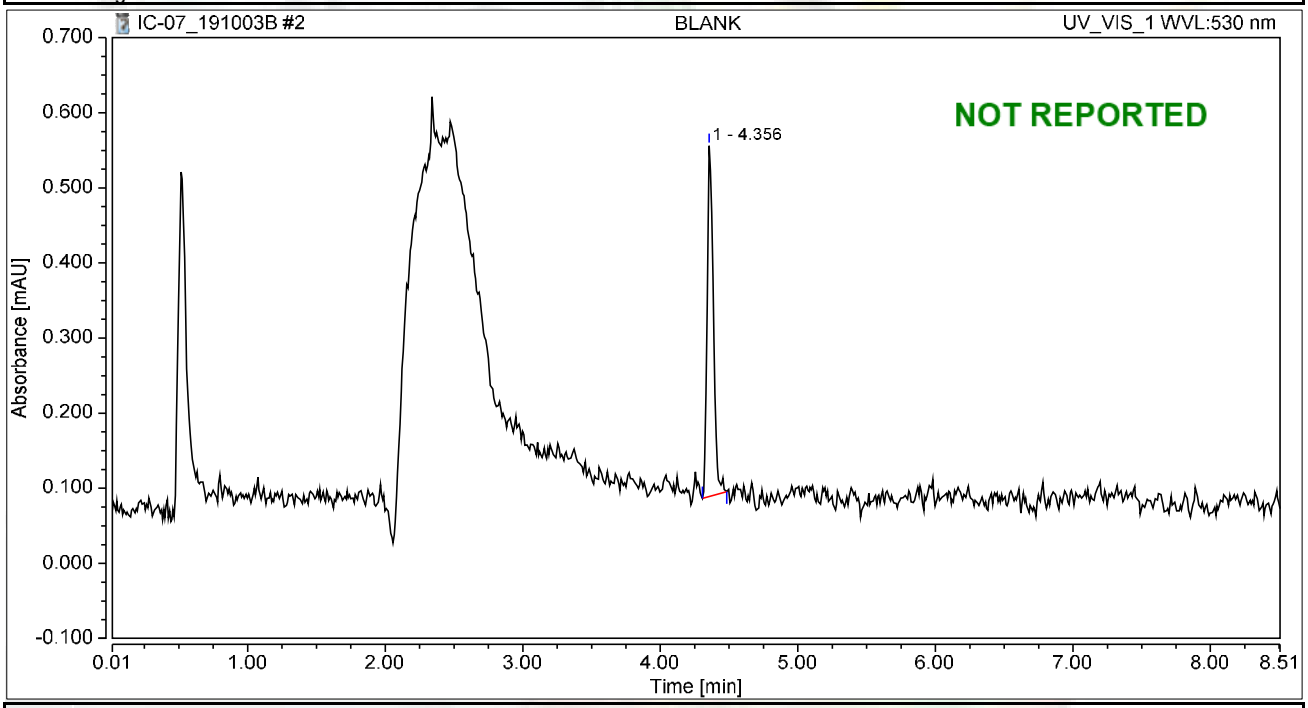
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

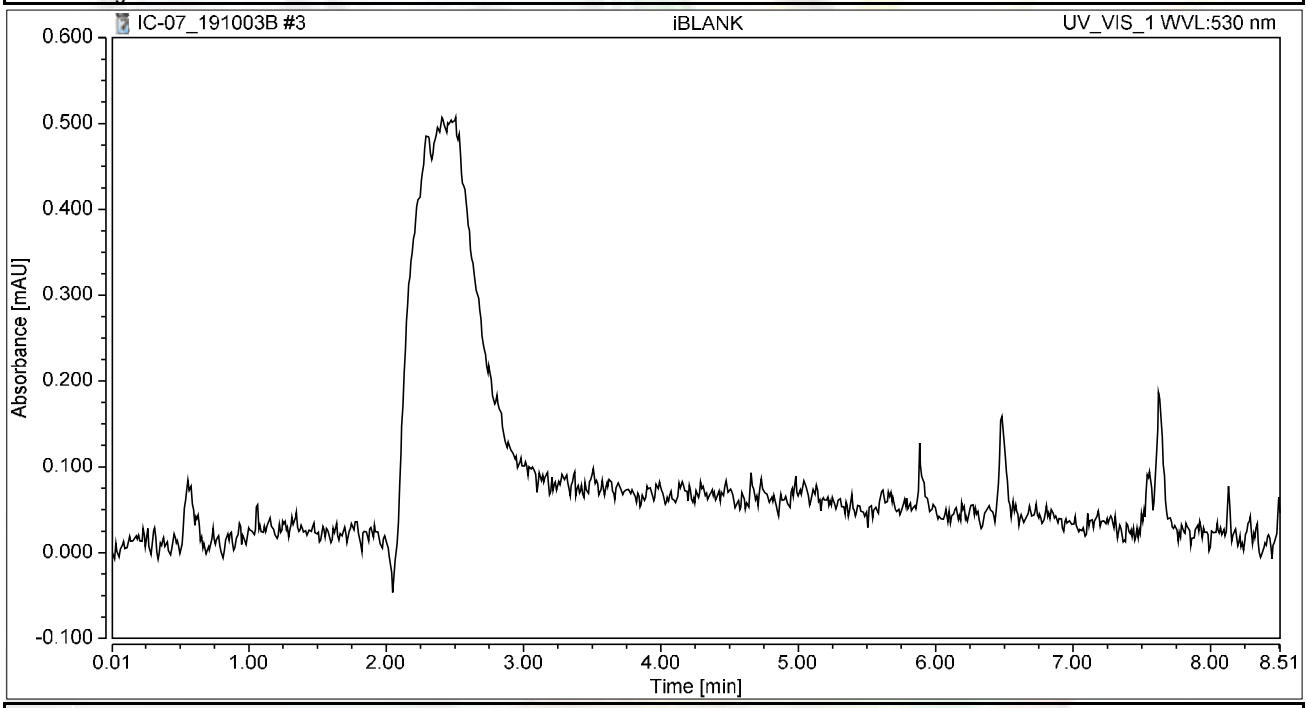
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.356	0.024	0.467	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.024**	**0.467**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

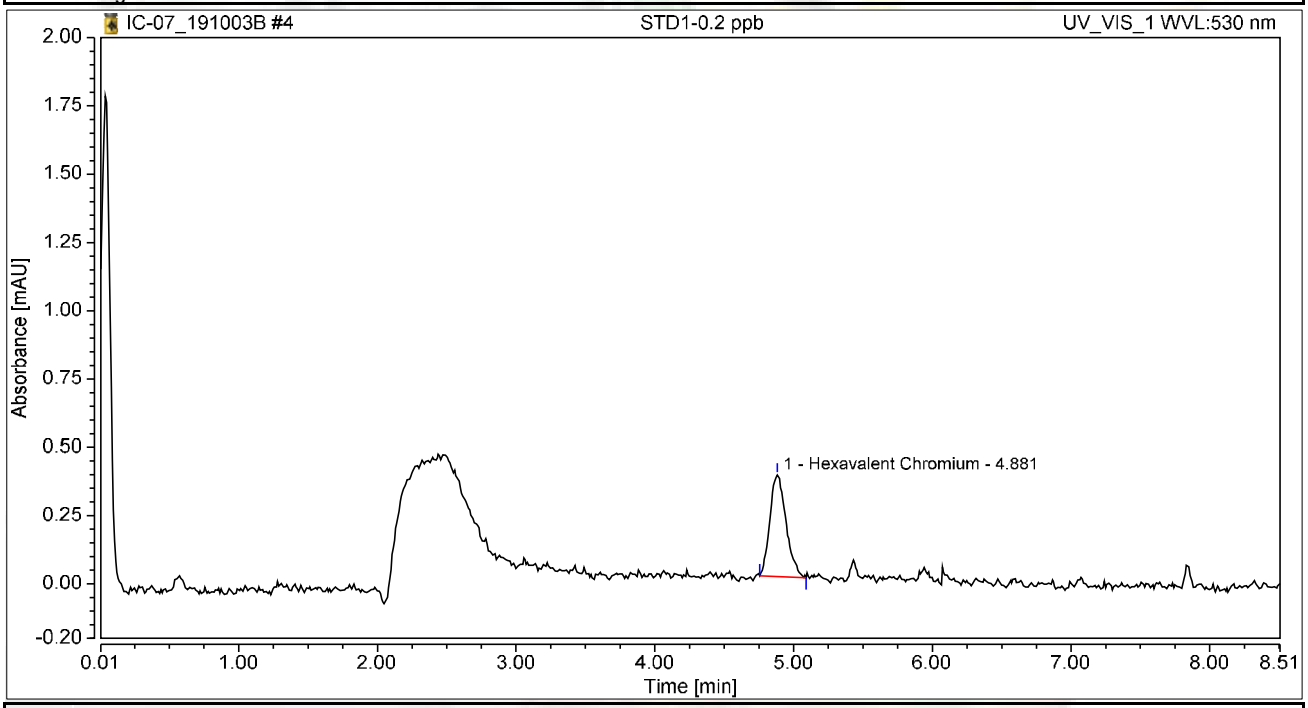
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

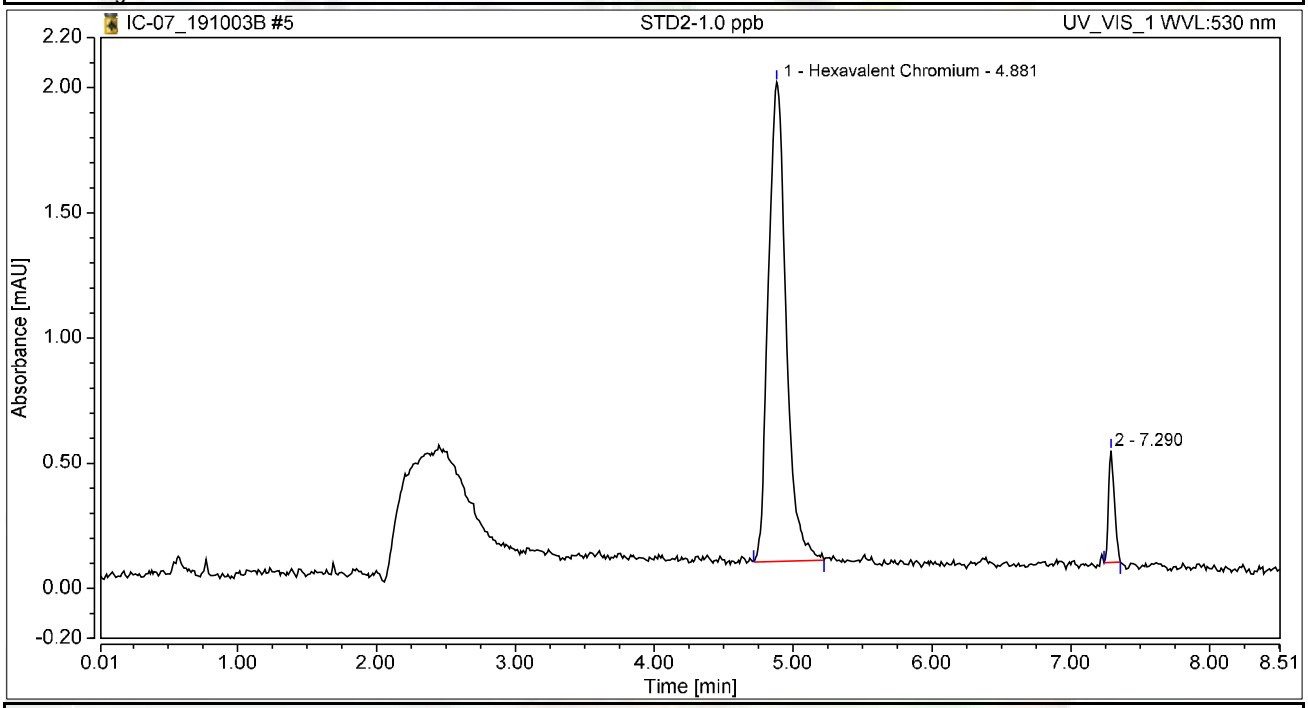
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	0.050	0.372	100.00	100.00	0.1873
Total:			**0.050**	**0.372**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

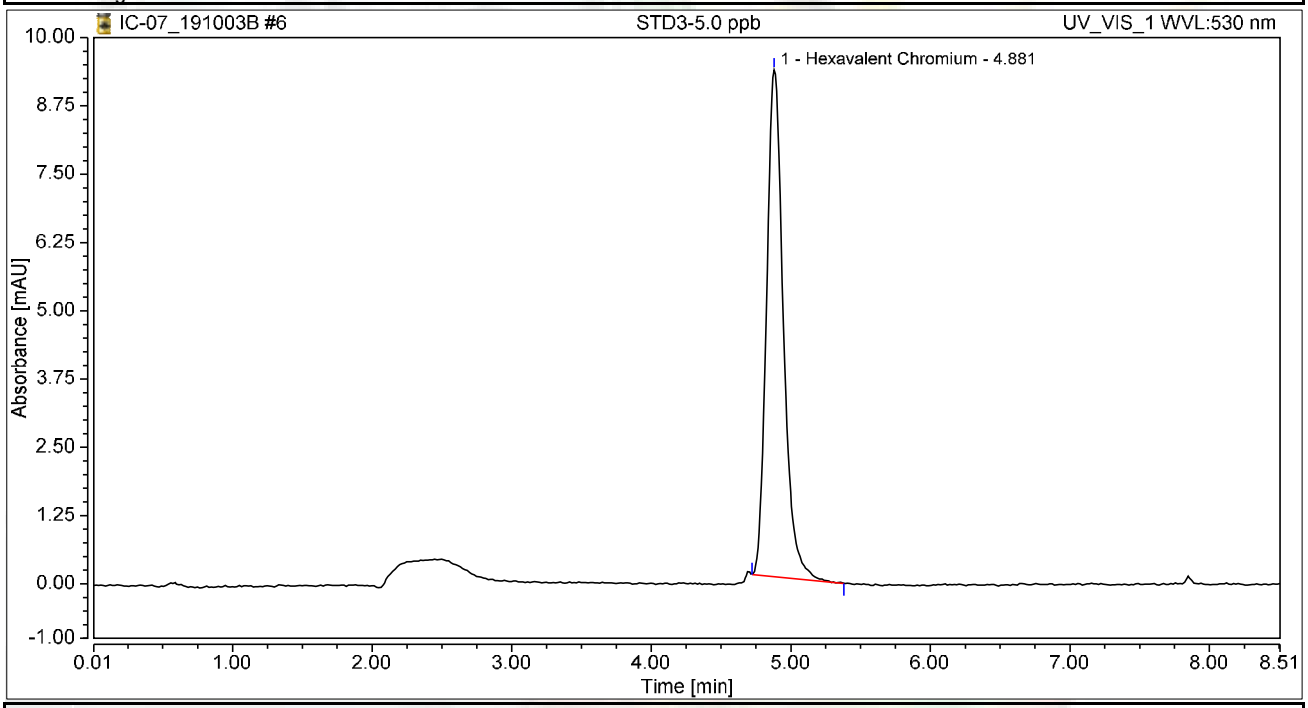
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	0.285	1.914	92.83	81.09	1.0571
2		7.290	0.022	0.446	7.17	18.91	n.a.
Total:			**0.306**	**2.360**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

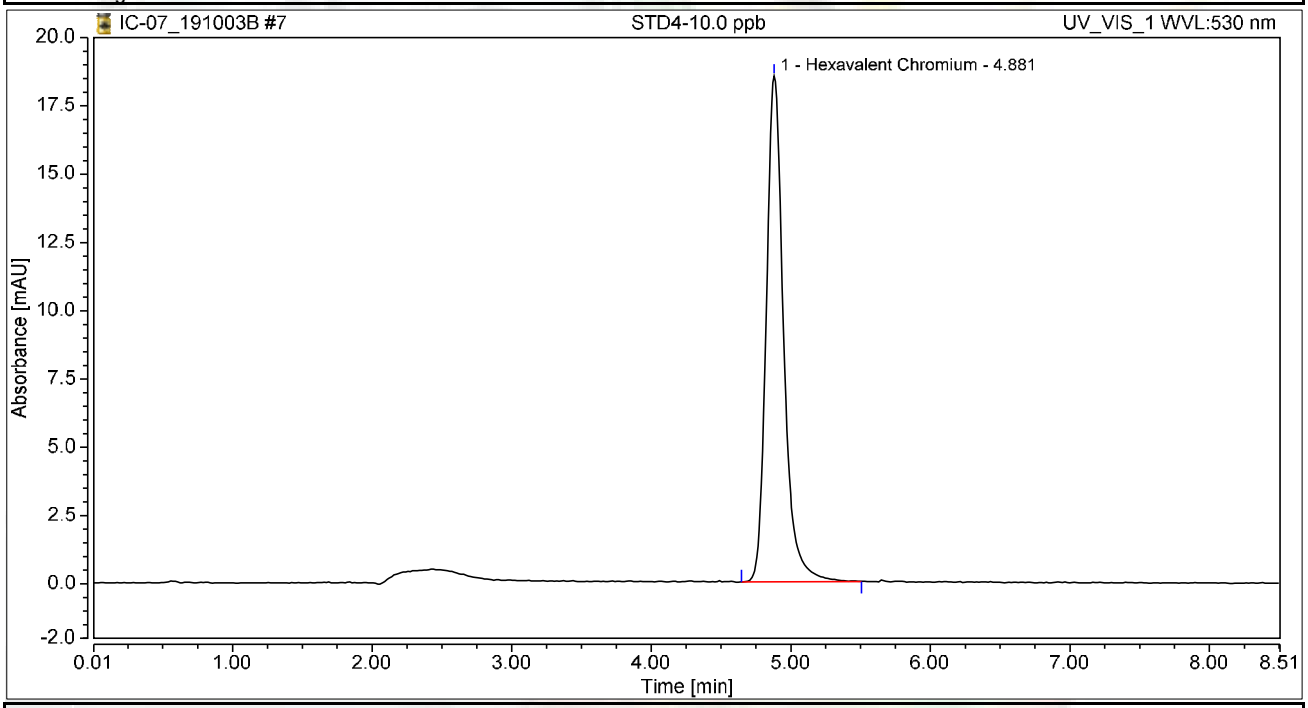
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.298	9.280	100.00	100.00	4.8236
Total:			**1.298**	**9.280**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

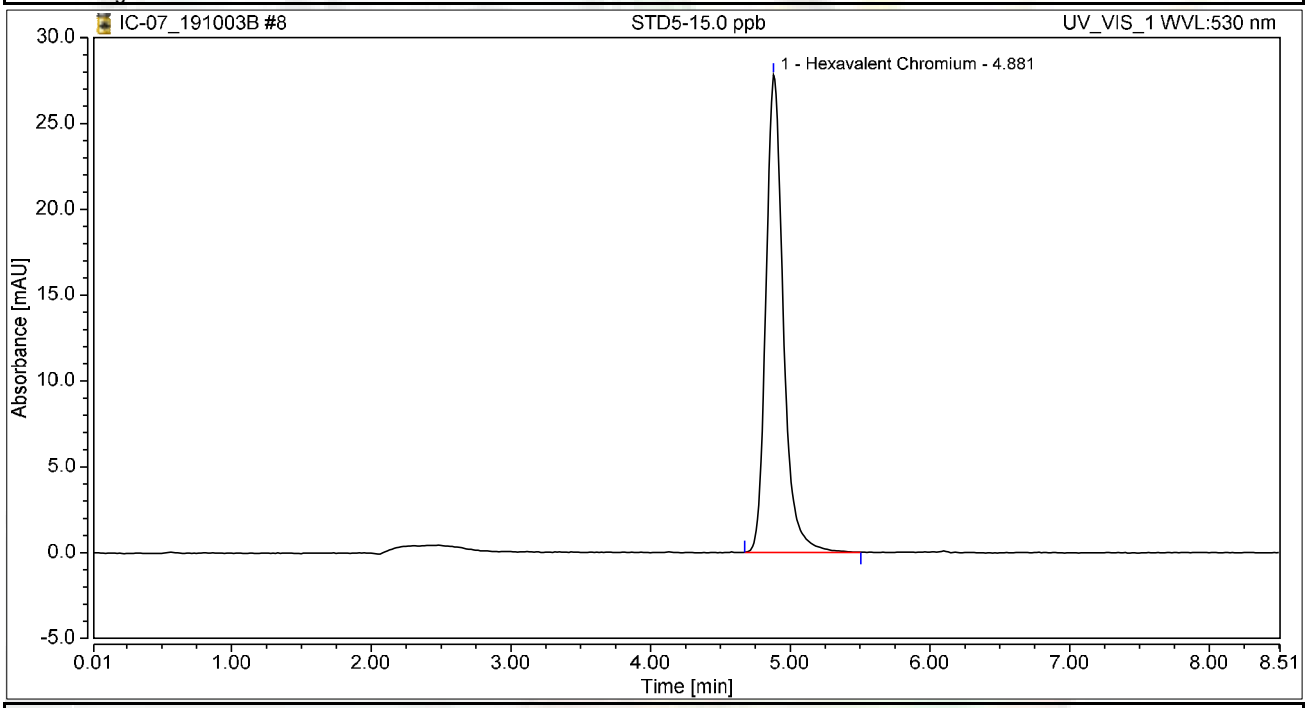
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	2.665	18.516	100.00	100.00	9.8992
Total:			**2.665**	**18.516**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

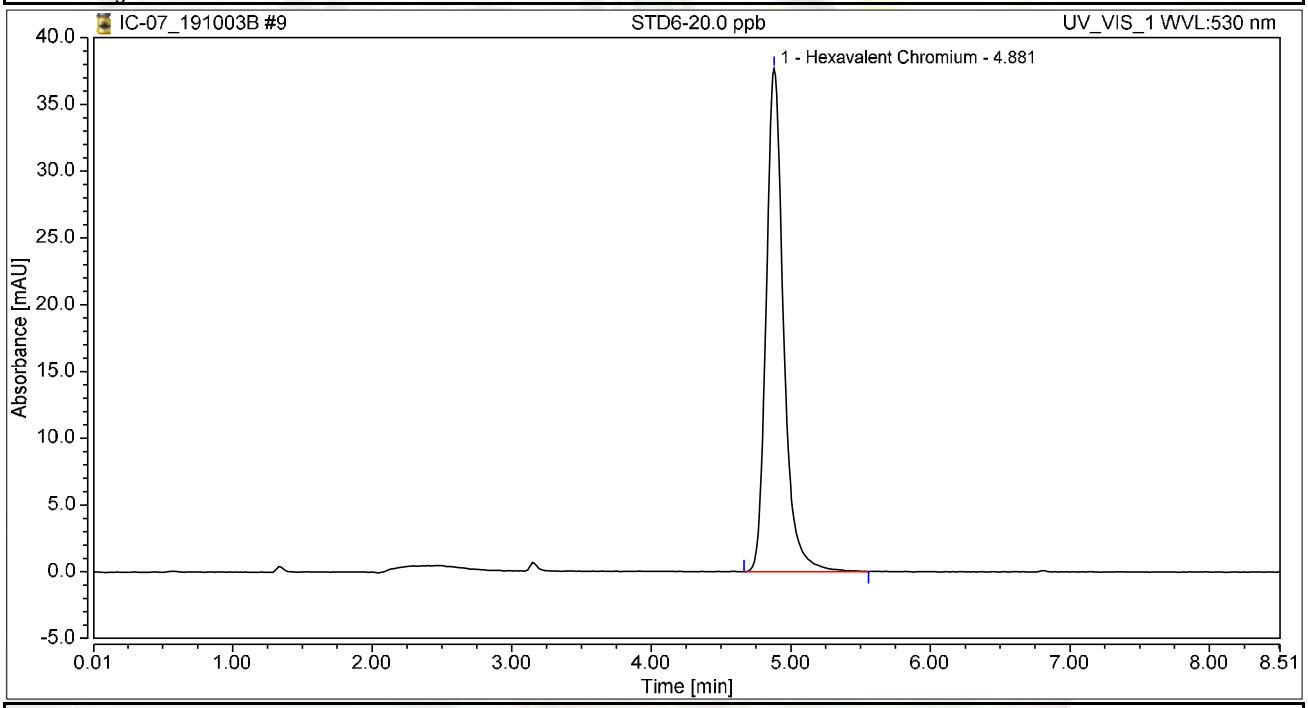
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	4.009	27.812	100.00	100.00	14.8937
Total:			**4.009**	**27.812**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



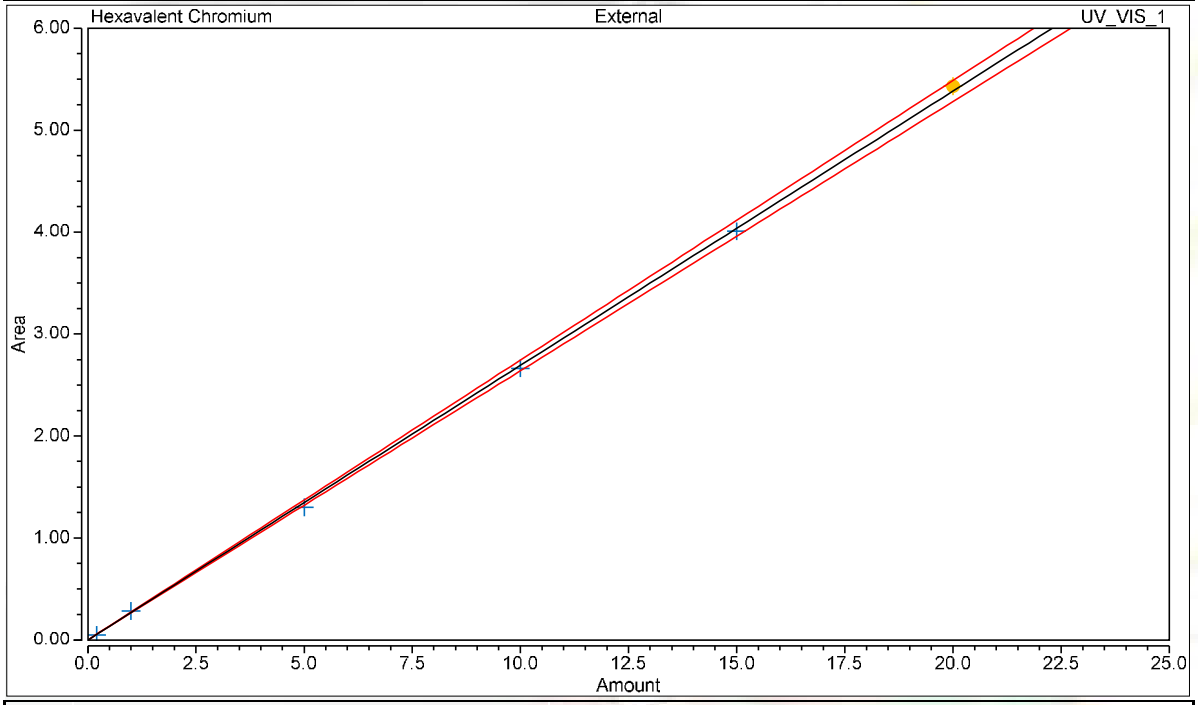
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	5.430	37.680	100.00	100.00	20.1715
Total:			**5.430**	**37.680**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2692
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99973

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

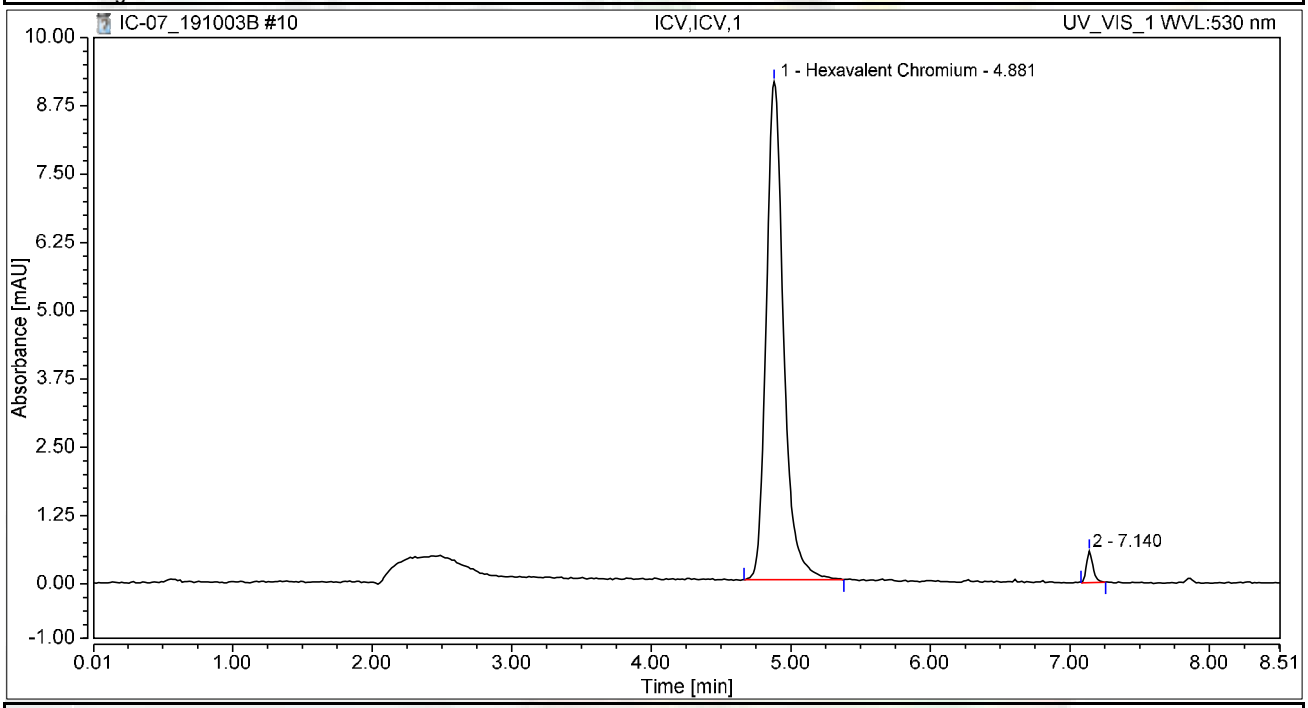
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0504	0.050	0.372
5	STD2-1.0 ppb	02	1.0000	0.2845	0.285	1.914
6	STD3-5.0 ppb	03	5.0000	1.2983	1.298	9.280
7	STD4-10.0 ppb	04	10.0000	2.6645	2.665	18.516
8	STD5-15.0 ppb	05	15.0000	4.0089	4.009	27.812
9	STD6-20.0 ppb	06	20.0000	5.4295	5.430	37.680

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

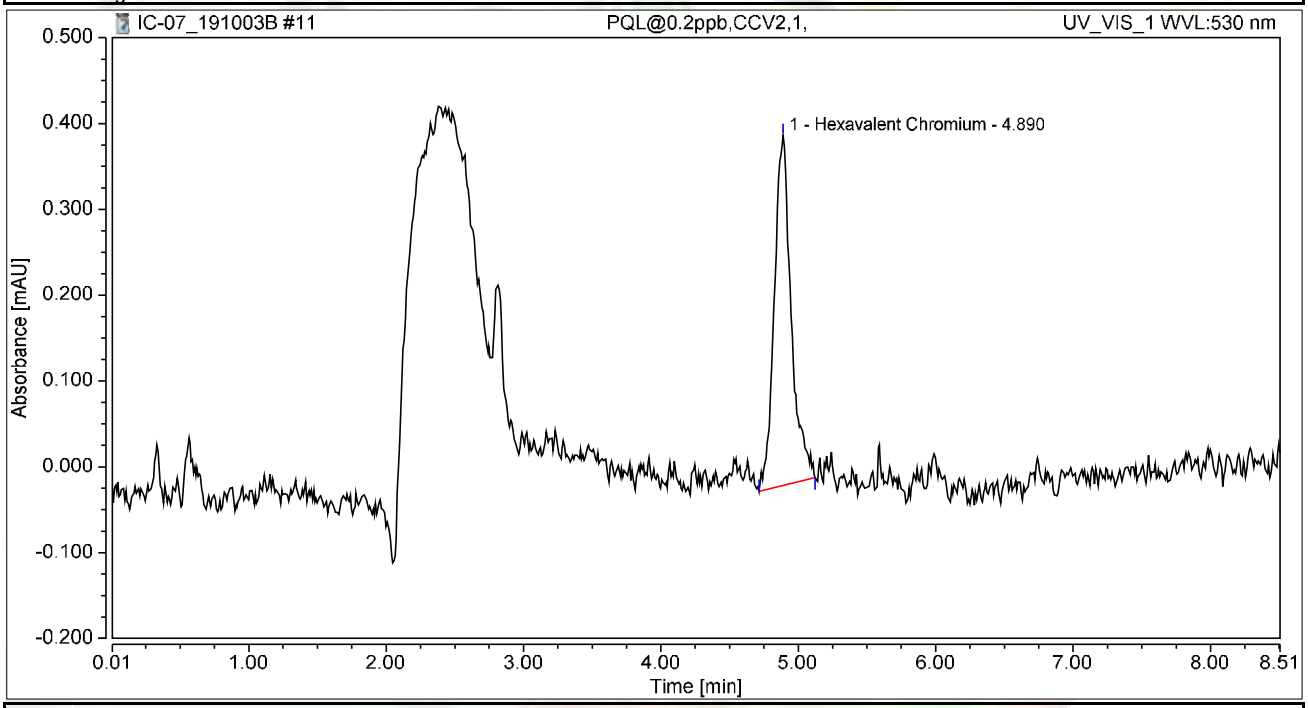
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.315	9.117	97.72	94.14	4.8852
2		7.140	0.031	0.568	2.28	5.86	n.a.
Total:			**1.346**	**9.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

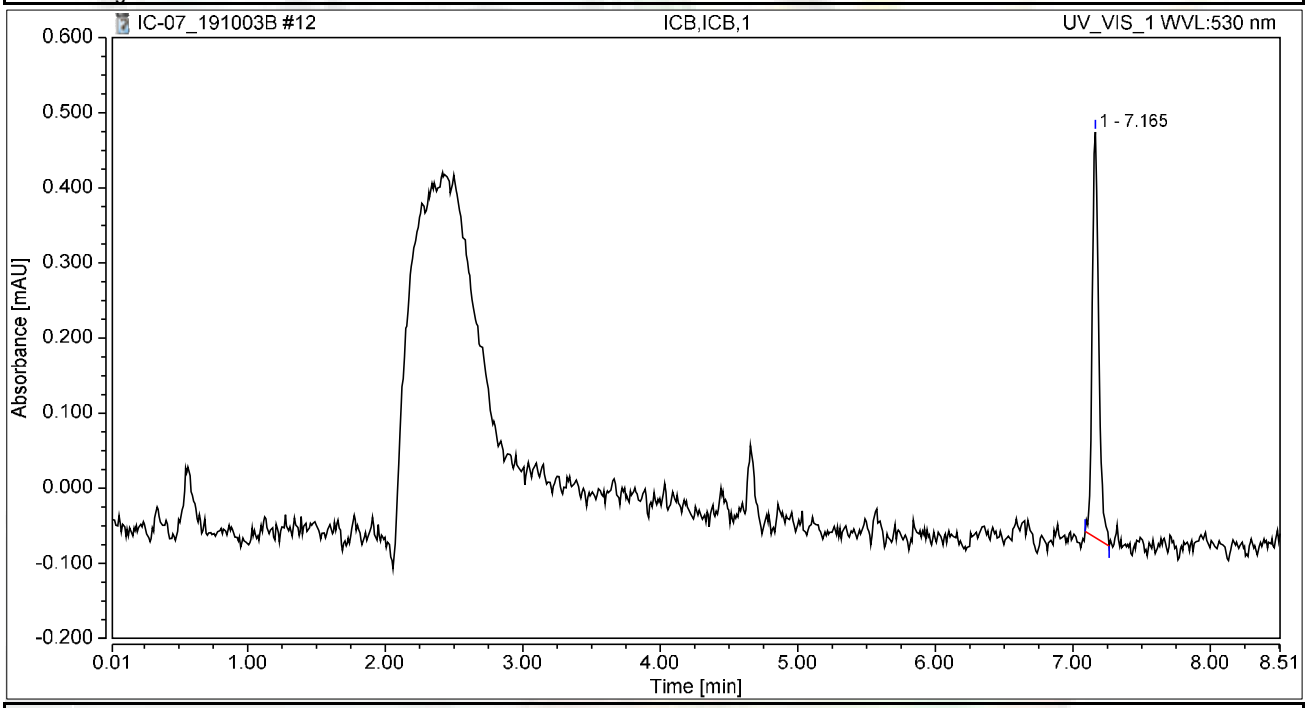
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.890	0.058	0.408	100.00	100.00	0.2165
Total:			**0.058**	**0.408**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.165	0.030	0.540	100.00	100.00	n.a.
Total:			**0.030**	**0.540**	**100.00**	**100.00**	

RAW DATA

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	10/03/19 11:57 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/19 12:08 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	10/03/19 12:17 PM	Reported
13	MB-R136776	MBLK	1	Hexavalent Chromium	10/03/19 12:27 PM	Reported
14	LCS-R136776	LCS	1	Hexavalent Chromium	10/03/19 12:36 PM	Reported
15	N037721-001BMS	MS	500	Hexavalent Chromium	10/03/19 1:25 PM	Reported
16	N037722-001A	SAMP	1	Hexavalent Chromium	10/03/19 1:36 PM	Reported
17	N037722-001AMS	MS	1	Hexavalent Chromium	10/03/19 1:46 PM	Reported
18	N037722-002A	SAMP	1	Hexavalent Chromium	10/03/19 1:55 PM	Reported
19	N037722-002AMS	MS	1	Hexavalent Chromium	10/03/19 2:04 PM	Reported
20	N037721-001B	SAMP	500	Hexavalent Chromium	10/03/19 2:14 PM	Reported
21	N037721-001BMSD	MSD	500	Hexavalent Chromium	10/03/19 2:23 PM	Reported
22	N037722-002ADUP	DUP	1	Hexavalent Chromium	10/03/19 2:33 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	10/03/19 2:42 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	10/03/19 2:52 PM	Reported
25	N037723-001A	SAMP	1	Hexavalent Chromium	10/03/19 3:01 PM	Reported
26	N037723-001AMS	MS	1	Hexavalent Chromium	10/03/19 3:11 PM	Reported
27	N037723-002A	SAMP	1	Hexavalent Chromium	10/03/19 3:20 PM	Not Reported
28	N037723-002AMS	MS	1	Hexavalent Chromium	10/03/19 3:30 PM	Not Reported
29	N037723-003A	SAMP	1	Hexavalent Chromium	10/03/19 3:39 PM	Reported
30	N037723-003AMS	MS	1	Hexavalent Chromium	10/03/19 3:49 PM	Reported
31	N037723-004A	SAMP	100	Hexavalent Chromium	10/03/19 3:58 PM	Reported
32	N037723-004AMS	MS	100	Hexavalent Chromium	10/03/19 4:07 PM	Reported
33	N037723-005A	SAMP	1	Hexavalent Chromium	10/03/19 4:17 PM	Reported
34	N037723-005AMS	MS	1	Hexavalent Chromium	10/03/19 4:26 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	10/03/19 4:36 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	10/03/19 4:45 PM	Reported
37	N037723-001A	SAMP	5	Hexavalent Chromium	10/03/19 4:55 PM	Not Reported
38	N037723-001AMS	MS	5	Hexavalent Chromium	10/03/19 5:04 PM	Not Reported
39	N037723-002A	SAMP	5	Hexavalent Chromium	10/03/19 5:14 PM	Reported
40	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 5:23 PM	Reported
41	N037723-003A	SAMP	5	Hexavalent Chromium	10/03/19 5:33 PM	Not Reported
42	N037723-003AMS	MS	5	Hexavalent Chromium	10/03/19 5:42 PM	Not Reported

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037718-001C	SAMP	50	Hexavalent Chromium	10/03/19 5:52 PM	Not Reported
44	N037718-001CMS	MS	50	Hexavalent Chromium	10/03/19 6:01 PM	Not Reported
45	N037718-002C	SAMP	1	Hexavalent Chromium	10/03/19 6:10 PM	Reported
46	N037718-002CMS	MS	1	Hexavalent Chromium	10/03/19 6:20 PM	Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	10/03/19 6:29 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	10/03/19 6:39 PM	Reported
49	N037718-003B	SAMP	5	Hexavalent Chromium	10/03/19 6:48 PM	Reported
50	N037718-003BMS	MS	5	Hexavalent Chromium	10/03/19 6:58 PM	Reported
51	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 7:07 PM	Not Reported
52	CCV-4	CCV	1	Hexavalent Chromium	10/03/19 7:17 PM	Reported
53	CCB-4	CCB	1	Hexavalent Chromium	10/03/19 7:26 PM	Reported
54	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 7:36 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191003B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Oct/19 09:29:25**
No. of Injections:	**57**	*Updated By:*	**ics 5000**

Injection Details

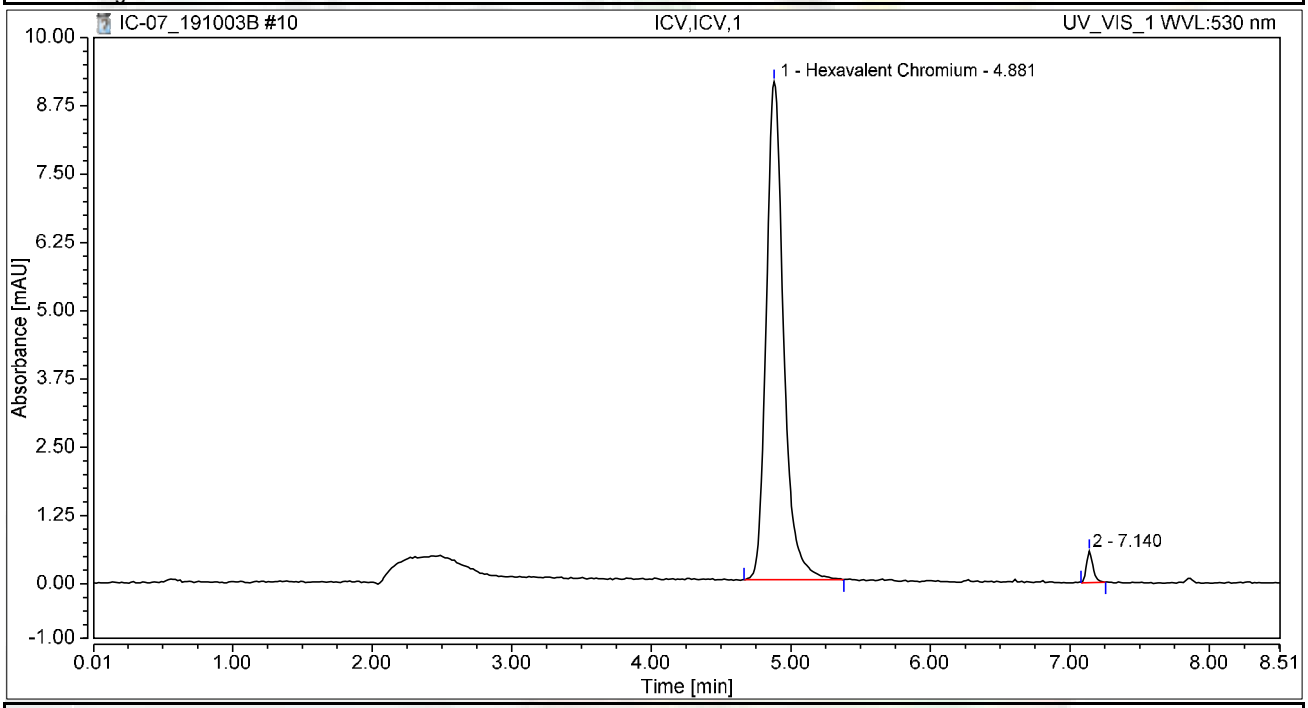
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1	1	1000	Unknown		10/03/2019 11:57	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	2	1000	Unknown		10/03/2019 12:08	Finished	PQL @ 0.2ppb
12	ICB,ICB,1	3	1000	Unknown		10/03/2019 12:17	Finished	CCB R190830A
13	MB-H2O,MBLK,1,	4	1000	Unknown		10/03/2019 12:27	Finished	MB R190830A
14	LCS-H2O,LCS,1,	5	1000	Unknown		10/03/2019 12:36	Finished	LCS @5ppb, IWST-190702B
15	N037721-001BMS,MS	6	1000	Unknown		10/03/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
16	N037722-001A,SAMF	7	1000	Unknown		10/03/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
17	N037722-001AMS,MS	8	1000	Unknown		10/03/2019 13:46	Finished	MS (5ppb), IWST-190702B,10
18	N037722-002A,SAMF	9	1000	Unknown		10/03/2019 13:55	Finished	MS (1ppb), IWST-190702B,10
19	N037722-002AMS,MS	10	1000	Unknown		10/03/2019 14:04	Finished	SAMP, 2>10 mL
20	N037721-001B,SAMF	11	1000	Unknown		10/03/2019 14:14	Finished	MS (1ppb), IWST-190702B,2>1
21	N037721-001BMSD,M	12	1000	Unknown		10/03/2019 14:23	Finished	
22	N037722-002ADUP,D	13	1000	Unknown		10/03/2019 14:33	Finished	
23	CCV-1,CCV1,1,	14	1000	Unknown		10/03/2019 14:42	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	15	1000	Unknown		10/03/2019 14:52	Finished	CCB R190830A
25	N037723-001A,SAMF	16	1000	Unknown		10/03/2019 15:01	Finished	
26	N037723-001AMS,MS	17	1000	Unknown		10/03/2019 15:11	Finished	
27	N037723-002A,SAMF	18	1000	Unknown		10/03/2019 15:20	Finished	
28	N037723-002AMS,MS	19	1000	Unknown		10/03/2019 15:30	Finished	
29	N037723-003A,SAMF	20	1000	Unknown		10/03/2019 15:39	Finished	
30	N037723-003AMS,MS	21	1000	Unknown		10/03/2019 15:49	Finished	
31	N037723-004A,SAMF	22	1000	Unknown		10/03/2019 15:58	Finished	
32	N037723-004AMS,MS	23	1000	Unknown		10/03/2019 16:07	Finished	
33	N037723-005A,SAMF	24	1000	Unknown		10/03/2019 16:17	Finished	
34	N037723-005AMS,MS	25	1000	Unknown		10/03/2019 16:26	Finished	
35	CCV-2,CCV,1,	26	1000	Unknown		10/03/2019 16:36	Finished	CCV @5ppb, IWST-190702A
36	CCB-2,CCB,1,	27	1000	Unknown		10/03/2019 16:45	Finished	CCB R190830A
37	N037723-001A,SAMF	28	1000	Unknown		10/03/2019 16:55	Finished	
38	N037723-001AMS,MS	29	1000	Unknown		10/03/2019 17:04	Finished	
39	N037723-002A,SAMF	30	1000	Unknown		10/03/2019 17:14	Finished	
40	N037723-002AMS,MS	31	1000	Unknown		10/03/2019 17:23	Finished	
41	N037723-003A,SAMF	32	1000	Unknown		10/03/2019 17:33	Finished	
42	N037723-003AMS,MS	33	1000	Unknown		10/03/2019 17:42	Finished	
43	N037718-001C,SAMF	34	1000	Unknown		10/03/2019 17:52	Finished	
44	N037718-001CMS,MS	35	1000	Unknown		10/03/2019 18:01	Finished	
45	N037718-002C,SAMF	36	1000	Unknown		10/03/2019 18:10	Finished	
46	N037718-002CMS,MS	37	1000	Unknown		10/03/2019 18:20	Finished	
47	CCV-3,CCV1,1,	38	1000	Unknown		10/03/2019 18:29	Finished	CCV @10ppb, IWST-190702A
48	CCB-3,CCB,1,	39	1000	Unknown		10/03/2019 18:39	Finished	CCB R190830A
49	N037718-003C,SAMF	40	1000	Unknown		10/03/2019 18:48	Finished	
50	N037718-003CMS,MS	41	1000	Unknown		10/03/2019 18:58	Finished	
51	N037723-002AMS,MS	42	1000	Unknown		10/03/2019 19:07	Finished	
52	CCV-4,CCV,1,	43	1000	Unknown		10/03/2019 19:17	Finished	CCV @5ppb, IWST-190702A
53	CCB-4,CCB,1,	44	1000	Unknown		10/03/2019 19:26	Finished	CCB R190830A
54	BLANK	45	1000	Unknown		10/03/2019 19:36	Finished	BLANK
55	SHUTDOWN	46	1000	Unknown		10/03/2019 19:45	Finished	
56	Eluent: R190930D	47	1000	Unknown		n.a.	Finished	Eluent
57	PCR: R190930E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

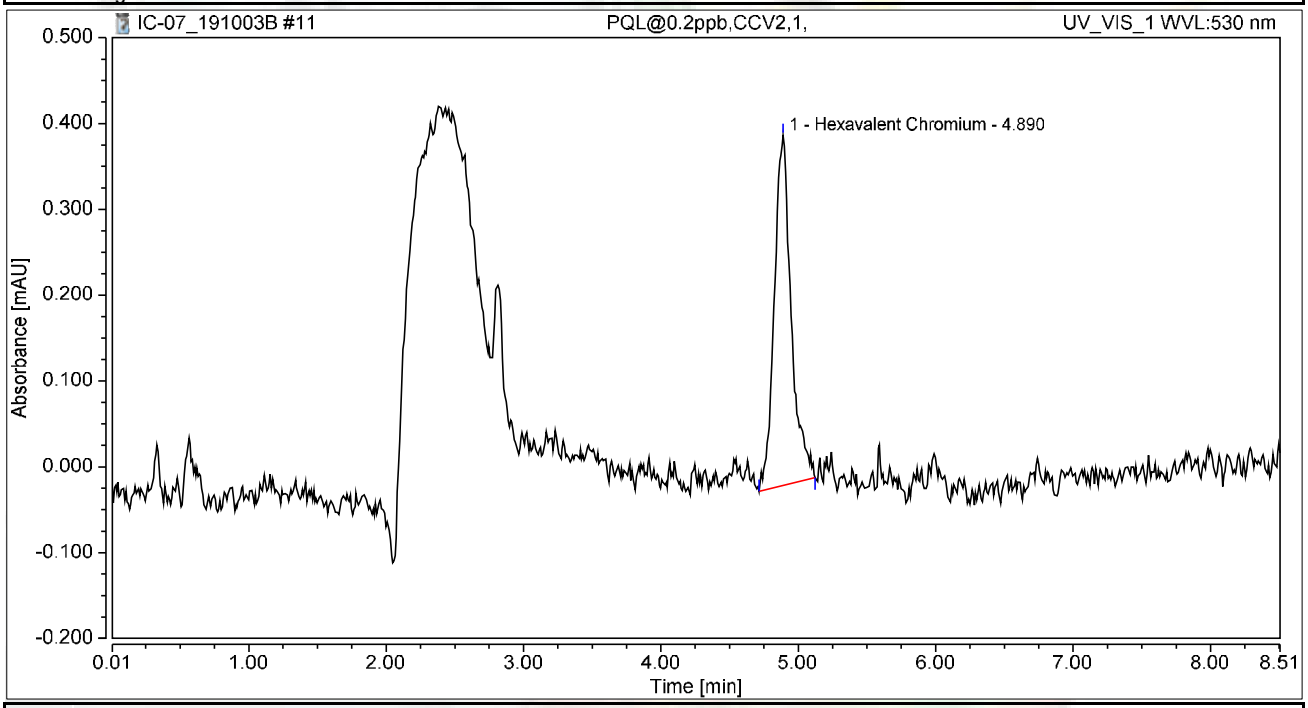
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.315	9.117	97.72	94.14	4.8852
2		7.140	0.031	0.568	2.28	5.86	n.a.
Total:			**1.346**	**9.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

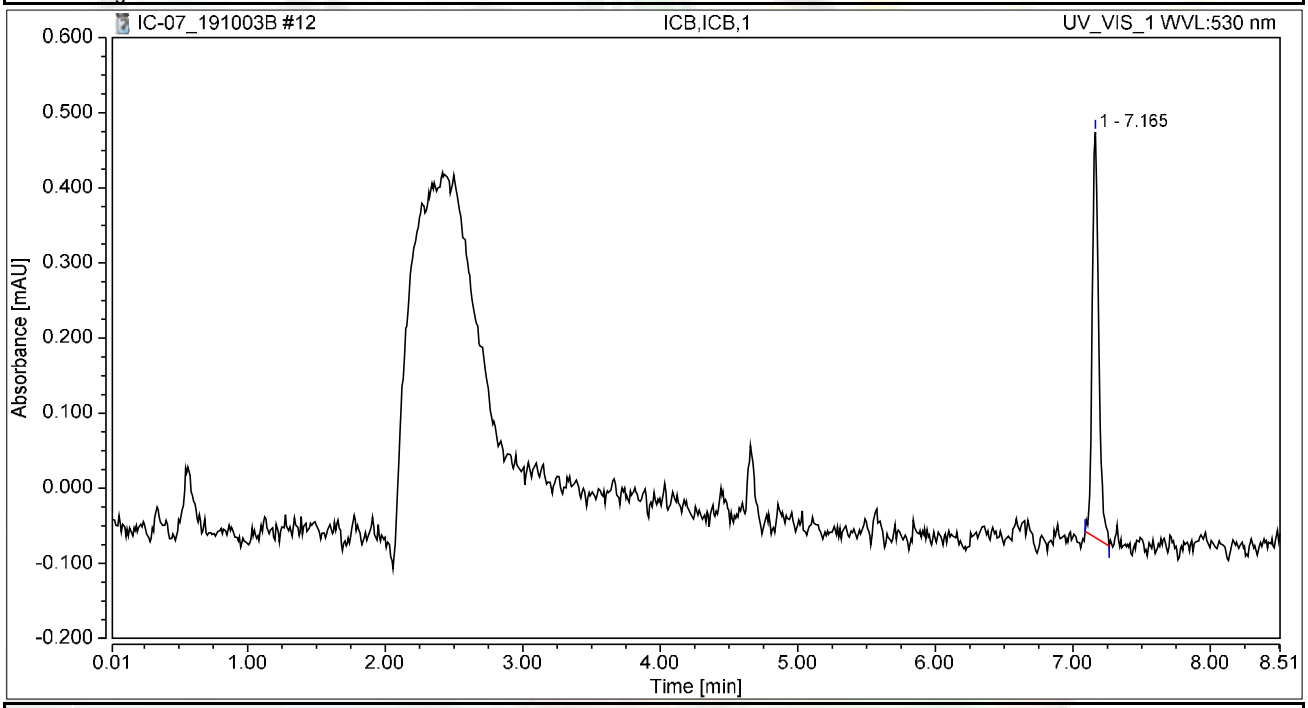
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.890	0.058	0.408	100.00	100.00	0.2165
Total:			**0.058**	**0.408**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

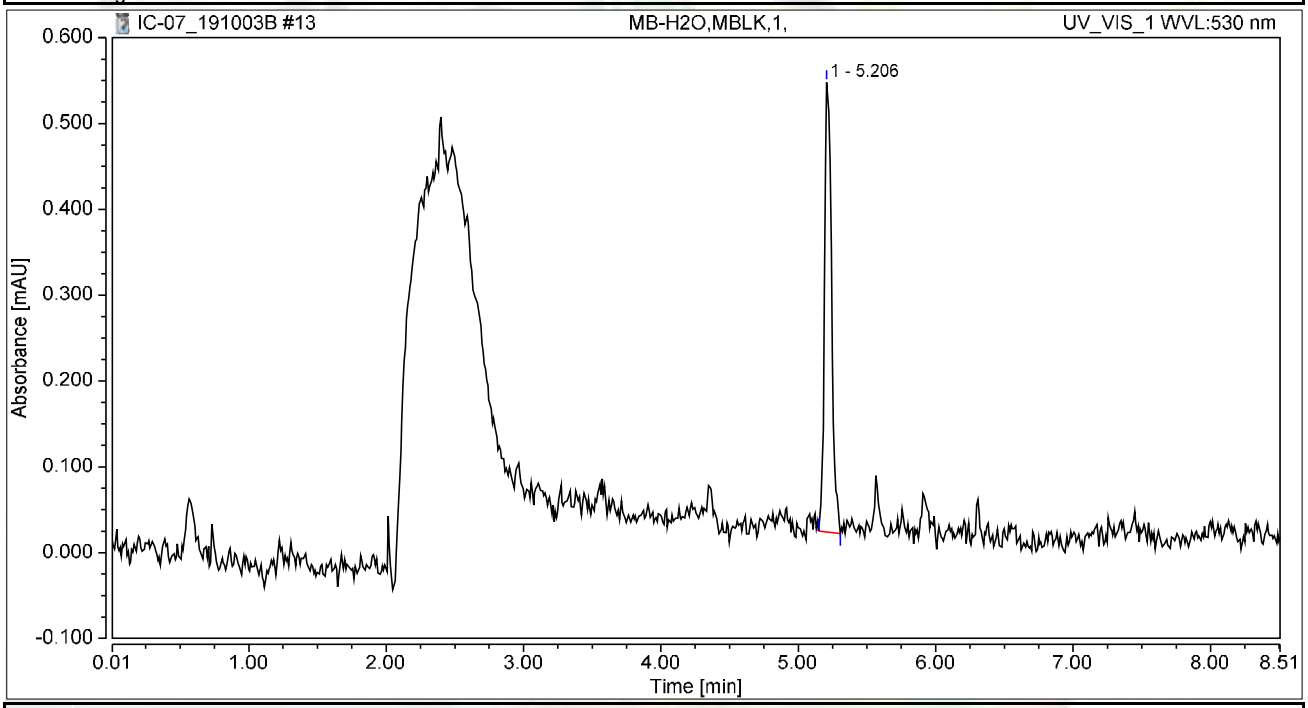
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.165	0.030	0.540	100.00	100.00	n.a.
Total:			**0.030**	**0.540**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

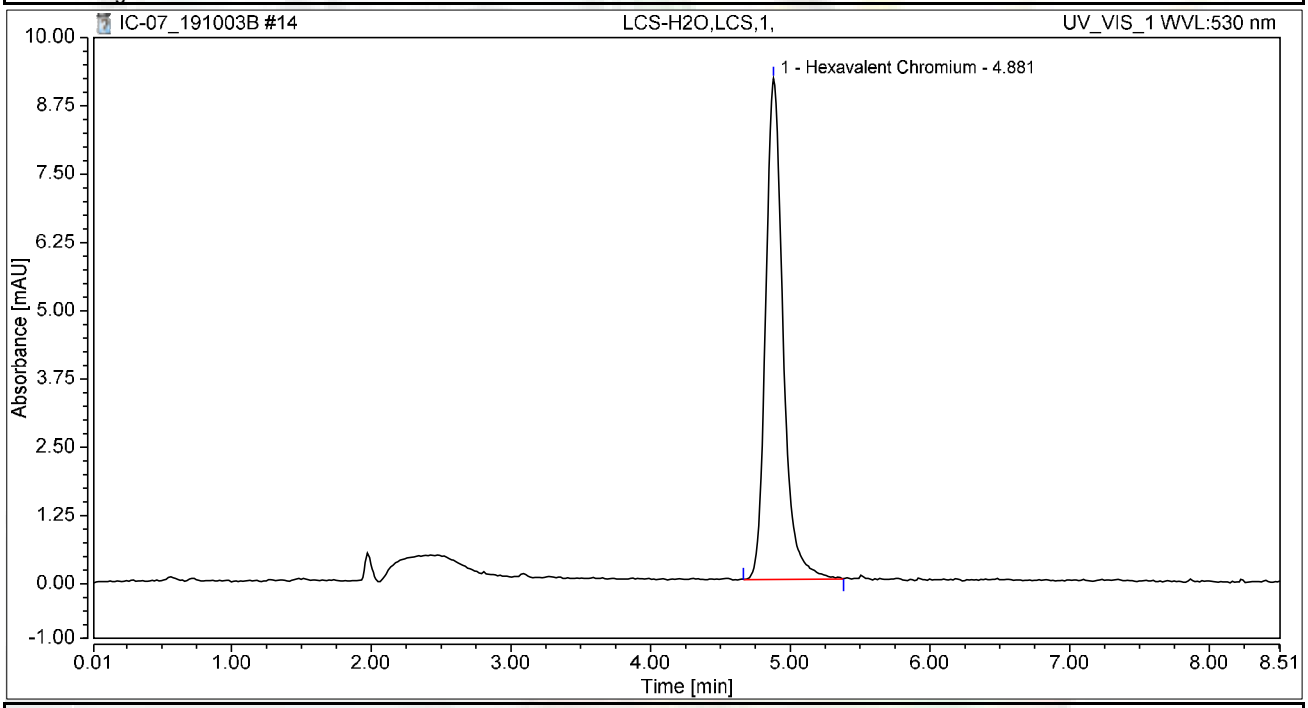
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.206	0.031	0.524	100.00	100.00	n.a.
Total:			**0.031**	**0.524**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

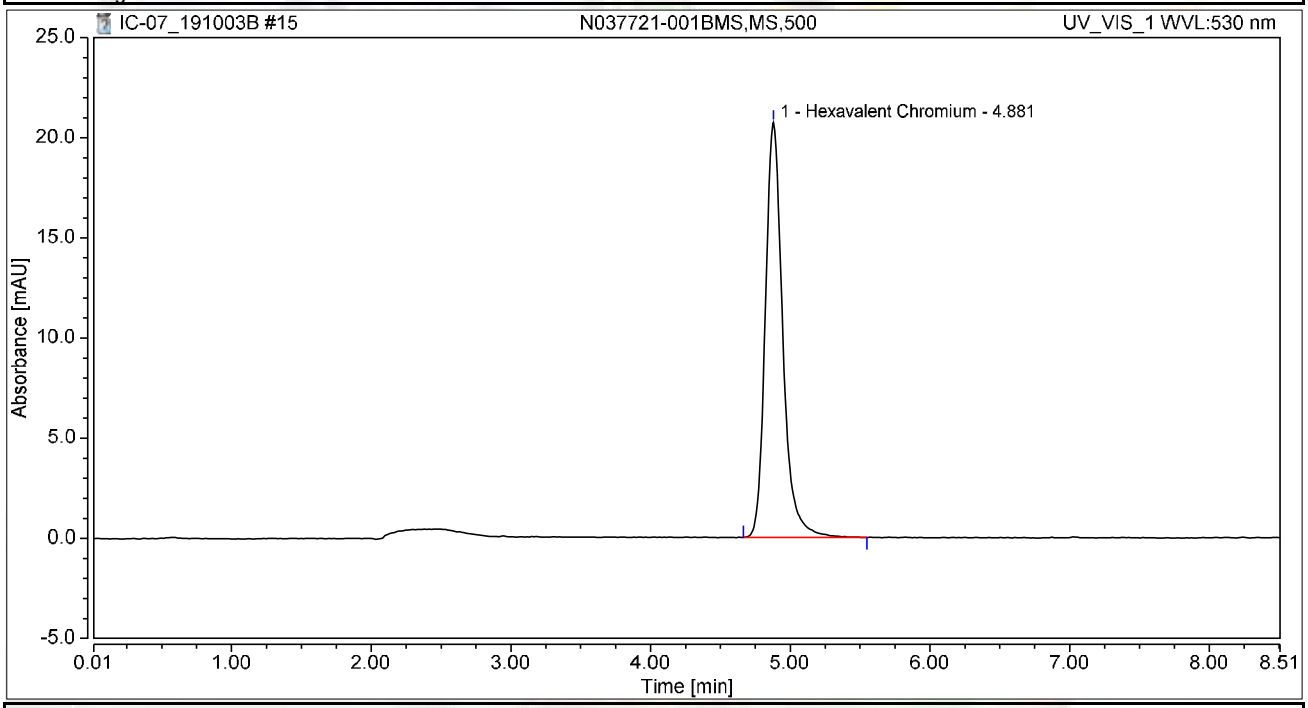
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.328	9.172	100.00	100.00	4.9344
Total:			**1.328**	**9.172**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037721-001BMS,MS,500**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 13:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

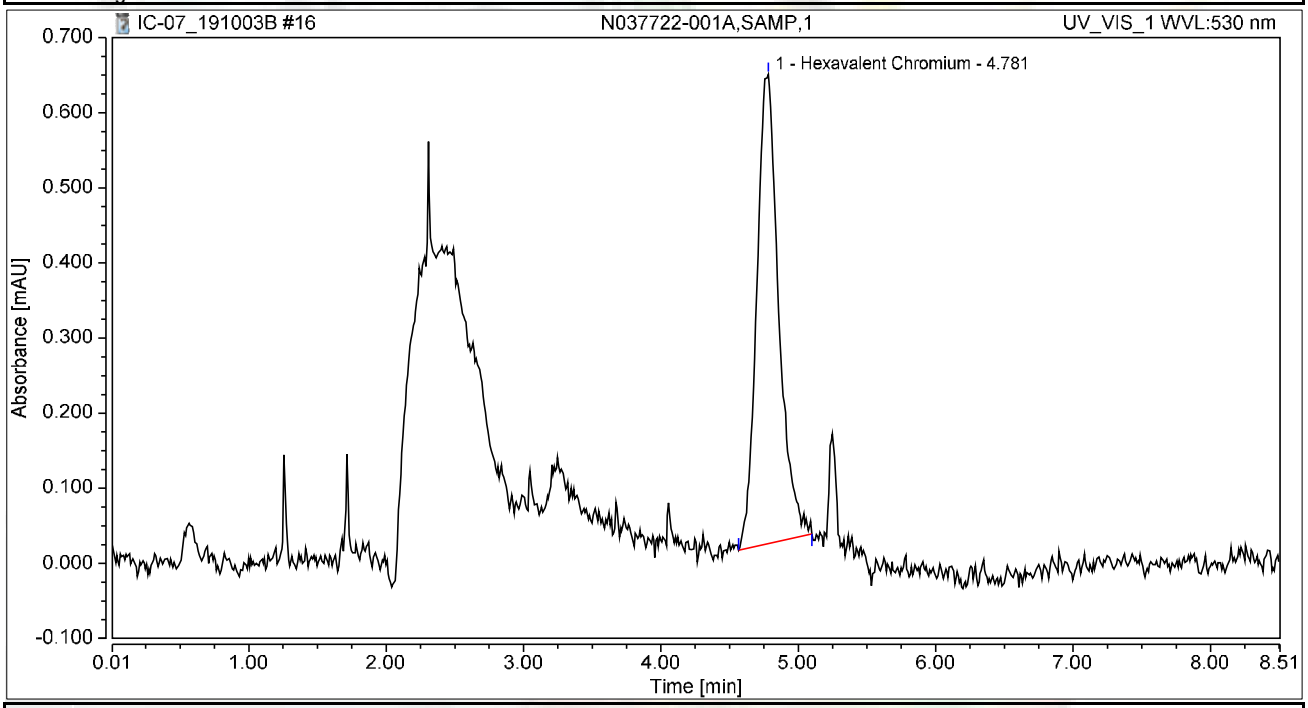
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	3.002	20.731	100.00	100.00	11.1546
Total:			**3.002**	**20.731**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037722-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 13:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

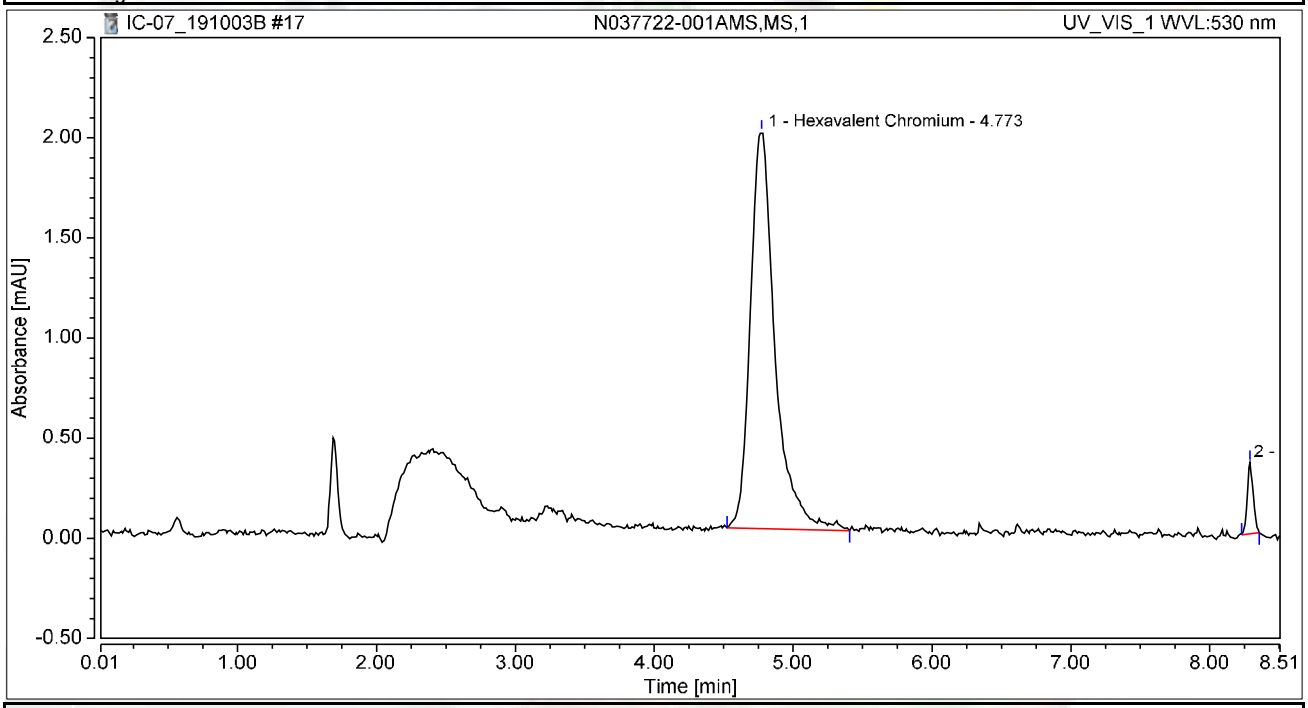
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.781	0.116	0.624	100.00	100.00	0.4304
Total:			**0.116**	**0.624**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037722-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 13:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

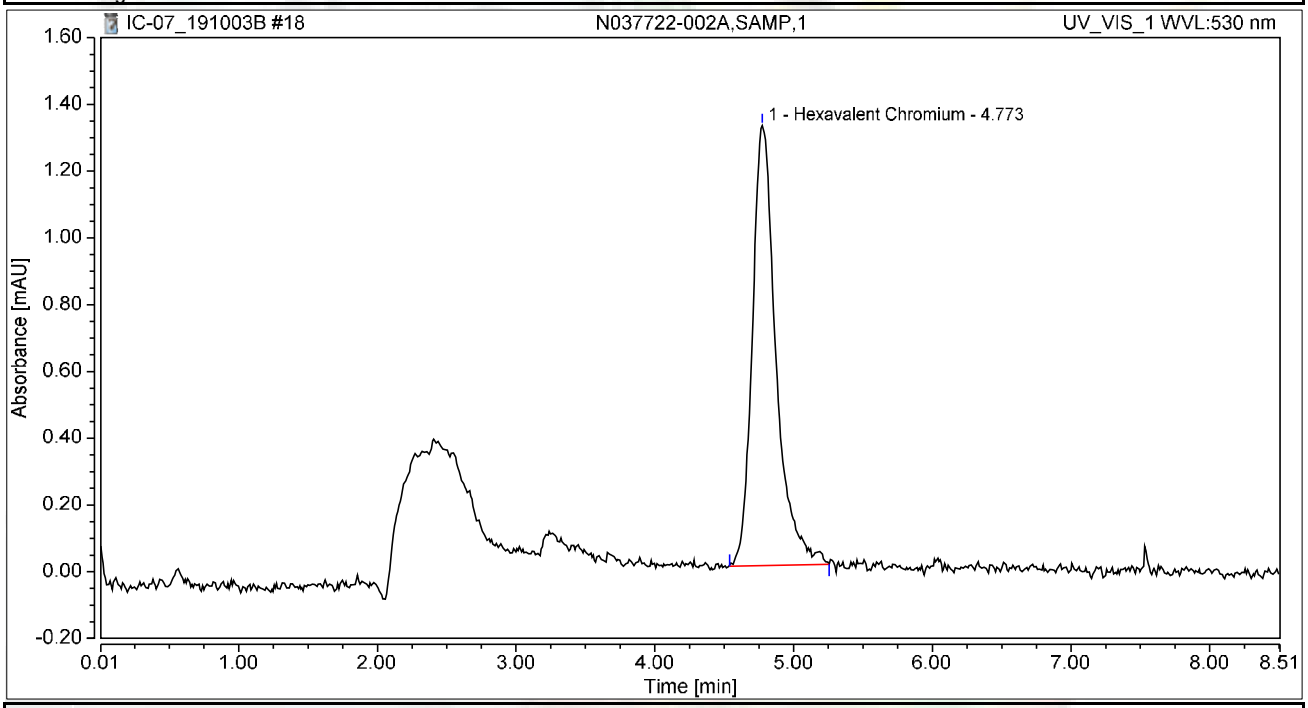
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.408	1.981	95.83	84.72	1.5170
2		8.290	0.018	0.357	4.17	15.28	n.a.
Total:			**0.426**	**2.338**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037722-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 13:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

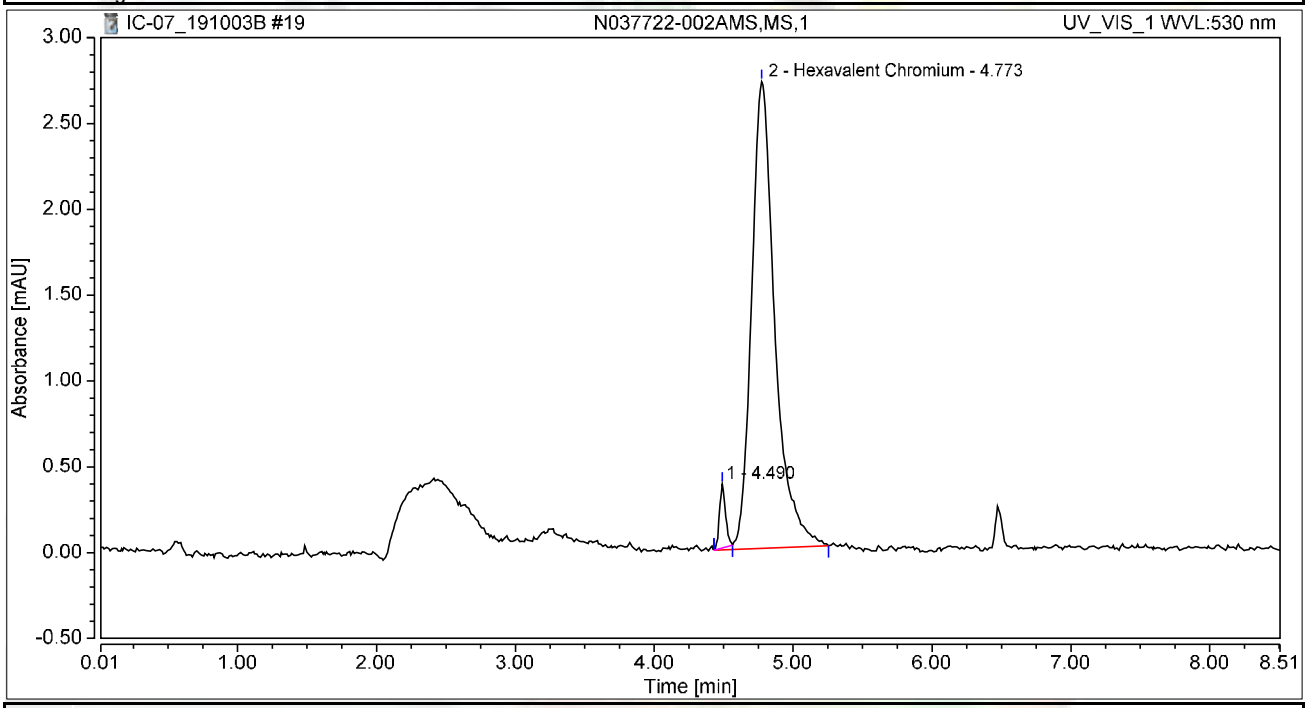
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.261	1.318	100.00	100.00	0.9687
Total:			**0.261**	**1.318**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037722-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 14:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

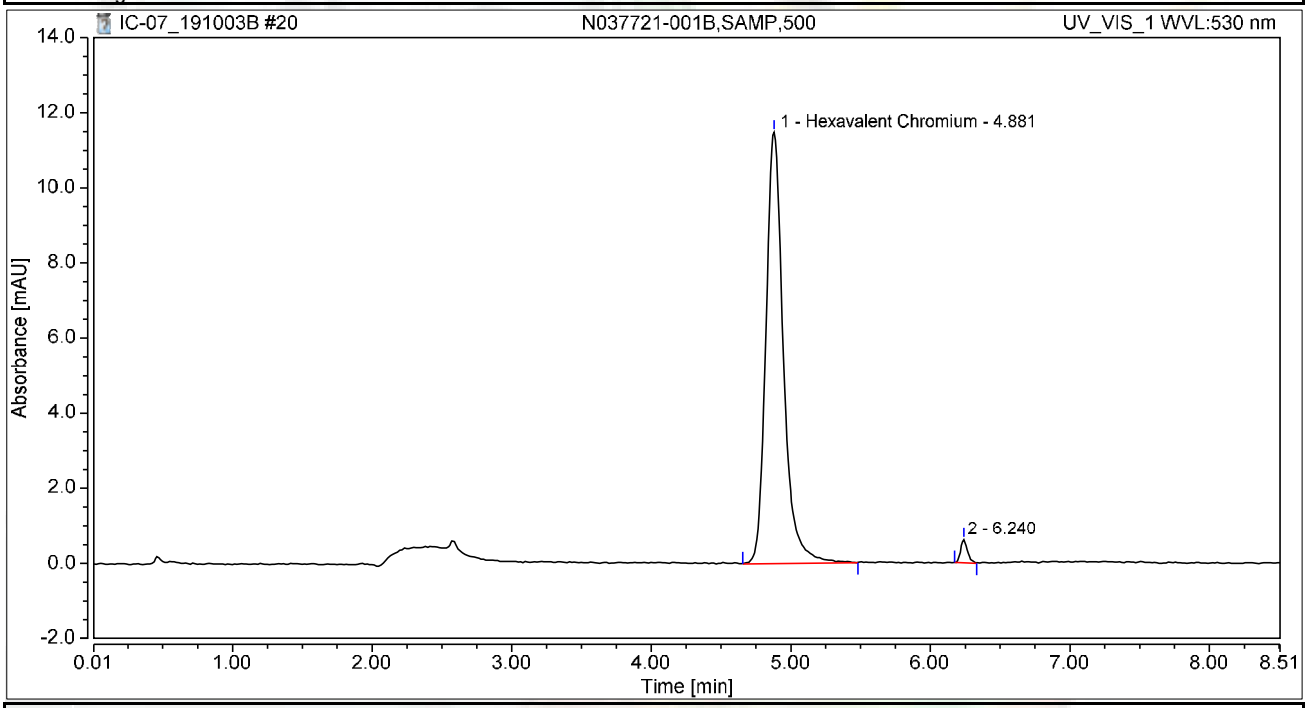
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.490	0.019	0.373	3.46	12.06	n.a.
2	Hexavalent Chromium	4.773	0.529	2.719	96.54	87.94	1.9658
Total:			**0.548**	**3.092**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037721-001B,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 14:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

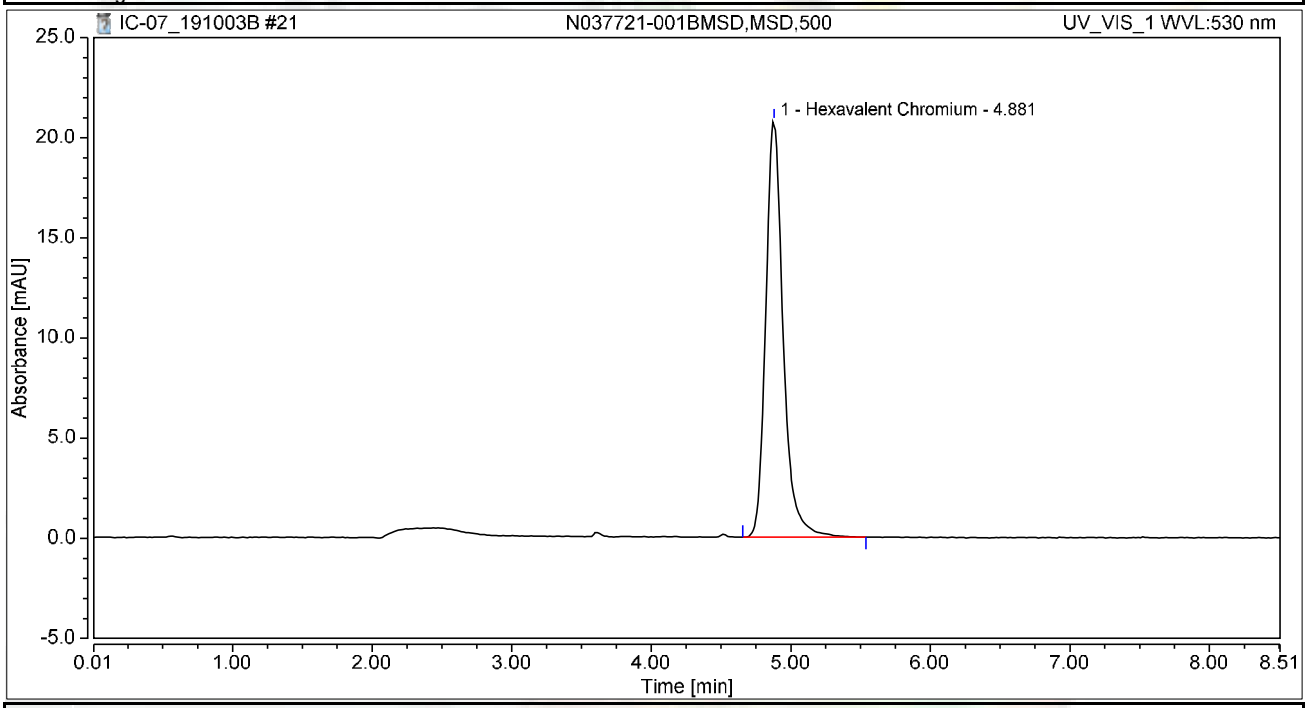
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.669	11.483	97.98	94.93	6.1990
2		6.240	0.034	0.614	2.02	5.07	n.a.
Total:			**1.703**	**12.097**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037721-001BMSD,MSD,500**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 14:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

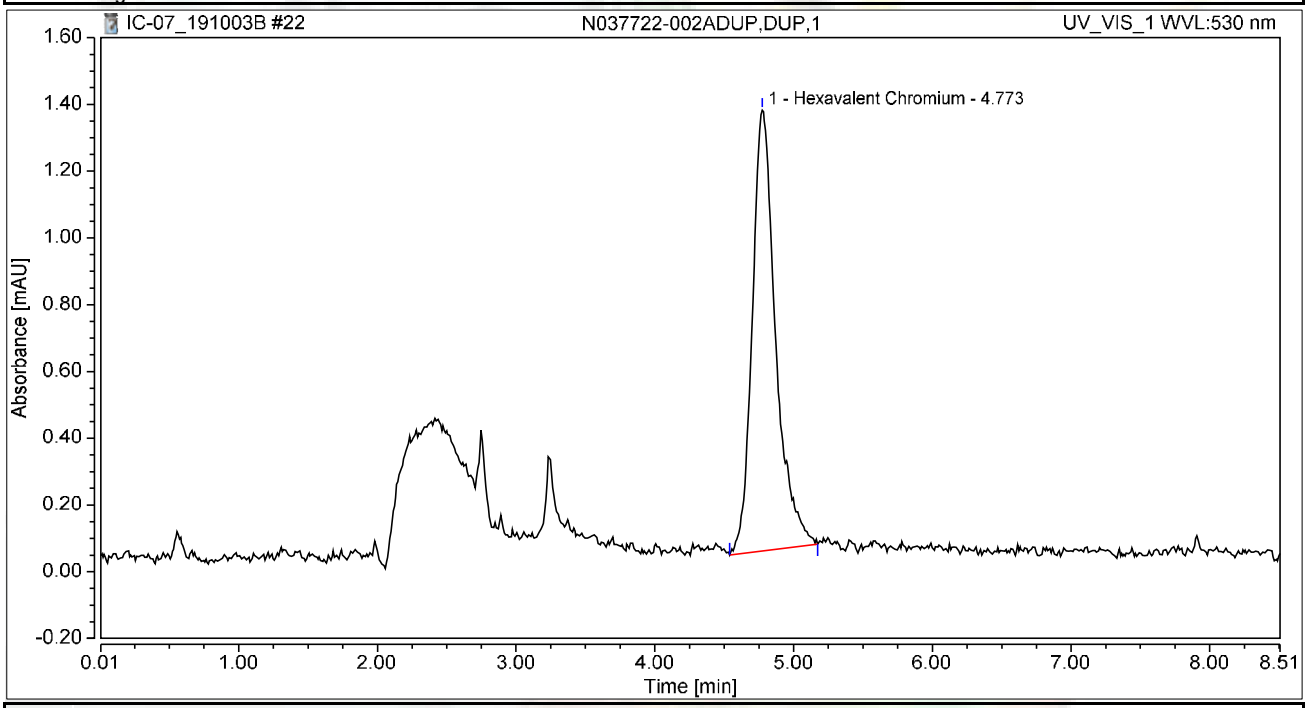
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	3.014	20.791	100.00	100.00	11.1964
Total:			**3.014**	**20.791**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037722-002ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 14:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

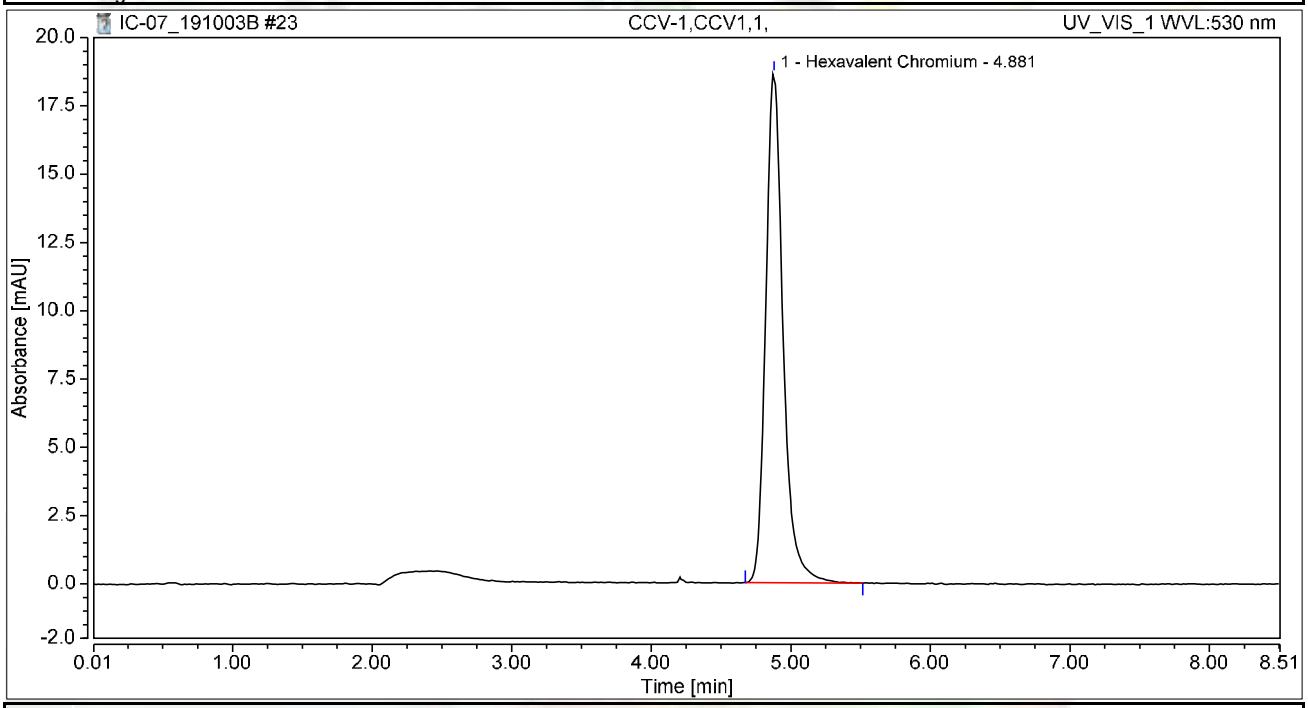
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.258	1.321	100.00	100.00	0.9571
Total:			**0.258**	**1.321**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 14:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

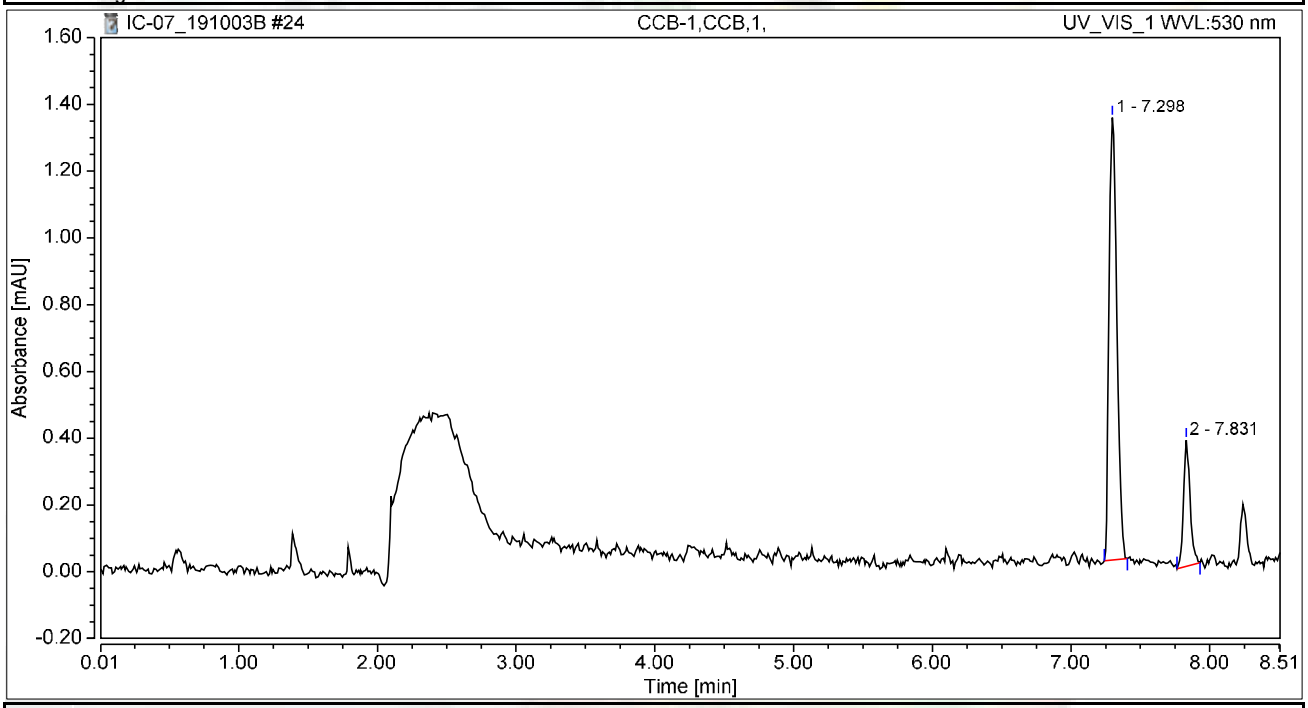
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	2.695	18.654	100.00	100.00	10.0116
Total:			**2.695**	**18.654**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 14:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

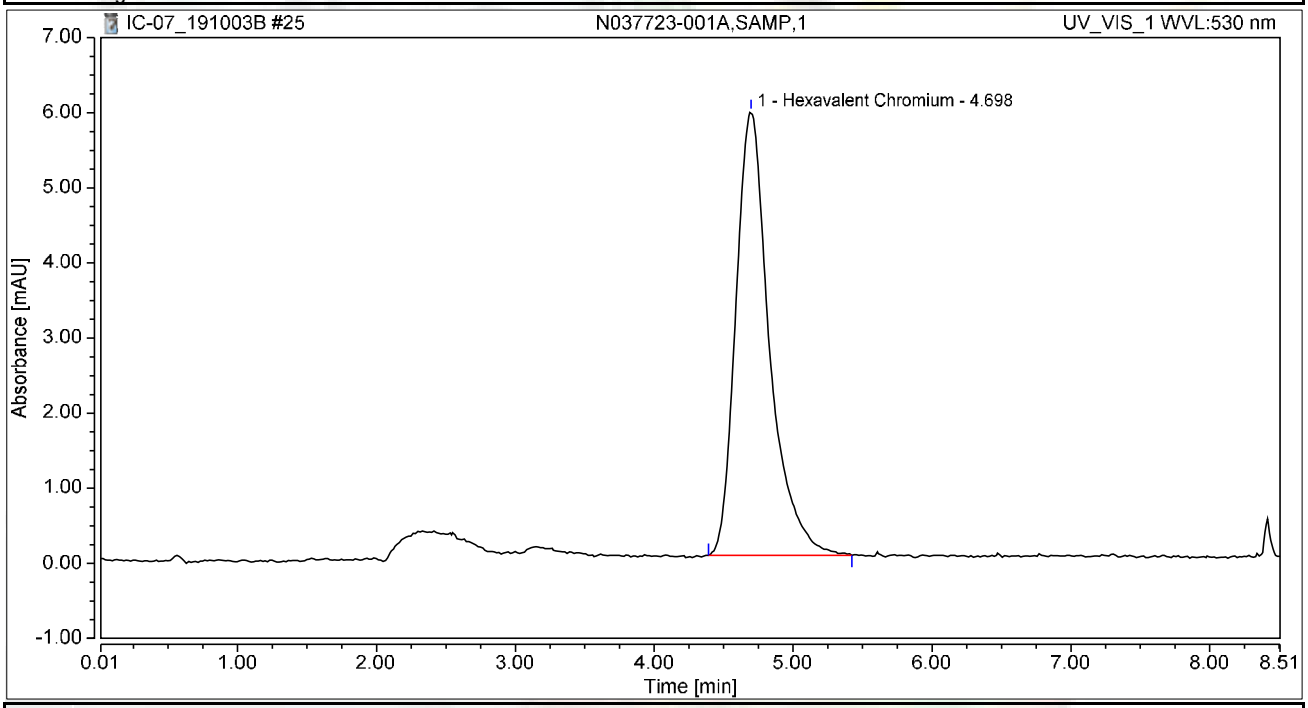
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.298	0.086	1.326	80.83	77.82	n.a.
2		7.831	0.020	0.378	19.17	22.18	n.a.
Total:			**0.107**	**1.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 15:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

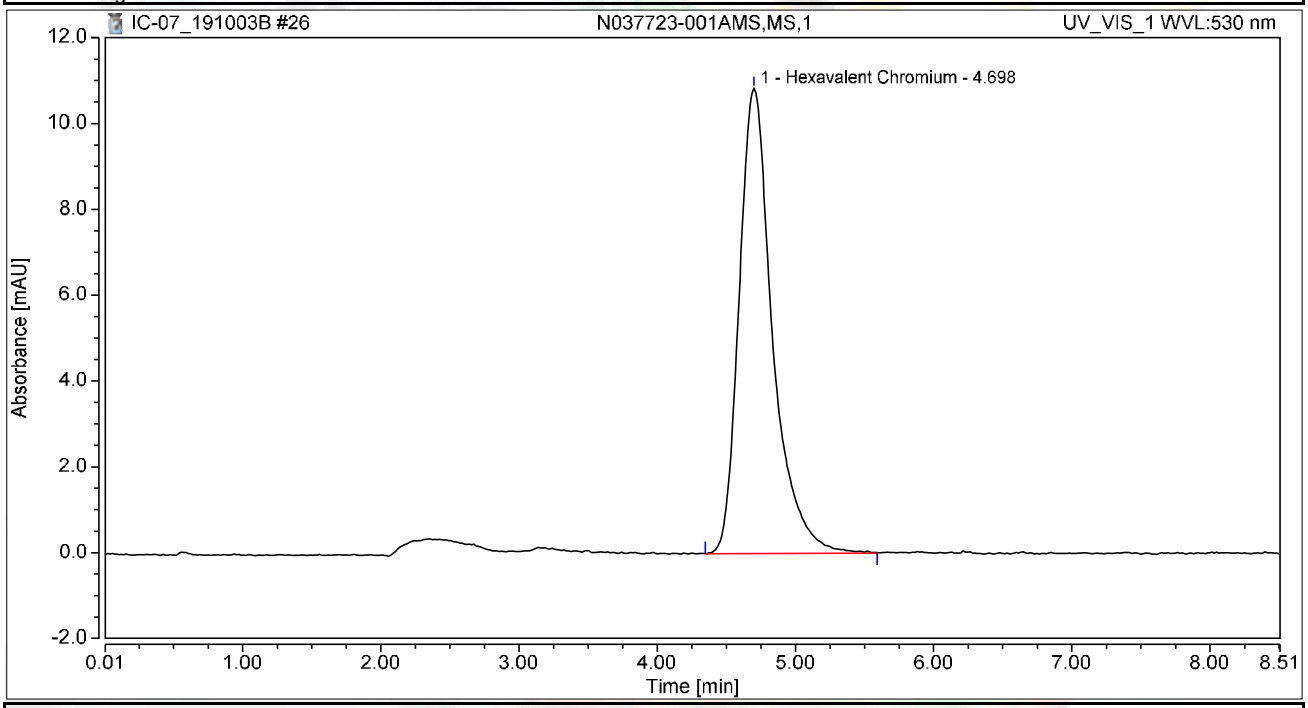
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.659	5.910	100.00	100.00	6.1633
Total:			**1.659**	**5.910**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 15:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

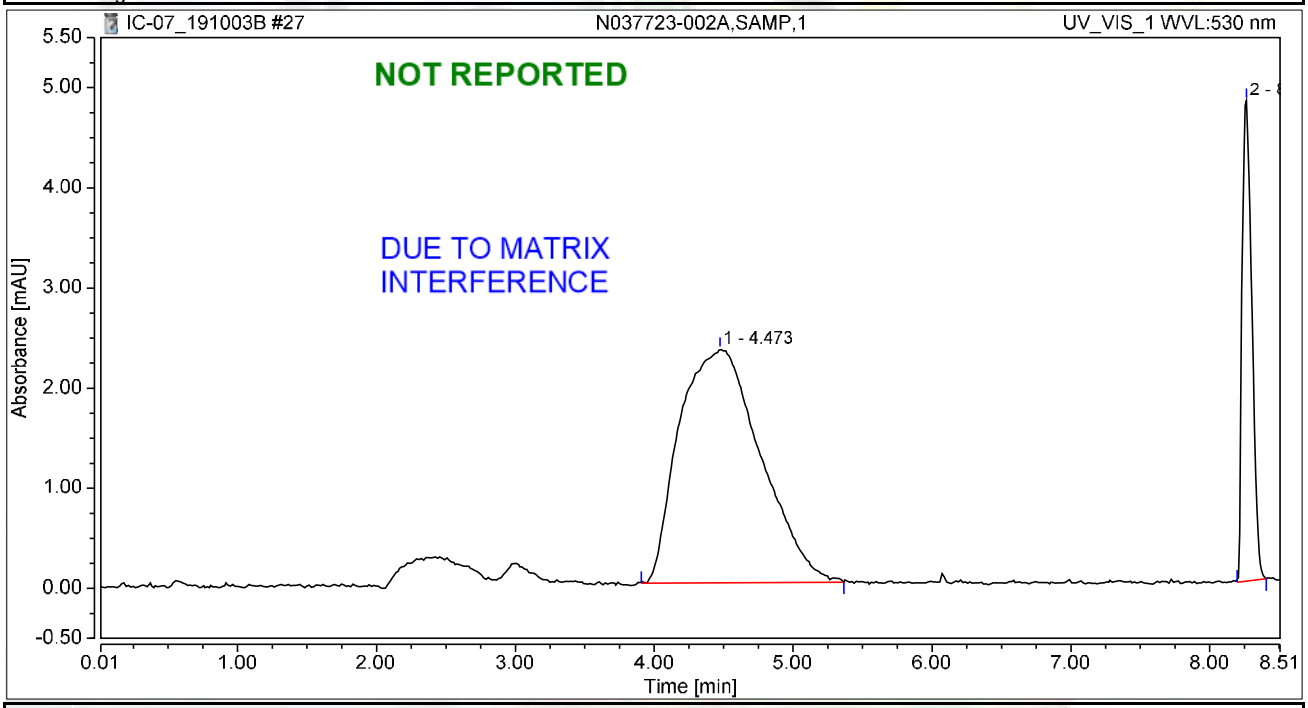
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	3.034	10.837	100.00	100.00	11.2735
Total:			**3.034**	**10.837**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 15:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

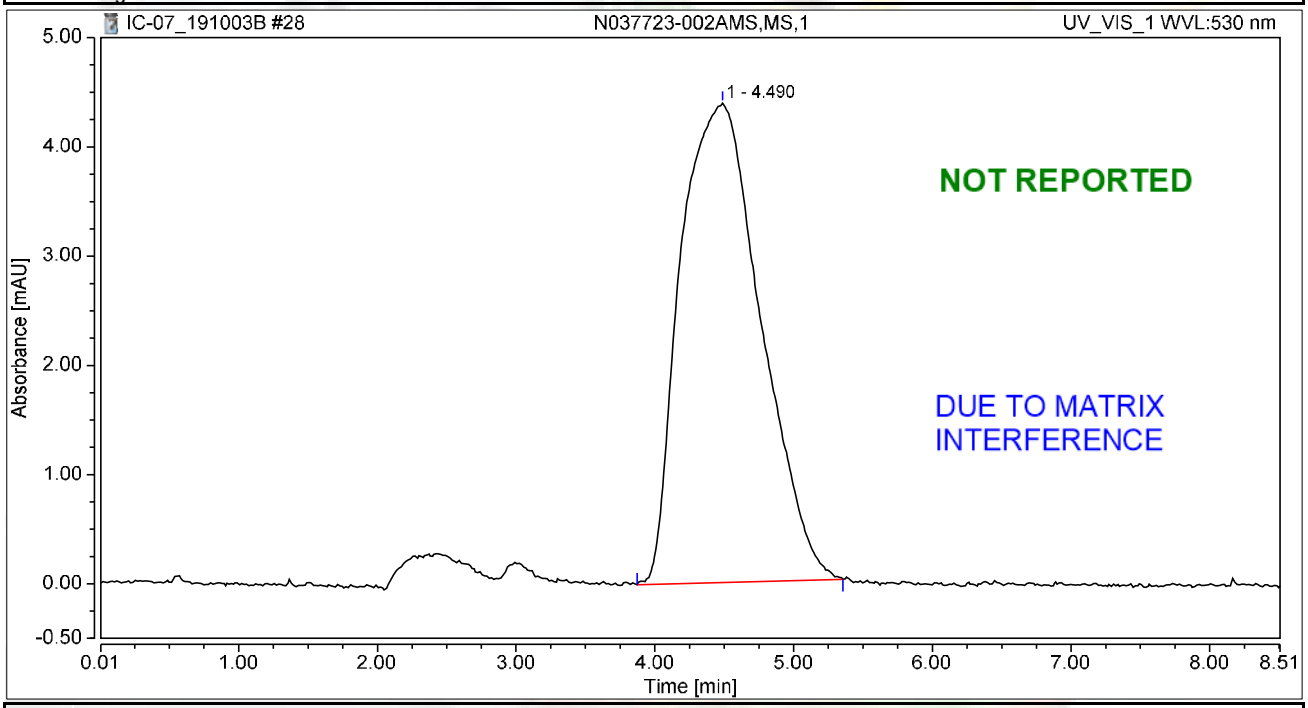
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.473	1.578	2.331	80.10	32.70	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		8.265	0.392	4.799	19.90	67.30	n.a.
Total:			**1.970**	**7.130**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 15:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

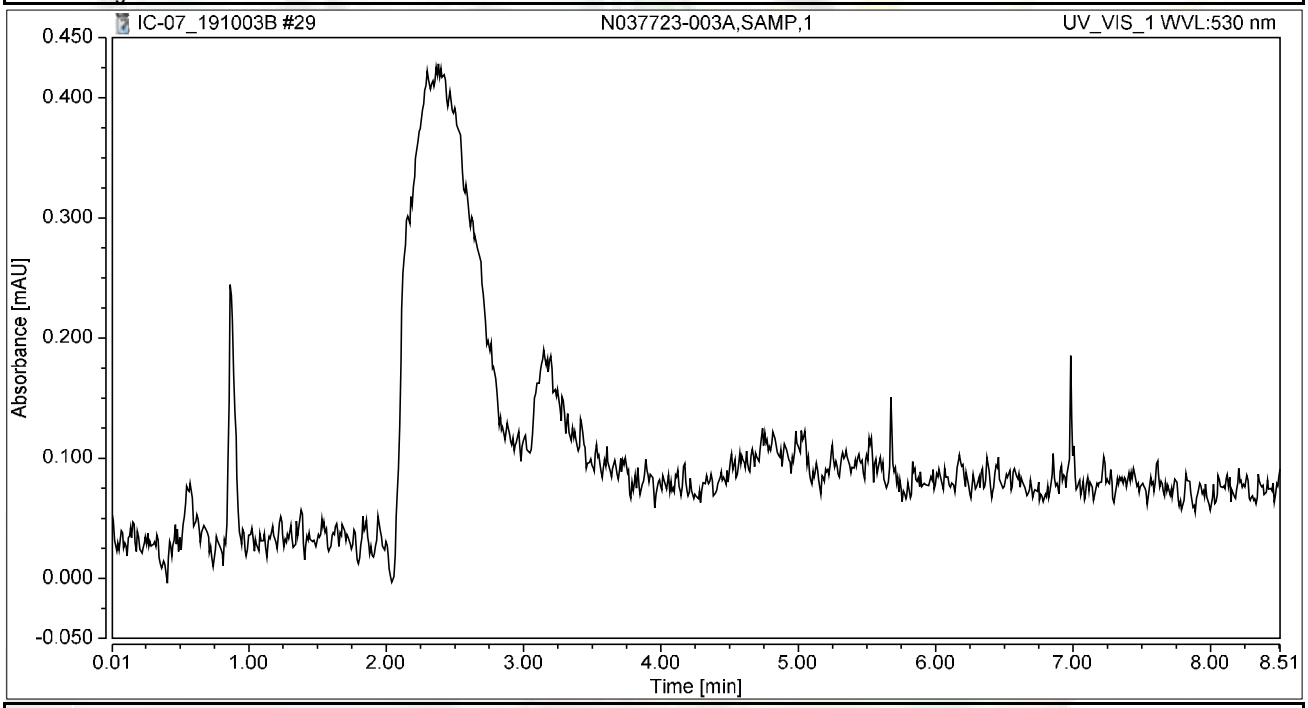
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.490	2.944	4.390	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**2.944**	**4.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 15:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

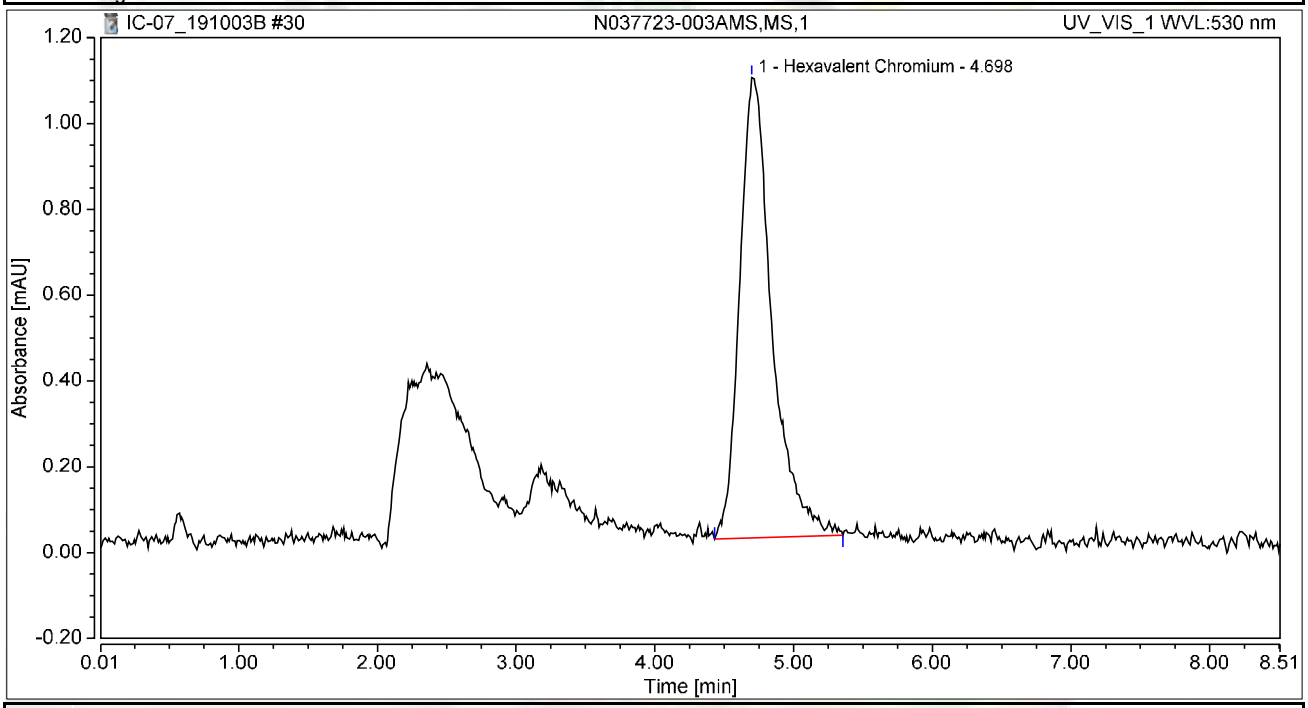
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 15:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

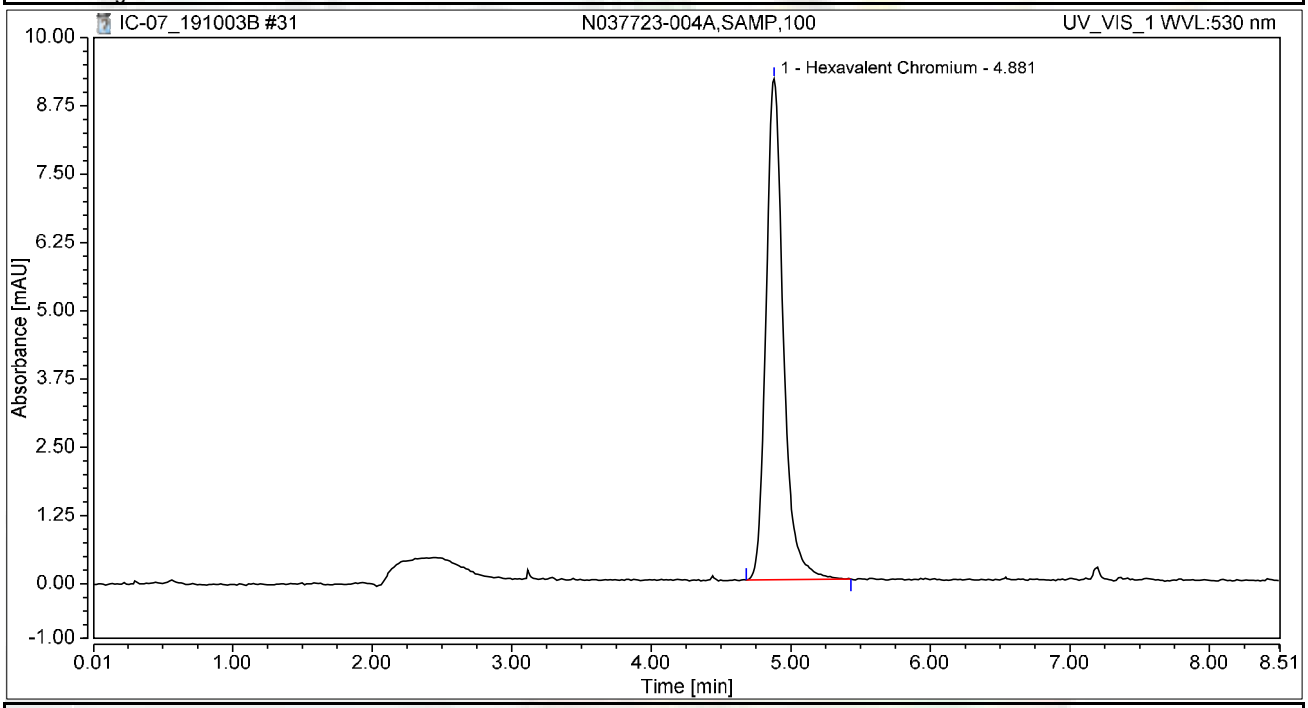
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.289	1.073	100.00	100.00	1.0745
Total:			**0.289**	**1.073**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-004A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 15:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

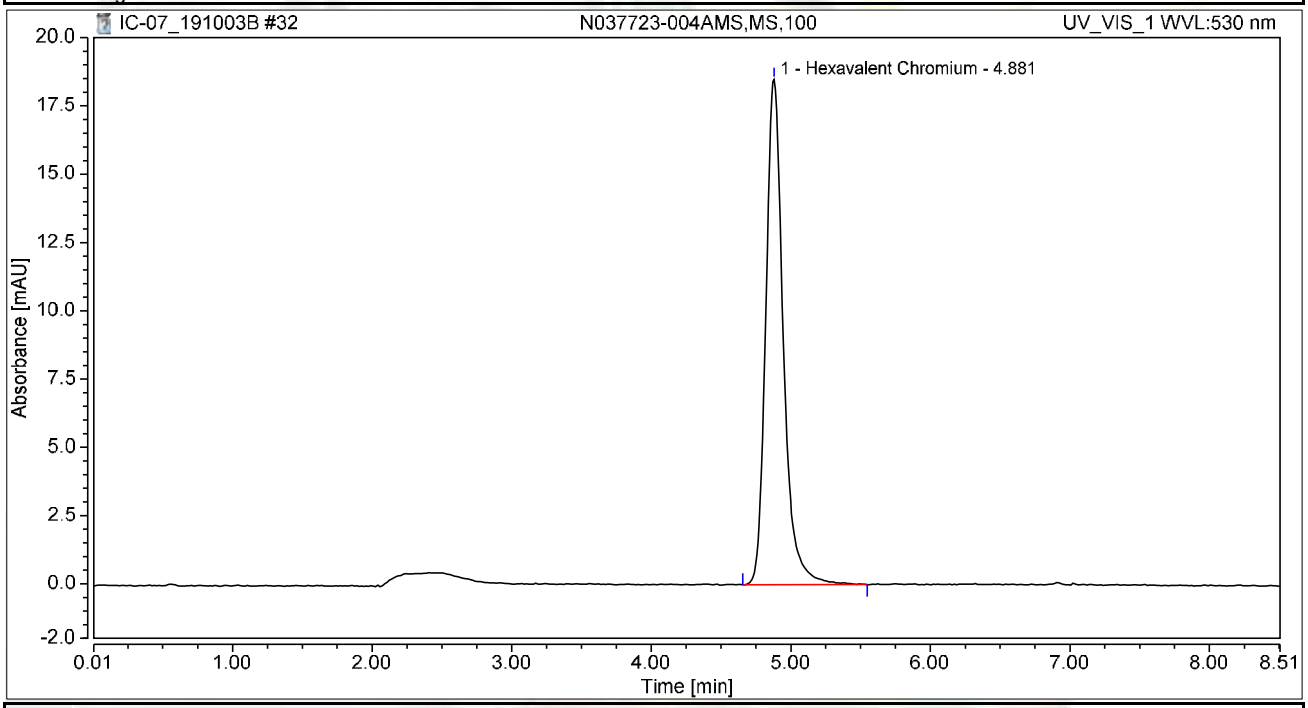
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.325	9.167	100.00	100.00	4.9213
Total:			**1.325**	**9.167**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-004AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 16:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

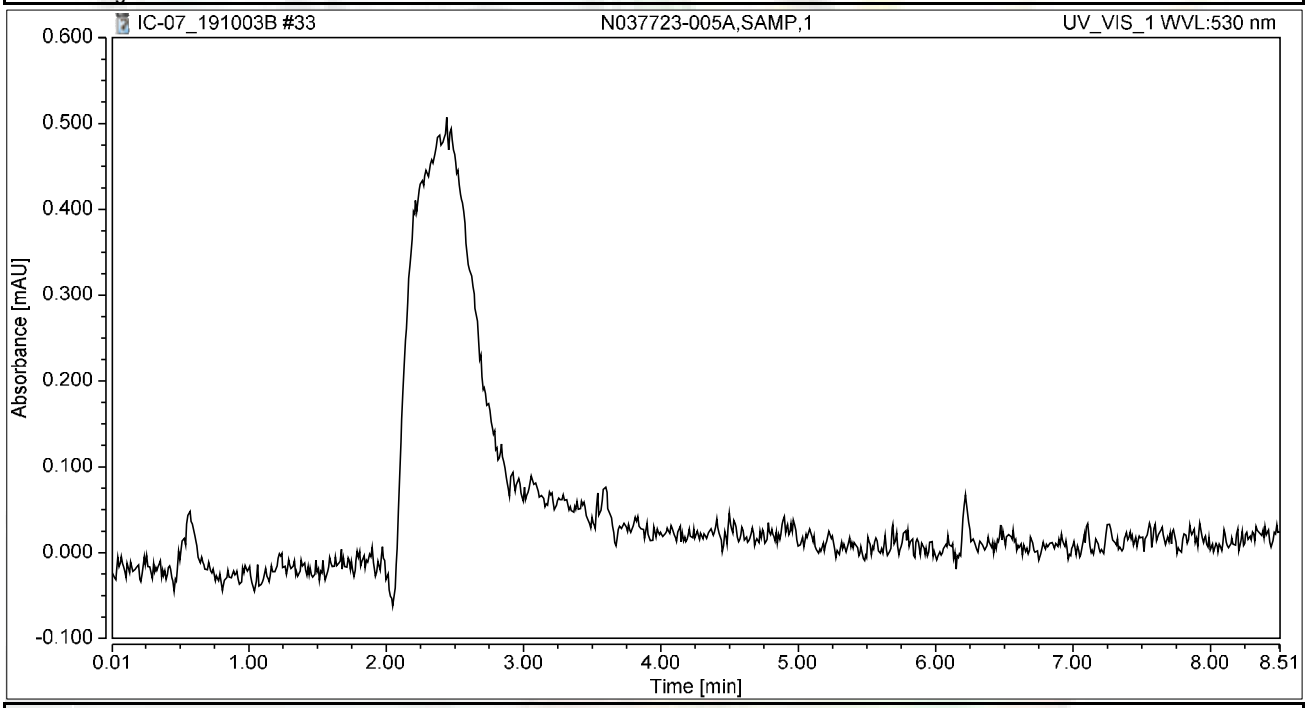
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	2.694	18.502	100.00	100.00	10.0086
Total:			**2.694**	**18.502**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 16:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

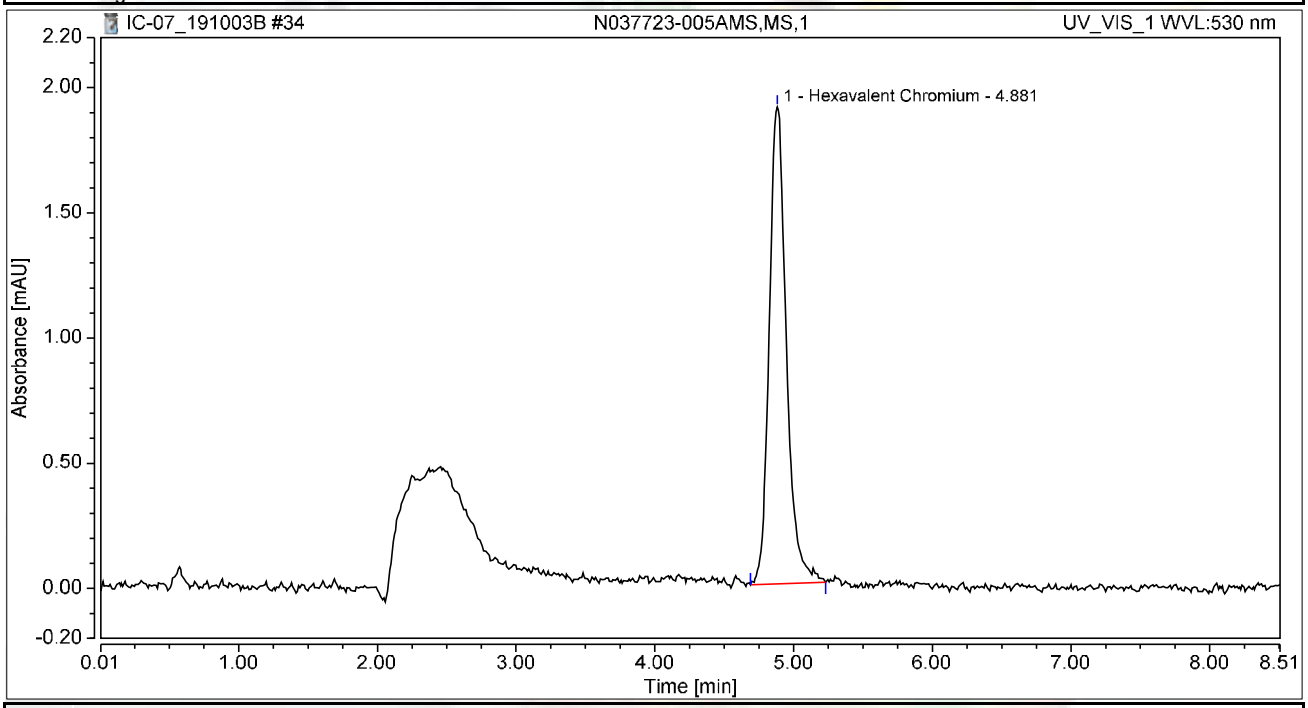
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 16:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

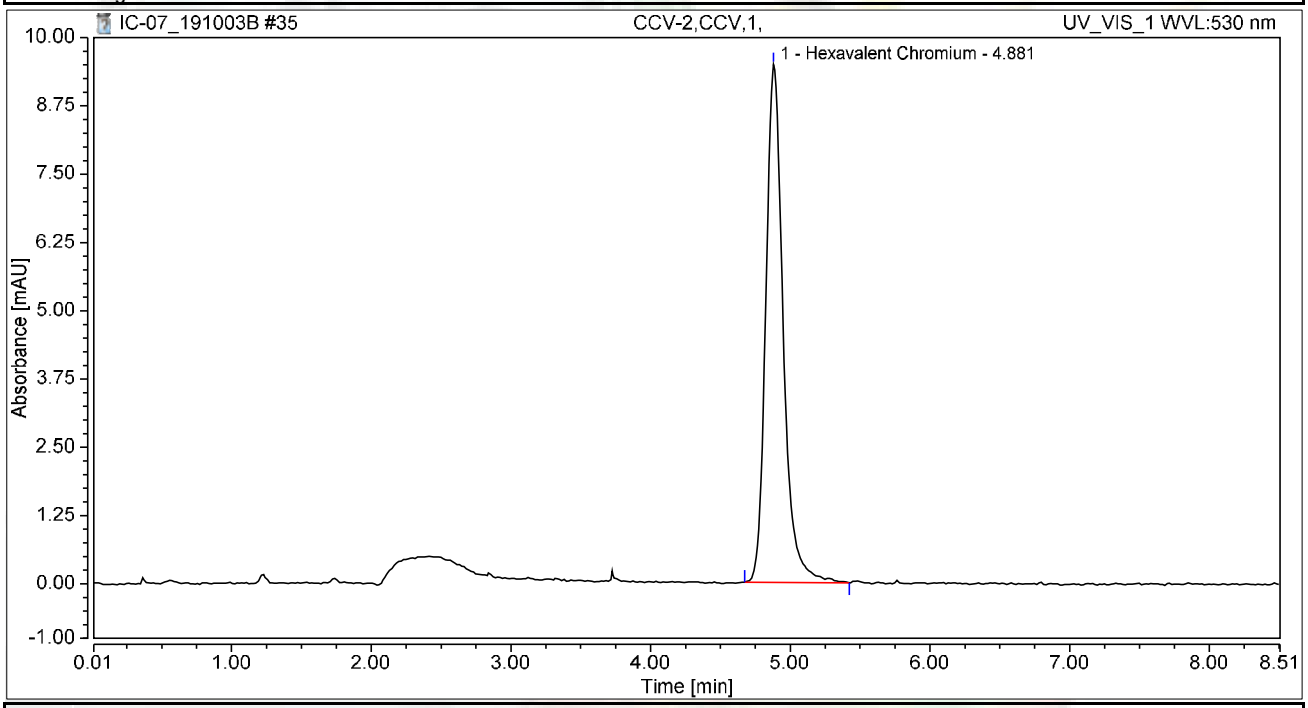
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	0.274	1.904	100.00	100.00	1.0168
Total:			**0.274**	**1.904**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 16:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

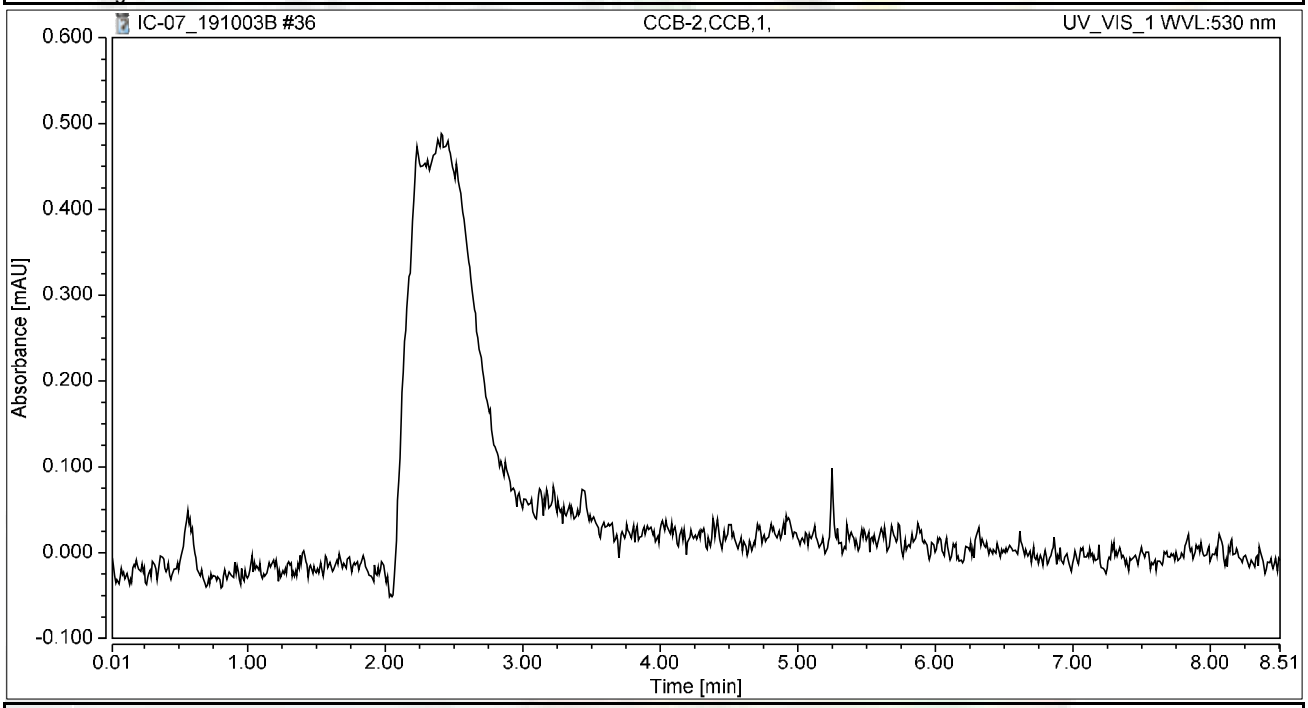
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.369	9.481	100.00	100.00	5.0859
Total:			**1.369**	**9.481**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 16:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

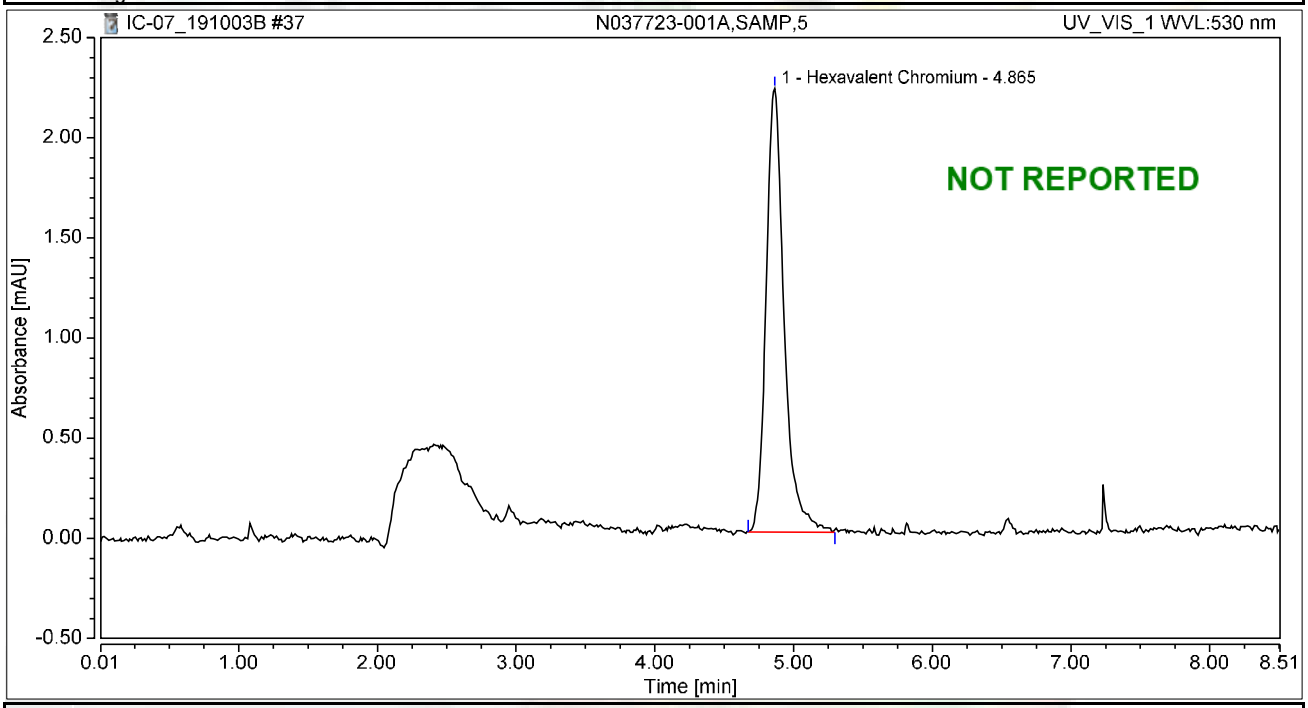
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 16:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

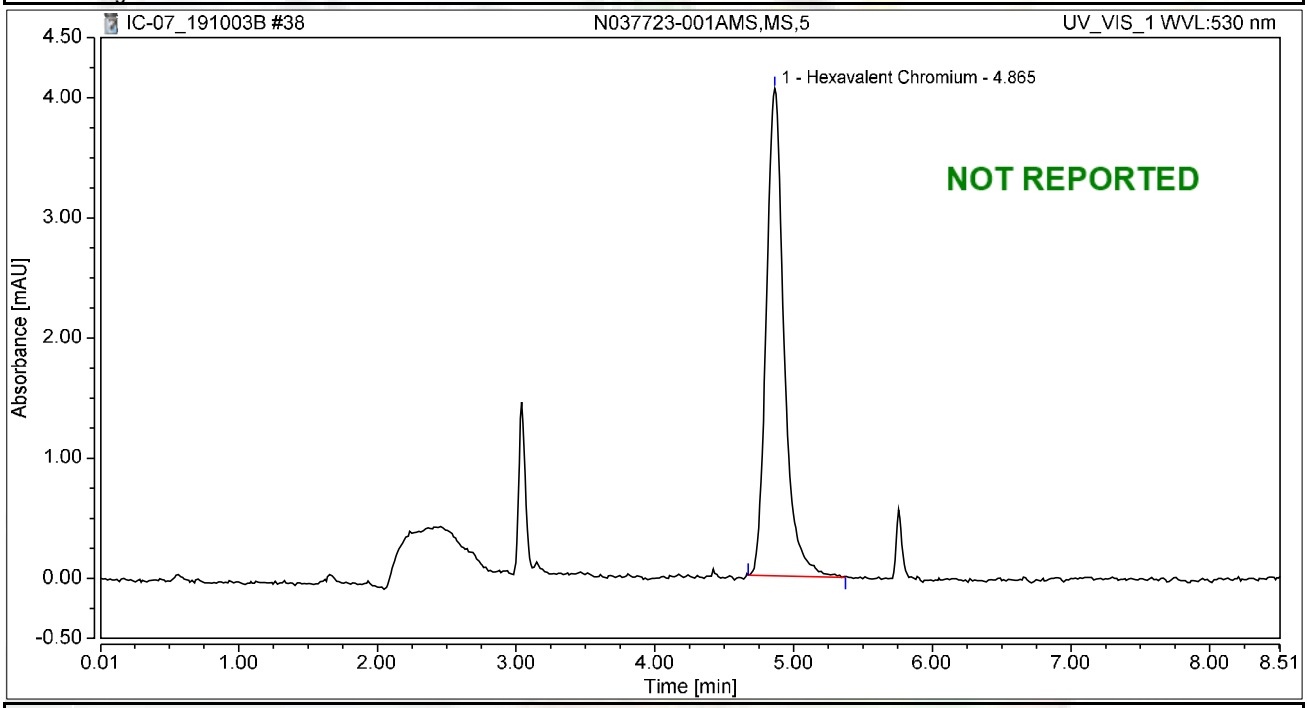
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.333	2.214	100.00	100.00	1.2386
Total:			**0.333**	**2.214**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 17:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

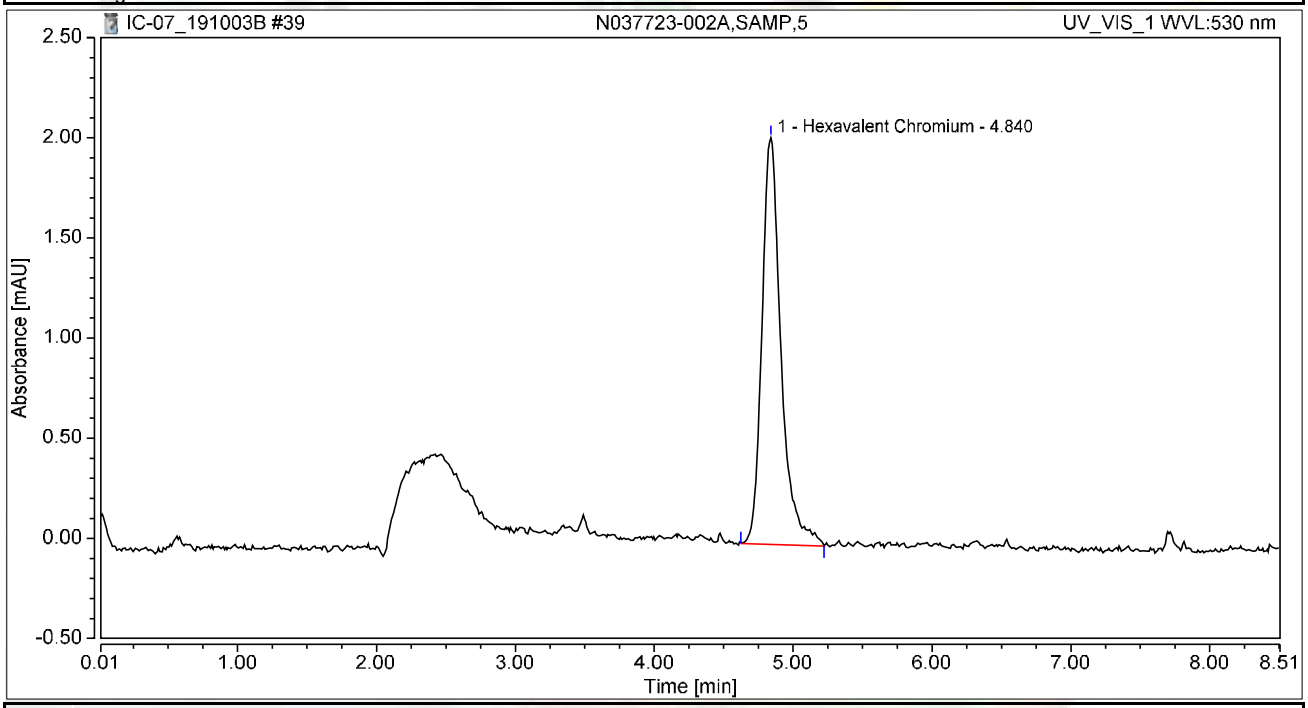
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.602	4.056	100.00	100.00	2.2378
Total:			**0.602**	**4.056**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-002A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 17:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

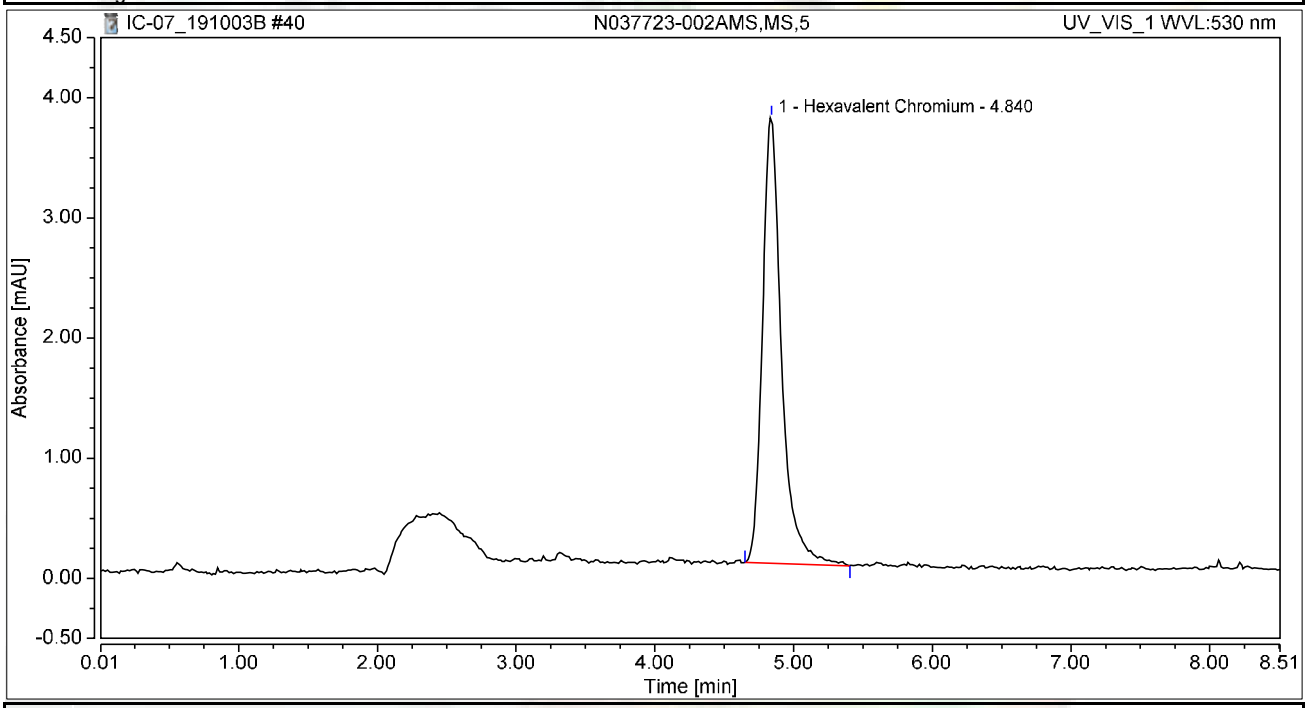
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	0.323	2.032	100.00	100.00	1.1993
Total:			**0.323**	**2.032**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 17:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

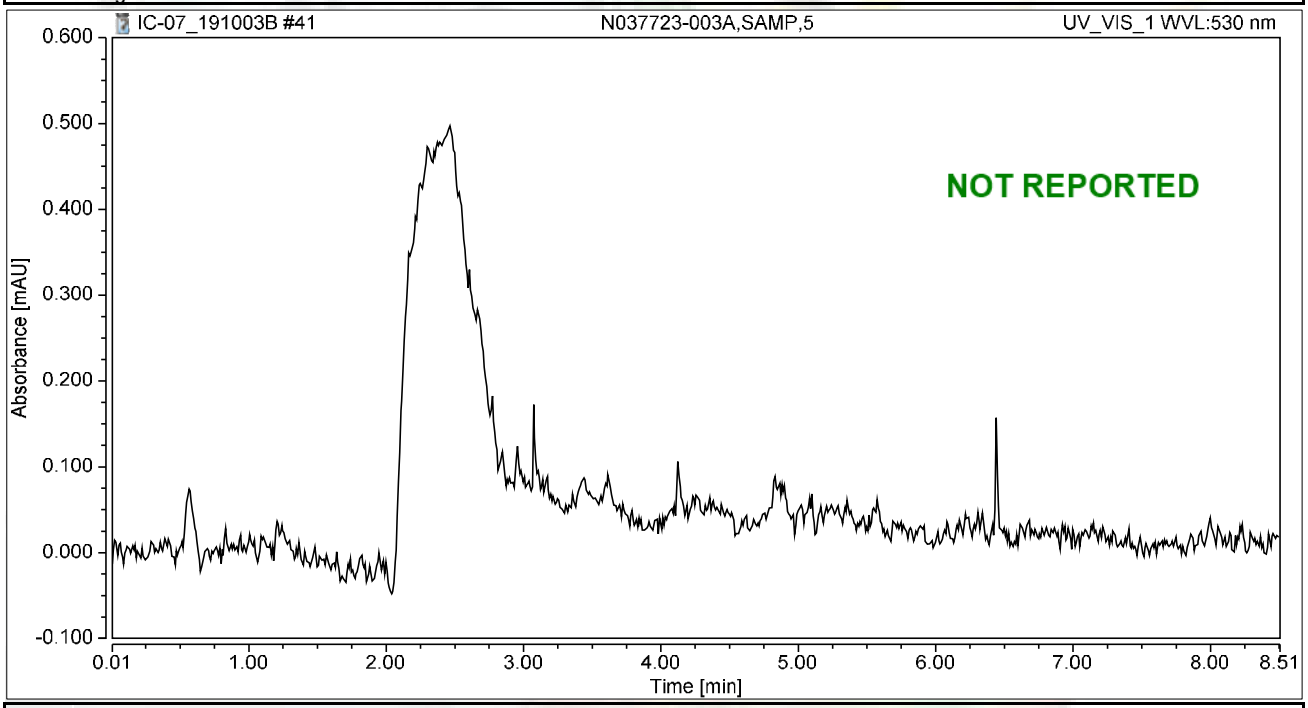
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	0.593	3.711	100.00	100.00	2.2019
Total:			**0.593**	**3.711**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 17:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

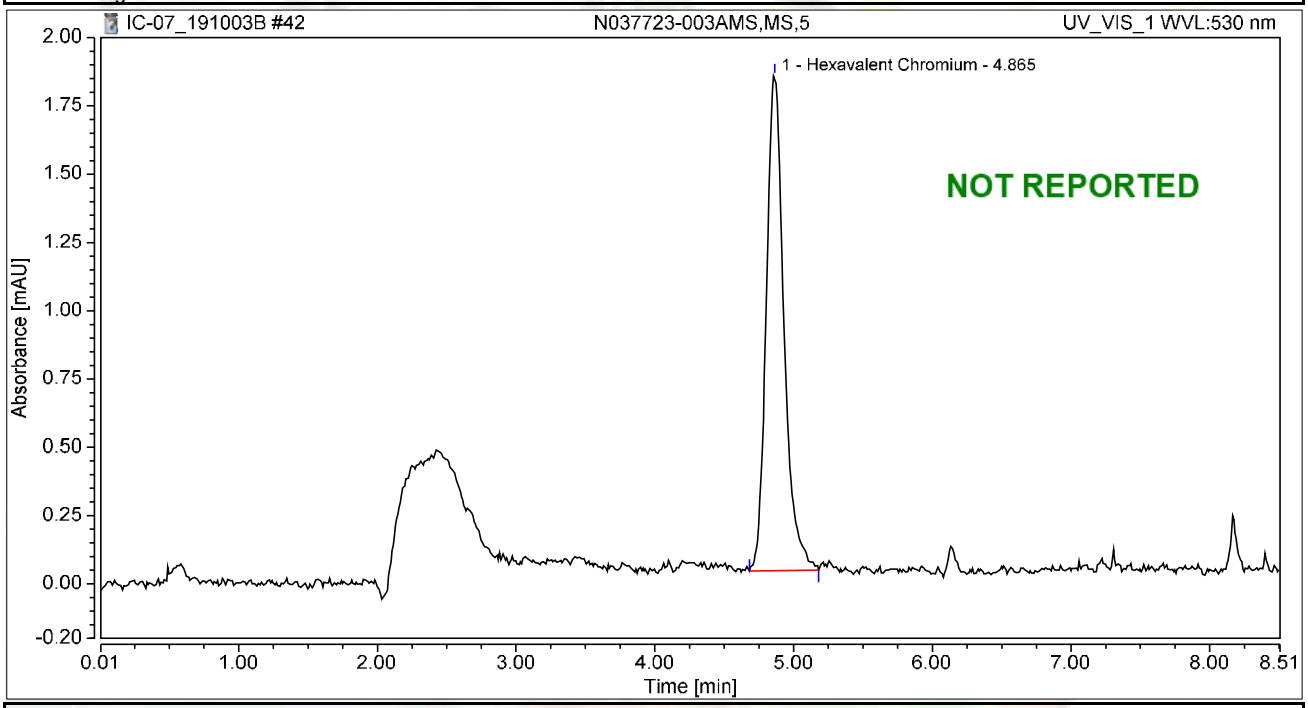
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037723-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 17:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

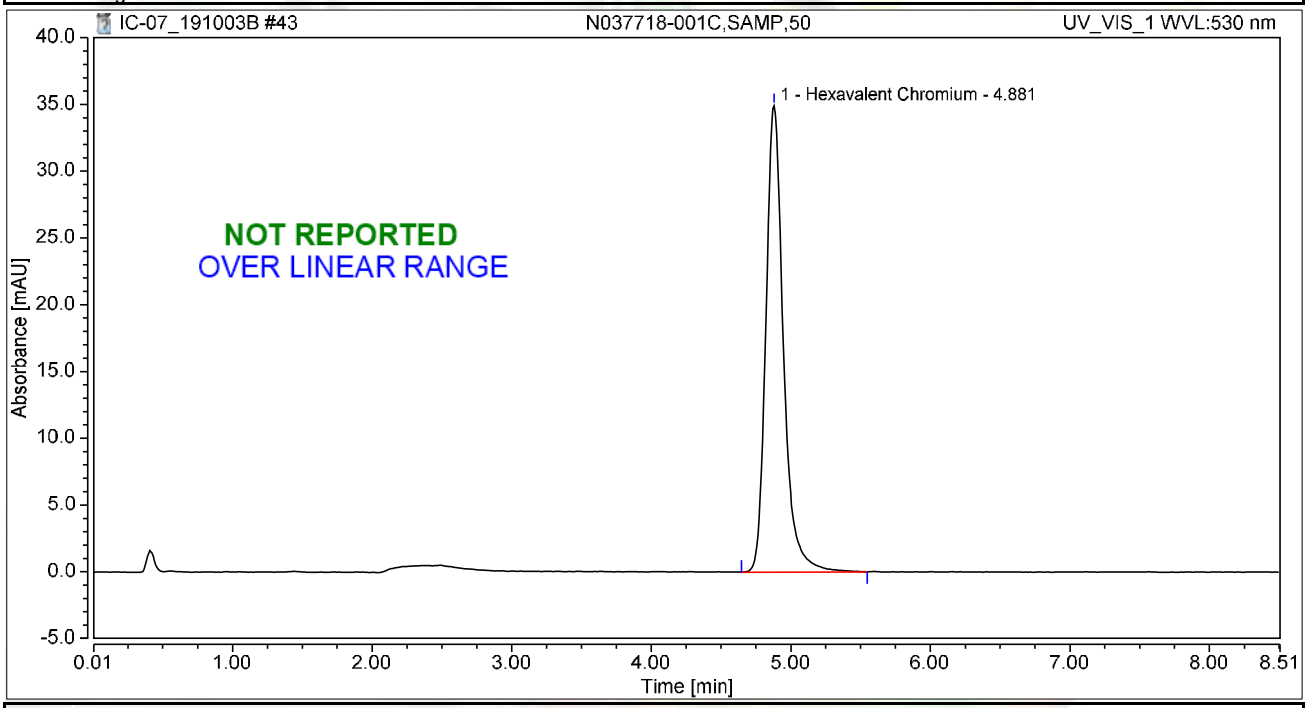
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.268	1.812	100.00	100.00	0.9971
Total:			**0.268**	**1.812**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037718-001C,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 17:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

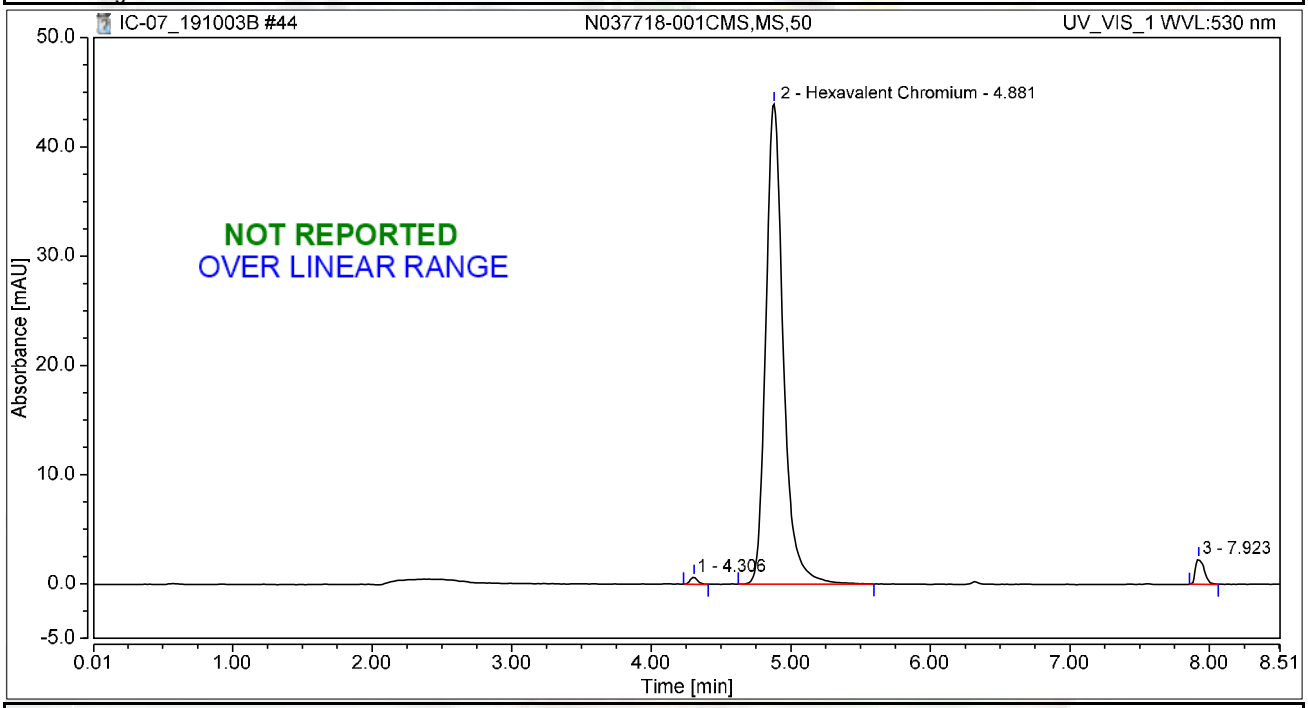
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	5.074	34.931	100.00	100.00	18.8521
Total:			**5.074**	**34.931**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037718-001CMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 18:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

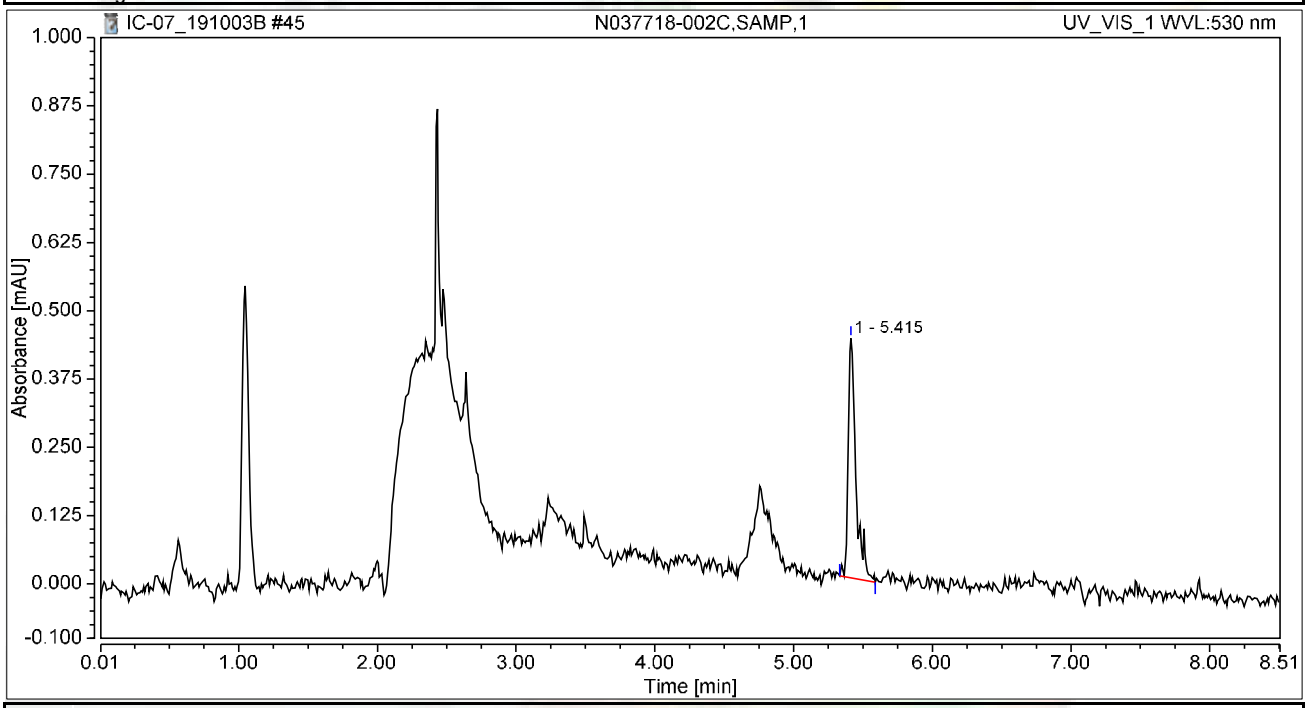
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.306	0.040	0.685	0.60	1.46	n.a.
2	Hexavalent Chromium	4.881	6.405	43.956	96.83	93.60	23.7937
3		7.923	0.170	2.321	2.57	4.94	n.a.
Total:			**6.614**	**46.962**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037718-002C,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 18:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

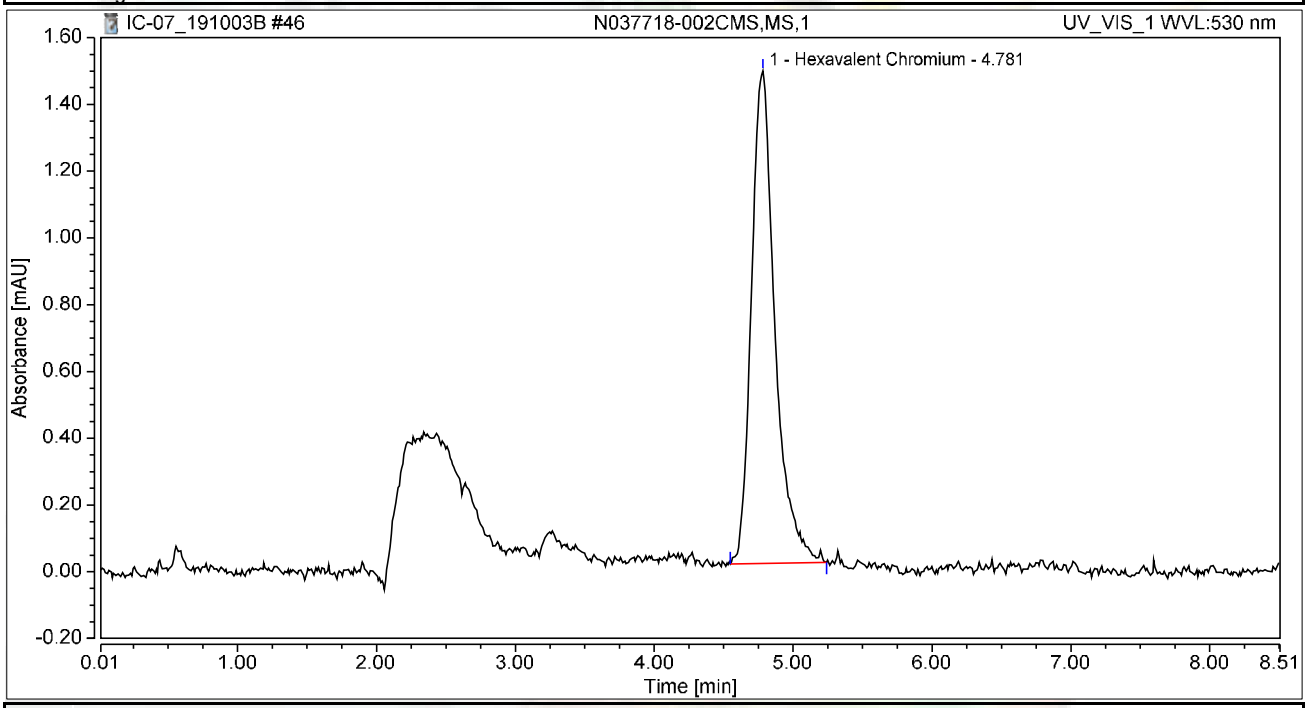
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.415	0.029	0.439	100.00	100.00	n.a.
Total:			**0.029**	**0.439**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037718-002CMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 18:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

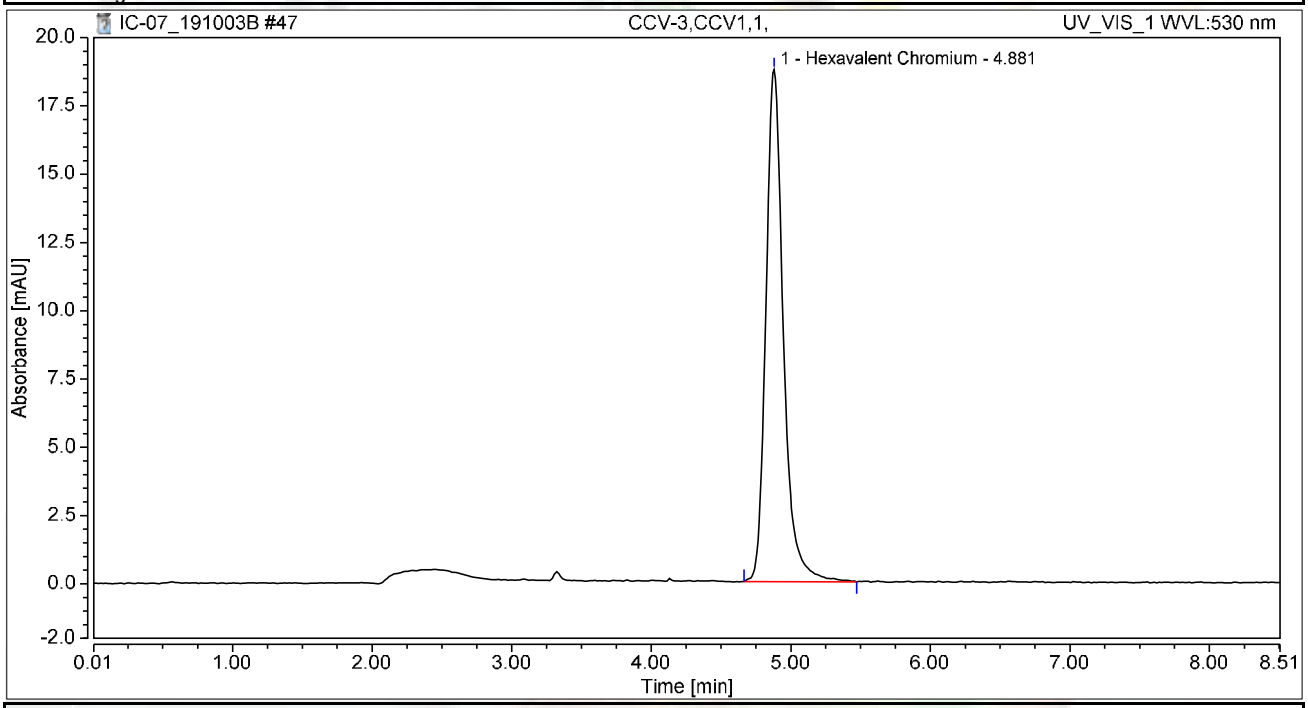
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.781	0.290	1.476	100.00	100.00	1.0767
Total:			**0.290**	**1.476**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 18:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

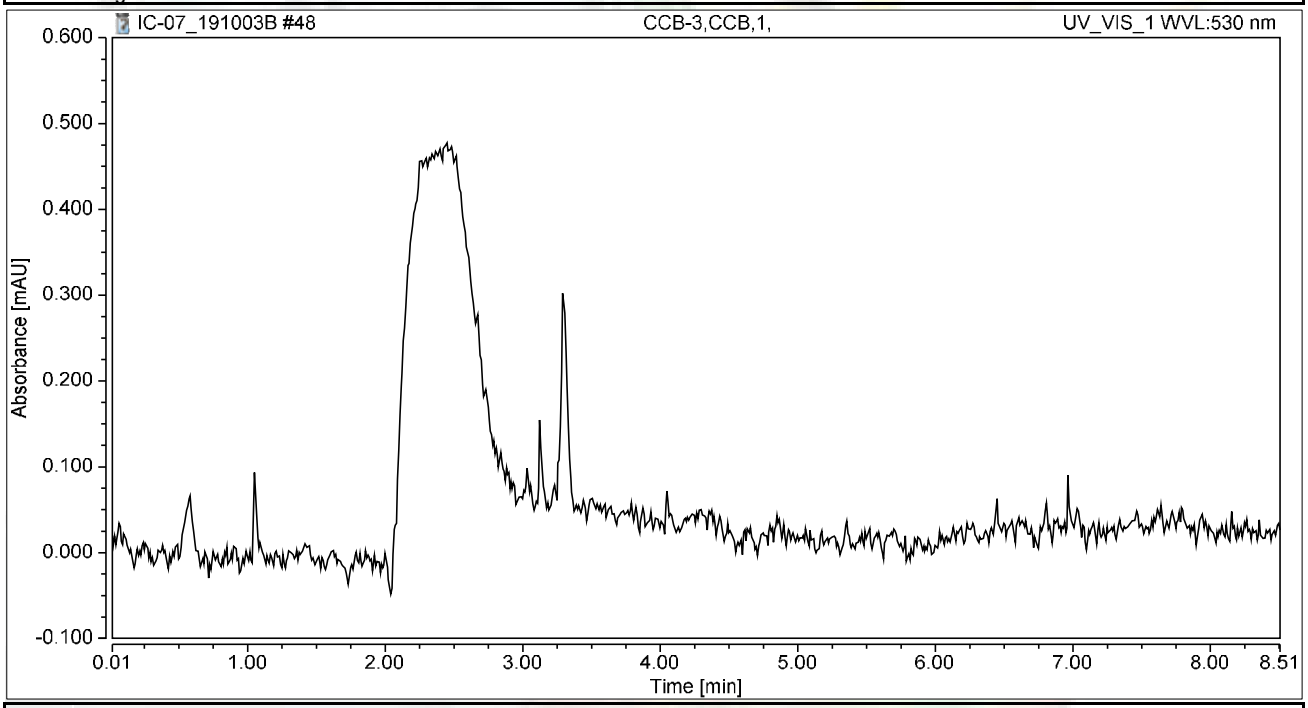
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	2.725	18.748	100.00	100.00	10.1228
Total:			**2.725**	**18.748**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 18:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

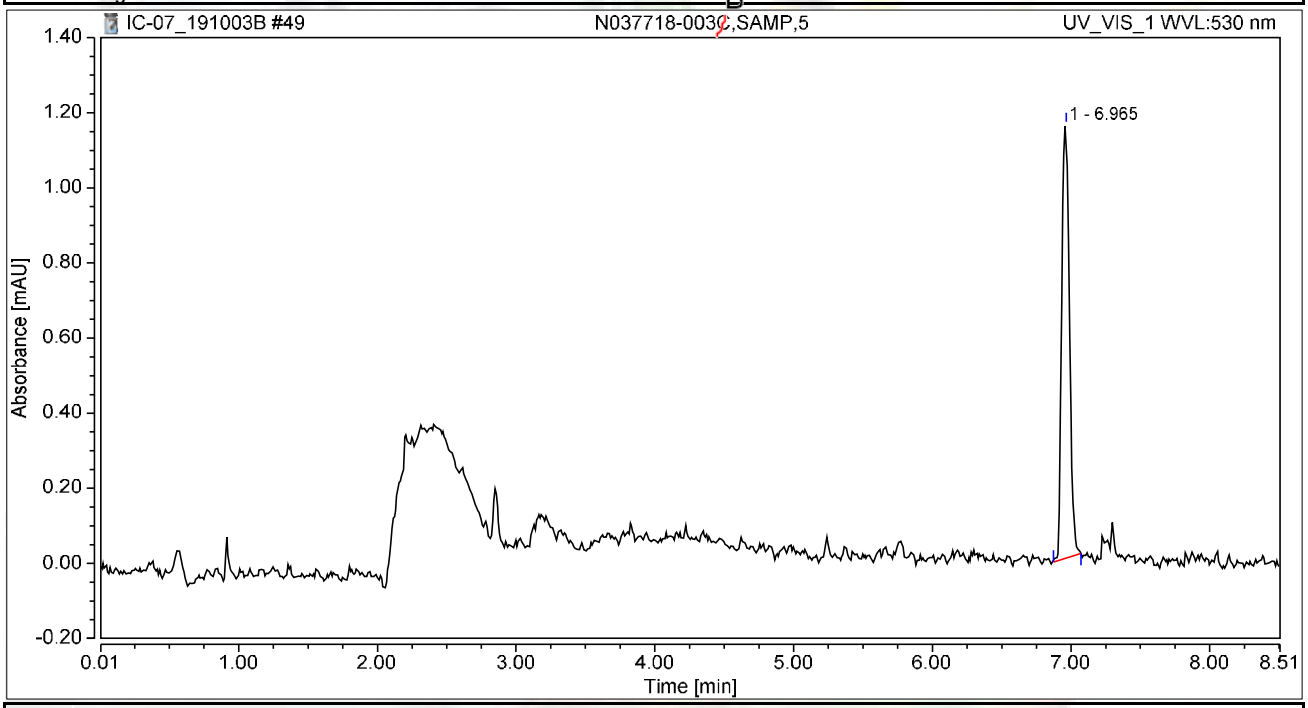
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037718-003B,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 18:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.965	0.075	1.154	100.00	100.00	n.a.
Total:			**0.075**	**1.154**	**100.00**	**100.00**	

10/9/2019

Chromatogram and Results

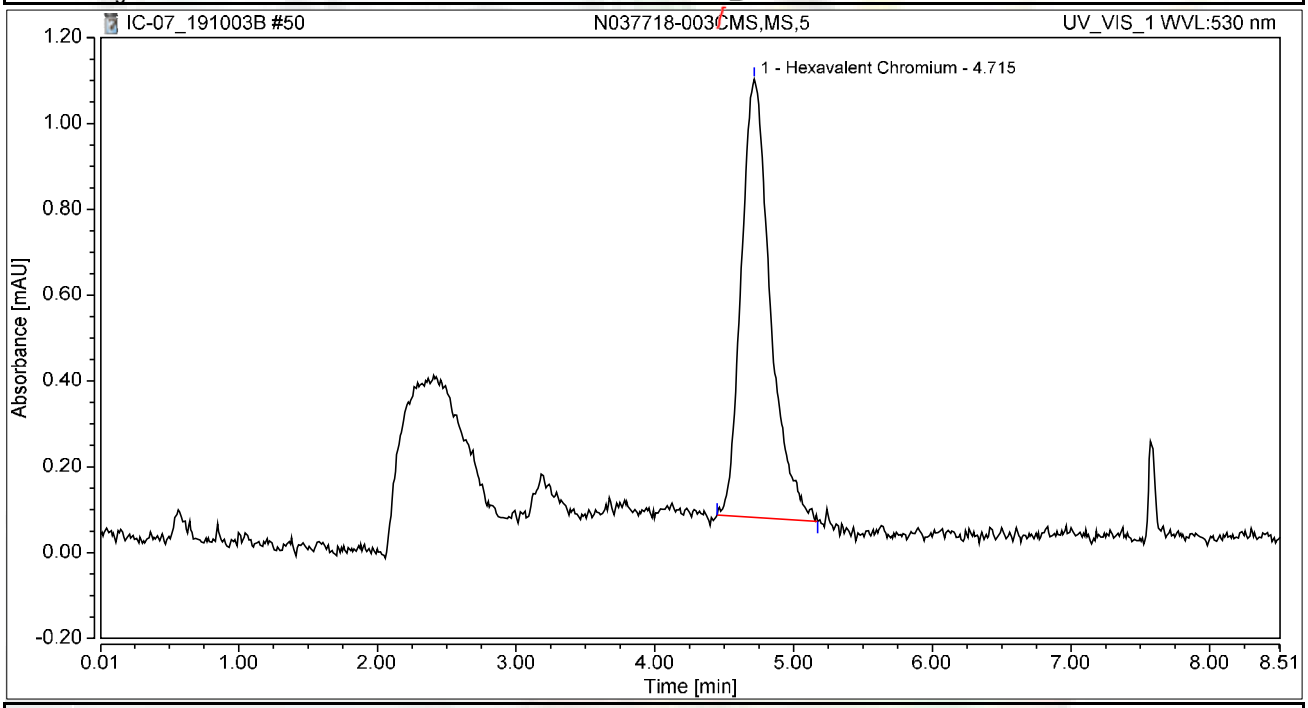
Injection Details

B

Injection Name:	**N037718-003CMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 18:58**	*Sample Weight:*	**1.0000**

Chromatogram

B



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.248	1.021	100.00	100.00	0.9209
Total:			**0.248**	**1.021**	**100.00**	**100.00**	

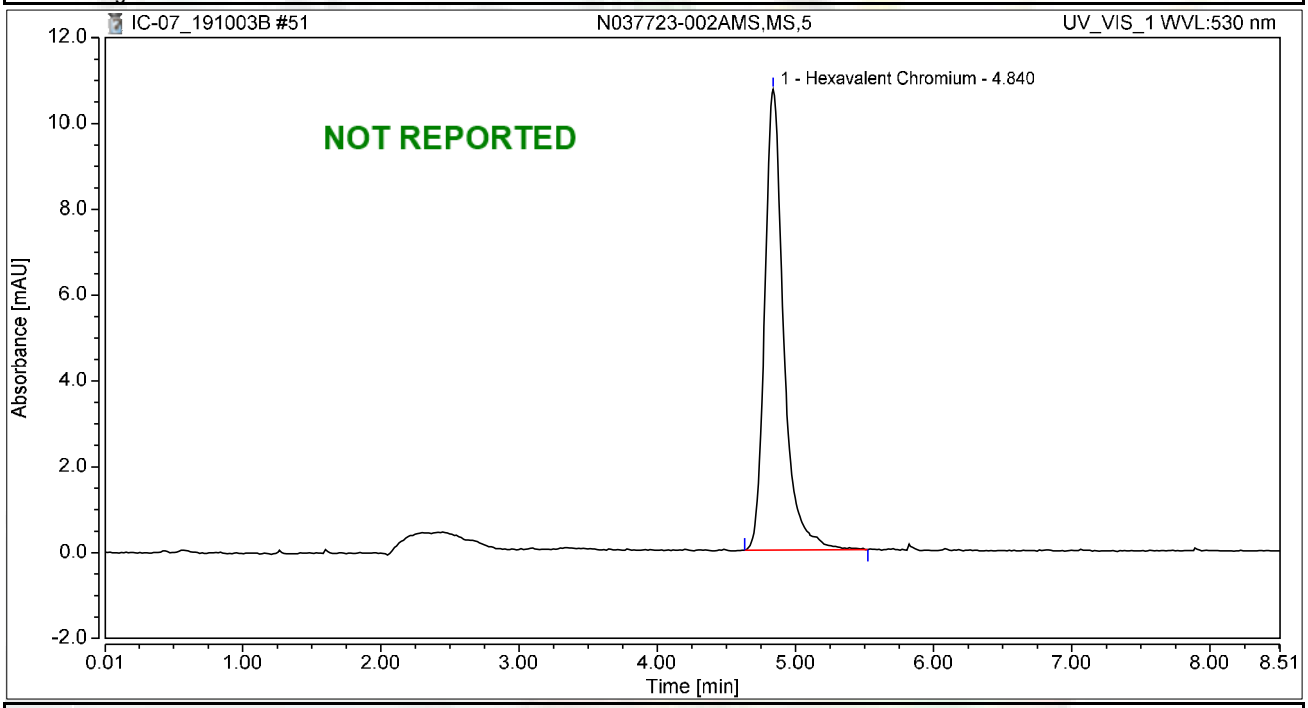
10/9/2019
for

Chromatogram and Results

Injection Details

Injection Name:	**N037723-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 19:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

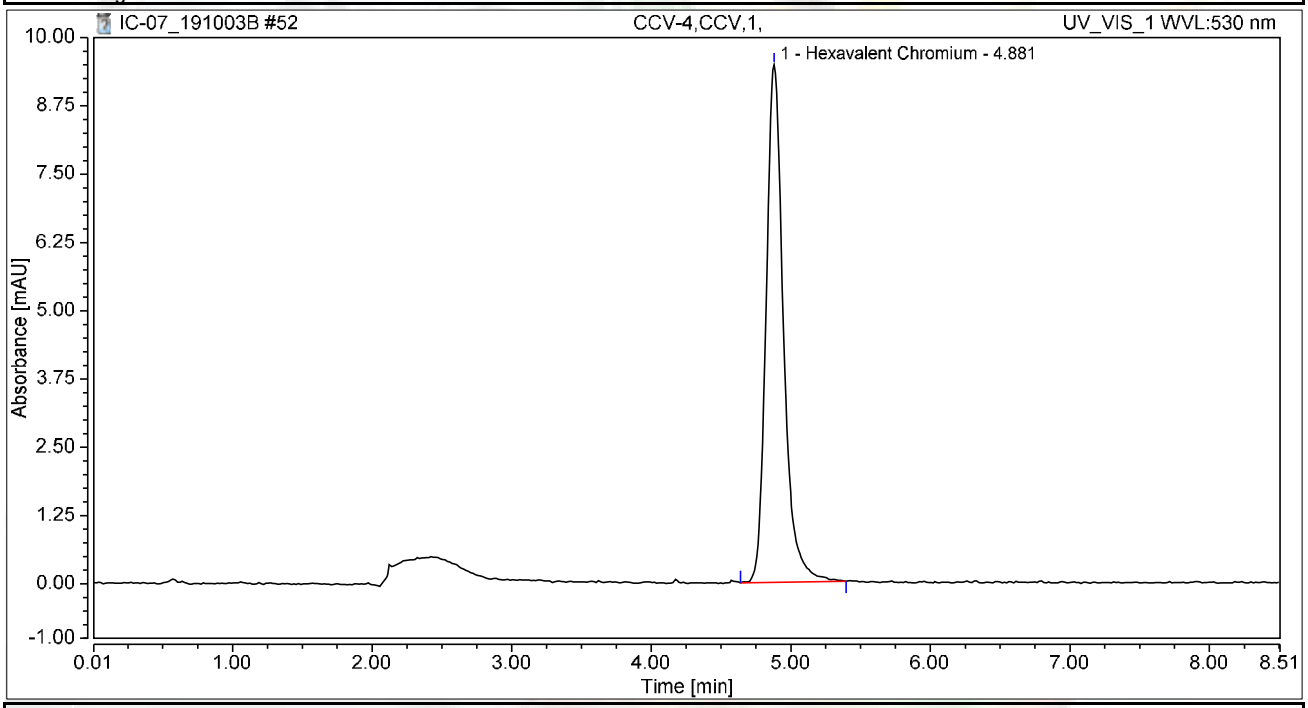
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	1.701	10.731	100.00	100.00	6.3181
Total:			**1.701**	**10.731**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 19:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

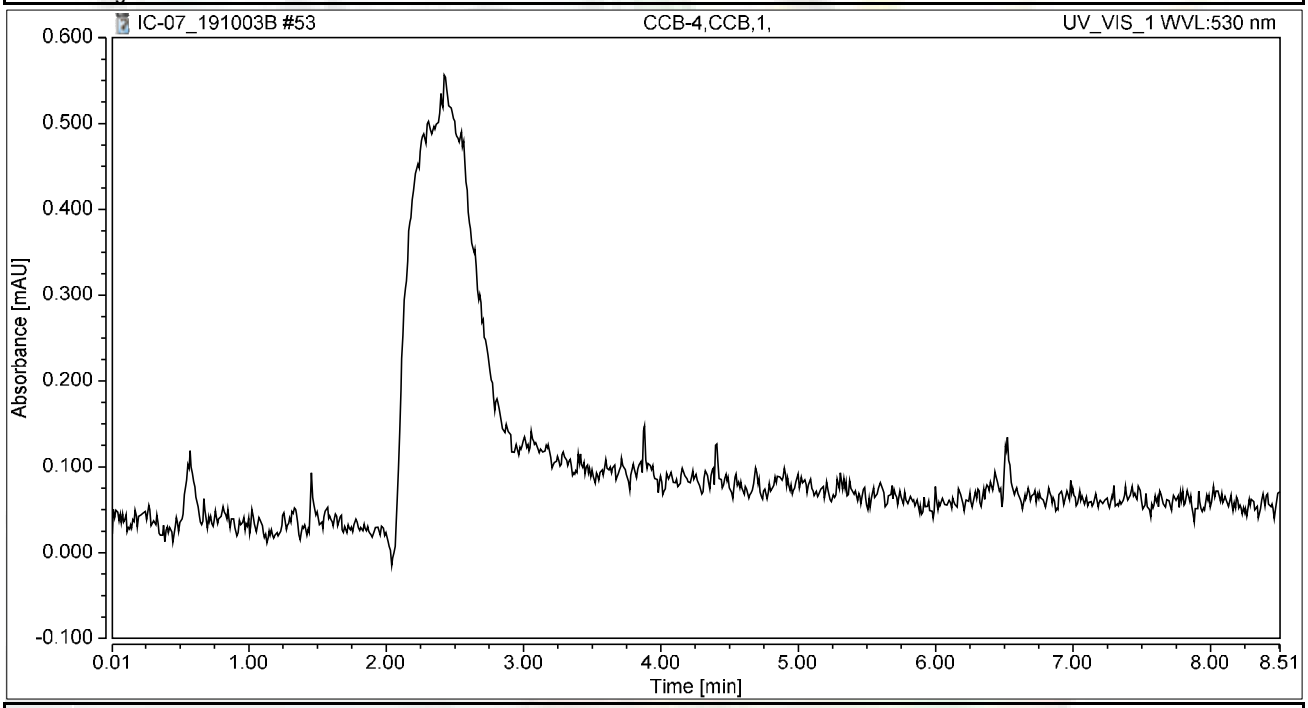
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.366	9.471	100.00	100.00	5.0766
Total:			**1.366**	**9.471**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 19:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

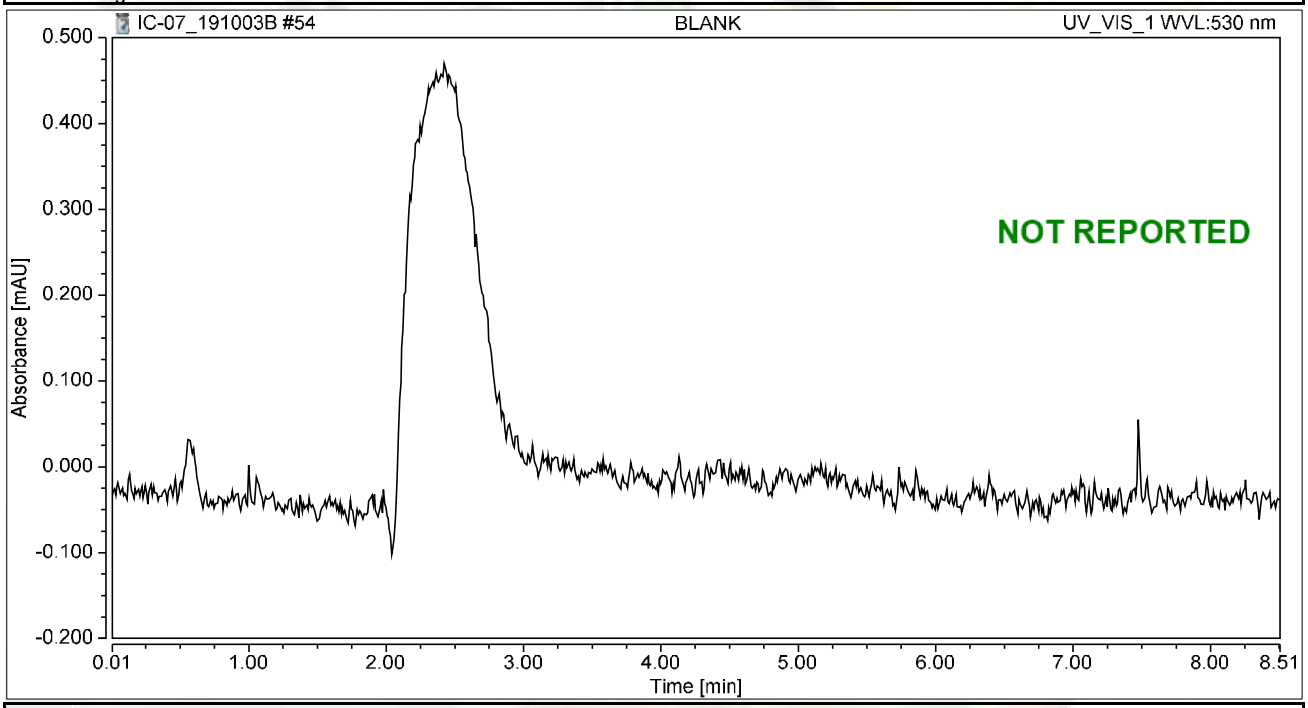
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 19:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136983 **Analyst:** MBC

ASSET #: N037723, 679, 709, 722, 723, 736 **Date Analyzed:** 10/12/2019

Method: 4500_N03

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer MBC Date: 10/16/2019

2nd Level Reviewer NS 10/16/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037723-002C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	1.0524	*	1
	=	1.0524	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 1.1 mg/L

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

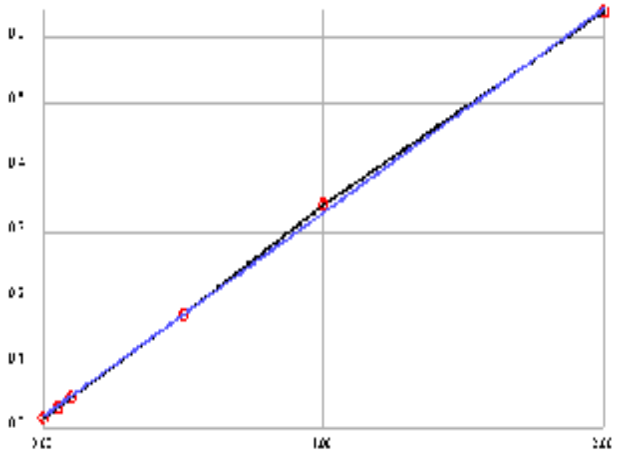
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3134x + 0.0176
Correlation	.999759

Calibrant	Energy	Set	Conc
1	0.0159	0.0000	-0.0053
2	0.0305	0.0500	0.0413
3	0.0478	0.1000	0.0965
4	0.1746	0.5000	0.5010
5	0.3413	1.0000	1.0329
6	0.6393	2.0000	1.9837

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **ICV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.517	0.050	0.5000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.507	0.050	0.5000	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCV**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.491	0.050	0.5000	0	98.1	90	110				

Qualifiers:

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **ICB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536756**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536814**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536825**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136983**
Client ID: **CCB**	Batch ID: **R136983**	TestNo: **SM4500-NO3**		Analysis Date: **10/12/2019**	SeqNo: **3536834**

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

Qualifiers:

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

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-12-2019 13:59
Time end: 10-12-2019 16:50

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:10:48	-0.0047		0.0161
2	<BLANK>	16:11:48	-0.0025		0.0168
3	<CAL1>	16:12:43	-0.0053	[0]	0.0159
4	<CAL2>	16:13:39	0.0413	[0.05]	0.0305
5	<CAL3>	16:14:39	0.0965	[0.1]	0.0478
6	<CAL4>	16:15:34	0.5010	[0.5]	0.1746
7	<CAL5>	16:16:30	1.0329	[1]	0.3413
8	<CAL6>	16:17:25	1.9837	[2]	0.6393
9	,BLANK,BLANK,1, NOT REPORTED	16:18:26	0.0374		0.0293
10	,ICV,ICV,1,	16:19:21	0.5173		0.1797
11	,ICB,ICB,1,	16:20:17	0.0084		0.0202
12	,MB-H2O,MBLK,1,	16:21:17	-0.0037		0.0164
13	,LCS-H2O,LCS,1,	16:22:13	0.4959		0.1730
14	,N037723-001C,SAMP,1,	16:23:08	0.0387		0.0297
15	,N037723-001CDUP,DUP,1,	16:24:04	0.0301		0.0270
16	,N037679-006B,SAMP,20,	16:25:04	0.7623		0.2565
17	,N037679-004BMS,MS,20,	16:26:00	1.2907		0.4221
18	,N037679-004BMSD,MSD,20,	16:26:55	1.3401		0.4376
19	,N037679-005B,SAMP,10,	16:27:55	1.0581		0.3492
20	,N037679-007B,SAMP,20,	16:28:51	0.5116		0.1779
21	,BLANK, NOT REPORTED	16:29:47	0.0090		0.0204
22	,CCV-1,CCV,1,	16:30:42	0.5052		0.1759
23	,CCB-1,CCB,1,	16:31:43	0.0074		0.0199
24	,N037709-001C,SAMP,20,	16:32:38	0.5690		0.1959
25	,N037709-002C,SAMP,20,	16:33:34	0.5543		0.1913
26	,N037709-003C,SAMP,10,	16:34:34	0.5246		0.1820

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N037718-001D,SAMP,5,	16:35:18	0.8115		0.2719
28	,N037718-002D,SAMP,5,	16:36:07	0.6137		0.2099
29	,N037722-001E,SAMP,5,	16:36:49	0.5358		0.1855
30	,N037722-002E,SAMP,5,	16:37:33	0.6720		0.2282
31	,N037723-002C,SAMP,1,	16:38:21	1.0524		0.3474
32	,N037723-003C,SAMP,1,	16:39:04	0.0310		0.0273
33	,BLANK, NOT REPORTED	16:39:46	0.0030		0.0185
34	,CCV-2,CCV,1,	16:40:36	0.5071		0.1765
35	,CCB-2,CCB,1,	16:41:19	0.0030		0.0185
36	,N037723-004C,SAMP,5,	16:42:01	0.9445		0.3136
37	,N037736-001E,SAMP,5,	16:42:45	0.5361		0.1856
38	,N037736-002E,SAMP,5,	16:43:33	0.5939		0.2037
39	,N037736-003E,SAMP,5,	16:44:16	0.5731		0.1972
40	,N037736-004E,SAMP,5,	16:44:58	0.5722		0.1969
41	,N037736-005E,SAMP,5,	16:45:48	0.5929		0.2034
42	,N037736-006E,SAMP,5,	16:46:30	0.6529		0.2222
43	,BLANK, NOT REPORTED	16:47:13	0.0052		0.0192
44	,CCV-3,CCV,1,	16:47:57	0.4905		0.1713
45	,CCB-3,CCB,1,	16:48:45	0.0049		0.0191

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/12/2019
Time Analyzed: 1:59 PM ; 4:50 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R191012A
Color reagent: R191012B
2% Copper Sulfate: R191004A
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037723-001C		7.96							
N037679-006B		7.99							
N037679-005B		7.98							
N037679-007B		8.46							
N037709-001C		7.81							
N037709-002C		8.39							
N037709-003C		7.98							
N037718-001D		8.29							
N037718-002D		8.71							
N037722-001E		8.04							
N037722-002E		7.91							
N037723-002C		6.62							
N037723-003C		6.77							
N037723-004C		6.93							
N037736-001E		7.98							
N037736-002E		8.45							
N037736-003E		8.03							
N037736-004E		8.05							
N037736-005E		7.70							
N037736-006E		8.06							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75562
ASSET #: N037723

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/11/2019

Method:

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

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

Comments:

Blank hit in As.
IS of As in CCV6 failed. Samples affected are for rerun.
RSD of Se in N037723-002B failed. For rerun.
% Rec of Cr in N037709-001B-MS/MSD failed, low bias. However, LCS passed criteria.

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

1st Level Reviewer CEI Date: 10/14/2019

2nd Level Reviewer NS 10/14/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75562
ASSET #: N037723

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/14/2019

Method:

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

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

Comments:

As and Se rerun.
% RSD of As in LLICV failed. However, % Recovery passed criteria.

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

1st Level Reviewer CEI Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

Arsenic , ug/L = A * DF * PF

where:

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

For Sample **N037723-001B** , the concentration in ug/L is calculated as follows:

Arsenic , ug/L = 6.37043 * 1 *(25 / 25)

Arsenic , ug/L = 6.37043

Reporting results in two significant figures,

Arsenic , ug/L = 6.4

% RSD SUMMARY

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.13	23.117	15	<PQL	0.09	7.669	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.52	9.218	15	PASS	0.49	1.061	15	PASS
Std3-5/50 ppb	ICAL	1	5.2	2.485	15	PASS	5.03	1.222	15	PASS
Std4-10/100 ppb	ICAL	1	10.25	0.359	15	PASS	10.19	1.46	15	PASS
Std5-20/200 ppb	ICAL	1	20.37	0.233	15	PASS	20.09	1.165	15	PASS
Std6-40/400 ppb	ICAL	1	40.82	2.072	15	PASS	40.69	1.647	15	PASS
Std7-100/1000 ppb	ICAL	1	100.69	1.721	15	PASS	101.19	3.379	15	PASS
Std8-200/2000 ppb	ICAL	1	199.43	0.801	15	PASS	199.25	1.473	15	PASS
ICV	ICV	1	10.95	1.692	15	PASS	108.44	1.339	15	PASS
ICB	ICB	1	0.05	63.72	15	<PQL	0.02	44.514	15	<PQL
LLICV	CCV1	1	1.1	1.708	20	PASS	0.56	5.534	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.29	2.125	15	PASS	19.47	0.669	15	PASS
LLICV	CCV1	1	1.07	0.881	20	PASS	0.59	9.735	20	PASS
CCV1	CCV	1	19.61	2.371	15	PASS	20.5	1.258	15	PASS
CCB1	CCB	1	0.01	147.204	15	<PQL	0.02	42.411	15	<PQL
CCV2	CCV	1	20.09	1.986	15	PASS	19.97	0.462	15	PASS
CCB2	CCB	1	0.03	31.999	15	<PQL	0.01	140.116	15	<PQL
CCV3	CCV	1	19.74	0.808	15	PASS	20.52	1.684	15	PASS
CCB3	CCB	1	0.03	68.356	15	<PQL	0.02	25.756	15	<PQL
CCV4	CCV	1	19.91	0.868	15	PASS	20.35	1.83	15	PASS
CCB4	CCB	1	0.02	90.1	15	<PQL	0.01	76.13	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.67	1.592	15	PASS	19.32	1.411	15	PASS
MB-75562	MBLK	1	0.02	109.222	15	<PQL	0.02	110.511	15	<PQL
LCS-75562	LCS	1	10.66	0.829	15	PASS	107.82	1.337	15	PASS
N037709-001B	SAMP	1	147.48	2.76	15	PASS	<0.000	N/A	15	<PQL
N037709-001B	SAMP	5	29.92	1.539	15	PASS	<0.000	N/A	15	<PQL
N037709-001B	SAMP	25	6.1	0.317	15	PASS	<0.000	N/A	15	<PQL
N037709-001B-PS	PS	1	157.19	0.425	15	PASS	83.53	0.392	15	PASS
N037709-001B-PS	PS	5	33.1	1.168	15	PASS	17.76	0.239	15	PASS
N037709-001B-MS	MS	1	152.51	0.67	15	PASS	83.95	0.707	15	PASS
N037709-001B-MS	MS	5	31.54	0.713	15	PASS	17.56	2.05	15	PASS
N037709-001B-MSD	MSD	1	153.87	1.348	15	PASS	84.42	1.404	15	PASS
CCV5	CCV	1	20.29	1.97	15	PASS	20.28	0.802	15	PASS
CCB5	CCB	1	0.03	43.514	15	<PQL	0.01	255.282	15	<PQL
N037709-001B-MSD	MSD	5	32.15	1.028	15	PASS	17.36	1.873	15	PASS
N037709-002B	SAMP	1	111.24	0.369	15	PASS	<0.000	N/A	15	<PQL
N037709-002B	SAMP	5	22.86	0.971	15	PASS	<0.000	N/A	15	<PQL
N037709-003B	SAMP	1	47.38	0.471	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	9.87	1.693	15	PASS	<0.000	N/A	15	<PQL
N037723-001B	SAMP	1	6.3	1.819	15	PASS	<0.000	N/A	15	<PQL
N037723-001B	SAMP	5	1.31	2.488	15	PASS	<0.000	N/A	15	<PQL
N037723-002B	SAMP	1	6.11	2.497	15	PASS	<0.000	N/A	15	<PQL
N037723-002B	SAMP	5	1.29	3.466	15	PASS	<0.000	N/A	15	<PQL
N037723-003B	SAMP	1	0.25	19.212	15	<PQL	64.02	3.693	15	PASS
CCV6	CCV	1	20.15	1.14	15	PASS	20.3	0.587	15	PASS
CCB6	CCB	1	0.04	37.369	15	<PQL	0.01	66.639	15	<PQL
N037723-003B	SAMP	5	0.09	11.846	15	PASS	12.98	0.671	15	PASS
N037723-004B	SAMP	1	585.69	1.066	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	5	105.67	0.797	15	PASS	<0.000	N/A	15	<PQL
N037735-001B	SAMP	1	<0.000	N/A	15	<PQL	488.26	0.464	15	PASS
N037735-001B	SAMP	5	0.05	36.503	15	<PQL	101.73	0.465	15	PASS
N037756-001B	SAMP	1	109.77	0.315	15	PASS	<0.000	N/A	15	<PQL
N037756-001B	SAMP	5	22.72	0.662	15	PASS	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.53	1.45	15	PASS	20.35	3.22	15	PASS
CCB7	CCB	1	0.07	21.896	15	<PQL	0.1	37.504	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.92	0.457	15	PASS	19.22	0.456	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.09	37.559	15	<PQL	0	N/A	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	11.57	15	PASS	0.35	50.99	15	<PQL
Std3-5/50 ppb	ICAL	1	4.91	1.328	15	PASS	4.98	15.431	15	NR!
Std4-10/100 ppb	ICAL	1	10.28	2.719	15	PASS	9.4	7.219	15	PASS
Std5-20/200 ppb	ICAL	1	20	2.701	15	PASS	20.94	5.992	15	PASS
Std6-40/400 ppb	ICAL	1	40.16	0.822	15	PASS	41.36	8.487	15	PASS
Std7-100/1000 ppb	ICAL	1	99.72	0.148	15	PASS	98.83	2.462	15	PASS
Std8-200/2000 ppb	ICAL	1	200.1	1.169	15	PASS	200.25	1.349	15	PASS
ICV	ICV	1	10.43	2.415	15	PASS	9.07	4.617	15	PASS
ICB	ICB	1	0.03	16.721	15	<PQL	0	N/A	15	<PQL
LLICV	CCV1	1	0.14	31.102	20	NR!	0.66	26.38	20	NR!
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.11	123.282	15	<PQL
ICSAB1	ICSAB	1	21.28	1.212	15	PASS	19.93	14.599	15	PASS
LLICV	CCV1	1	0.18	49.816	20	NR!	0.63	43.039	20	NR!
CCV1	CCV	1	19.9	1.781	15	PASS	18.51	6.498	15	PASS
CCB1	CCB	1	0.1	34.546	15	<PQL	0.02	173.205	15	<PQL
CCV2	CCV	1	20.17	1.846	15	PASS	19.13	8.913	15	PASS
CCB2	CCB	1	0.18	15.463	15	NR!	0.09	173.205	15	<PQL
CCV3	CCV	1	19.82	3.809	15	PASS	21.07	2.238	15	PASS
CCB3	CCB	1	0.16	4.453	15	PASS	0.11	124.388	15	<PQL
CCV4	CCV	1	19.25	0.547	15	PASS	20.54	1.181	15	PASS
CCB4	CCB	1	0.17	21.164	15	NR!	0.07	173.205	15	<PQL
ICSA2	ICSA	1	0.13	33.543	15	NR!	0.05	173.205	15	<PQL
ICSAB2	ICSAB	1	20.47	3.841	15	PASS	21.65	10.646	15	PASS
MB-75562	MBLK	1	0.22	30.112	15	NR!	0.06	173.205	15	<PQL
LCS-75562	LCS	1	10.25	2.759	15	PASS	10.36	11.924	15	PASS
N037709-001B	SAMP	1	1.73	1.103	15	PASS	6.31	9.225	15	PASS
N037709-001B	SAMP	5	0.41	13.123	15	PASS	1.13	33.392	15	NR!
N037709-001B	SAMP	25	0.2	26.678	15	NR!	0.45	65.129	15	<PQL
N037709-001B-PS	PS	1	11.95	2.973	15	PASS	17.2	11.524	15	PASS
N037709-001B-PS	PS	5	2.65	5.657	15	PASS	4.07	20.255	15	NR!
N037709-001B-MS	MS	1	11.58	0.46	15	PASS	18.64	9.945	15	PASS
N037709-001B-MS	MS	5	2.42	9.09	15	PASS	3.33	11.753	15	PASS
N037709-001B-MSD	MSD	1	11.83	0.967	15	PASS	17.91	6.604	15	PASS
CCV5	CCV	1	19.42	2.898	15	PASS	20.61	3.415	15	PASS
CCB5	CCB	1	0.15	14.035	15	PASS	0.07	173.205	15	<PQL
N037709-001B-MSD	MSD	5	2.51	6.863	15	PASS	3.26	35.543	15	NR!
N037709-002B	SAMP	1	2.08	8.674	15	PASS	7.29	11.729	15	PASS
N037709-002B	SAMP	5	0.52	14.452	15	PASS	1.34	32.421	15	NR!
N037709-003B	SAMP	1	1.35	6.407	15	PASS	5.68	13.023	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	0.36	7.37	15	PASS	0.5	12.561	15	PASS
N037723-001B	SAMP	1	5.94	0.297	15	PASS	0.23	42.143	15	<PQL
N037723-001B	SAMP	5	1.29	5.925	15	PASS	0.05	86.64	15	<PQL
N037723-002B	SAMP	1	2.3	3.47	15	PASS	0.82	34.684	15	NR!
N037723-002B	SAMP	5	0.62	9.187	15	PASS	0.17	79.082	15	<PQL
N037723-003B	SAMP	1	2.01	8.478	15	PASS	0.24	123.345	15	<PQL
CCV6	CCV	1	19.5	1.719	15	PASS	19.09	6.891	15	PASS
CCB6	CCB	1	0.17	25.954	15	NR!	0.02	173.205	15	<PQL
N037723-003B	SAMP	5	0.55	6.822	15	PASS	0.07	173.205	15	<PQL
N037723-004B	SAMP	1	1.79	10.416	15	PASS	4.03	11.442	15	PASS
N037723-004B	SAMP	5	0.53	10.744	15	PASS	0.97	35.45	15	NR!
N037735-001B	SAMP	1	1.65	6.089	15	PASS	0.18	89.268	15	<PQL
N037735-001B	SAMP	5	0.42	1.276	15	PASS	0.1	173.205	15	<PQL
N037756-001B	SAMP	1	1.57	5.147	15	PASS	1.83	19.789	15	NR!
N037756-001B	SAMP	5	0.51	22.052	15	NR!	0.41	56.18	15	<PQL
CCV7	CCV	1	18.98	0.431	15	PASS	20.25	3.231	15	PASS
CCB7	CCB	1	0.16	6.228	15	PASS	0.05	173.205	15	<PQL
ICSA3	ICSA	1	0.17	18.129	15	NR!	0.08	100.155	15	<PQL
ICSAB3	ICSAB	1	20.31	2.751	15	PASS	20.06	7.089	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.09	37.211	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.53	0.662	15	PASS
Std3-5/50 ppb	ICAL	1	4.84	2.476	15	PASS
Std4-10/100 ppb	ICAL	1	9.86	2.463	15	PASS
Std5-20/200 ppb	ICAL	1	19.84	1.787	15	PASS
Std6-40/400 ppb	ICAL	1	39.86	1.266	15	PASS
Std7-100/1000 ppb	ICAL	1	99.73	1.302	15	PASS
Std8-200/2000 ppb	ICAL	1	200.19	0.382	15	PASS
ICV	ICV	1	10.42	1.091	15	PASS
ICB	ICB	1	0.1	7.117	15	PASS
LLICV	CCV1	1	0.54	4.565	20	PASS
ICSA1	ICSA	1	0.05	33.66	15	<PQL
ICSAB1	ICSAB	1	22.49	0.623	15	PASS
LLICV	CCV1	1	0.67	5.167	20	PASS
CCV1	CCV	1	20.41	1.369	15	PASS
CCB1	CCB	1	0.21	15.253	15	<PQL
CCV2	CCV	1	19.93	1.767	15	PASS
CCB2	CCB	1	0.13	8.186	15	PASS
CCV3	CCV	1	20.1	0.705	15	PASS
CCB3	CCB	1	0.13	10.405	15	PASS
CCV4	CCV	1	20.41	0.803	15	PASS
CCB4	CCB	1	0.18	16.908	15	<PQL
ICSA2	ICSA	1	0.09	17.449	15	<PQL
ICSAB2	ICSAB	1	22.43	1.022	15	PASS
MB-75562	MBLK	1	0.18	32.952	15	<PQL
LCS-75562	LCS	1	10.52	2.311	15	PASS
N037709-001B	SAMP	1	4.82	3.866	15	PASS
N037709-001B	SAMP	5	0.96	6.914	15	PASS
N037709-001B	SAMP	25	0.18	13.463	15	PASS
N037709-001B-PS	PS	1	15.89	0.718	15	PASS
N037709-001B-PS	PS	5	3.2	0.804	15	PASS
N037709-001B-MS	MS	1	15.74	0.725	15	PASS
N037709-001B-MS	MS	5	3.17	4.543	15	PASS
N037709-001B-MSD	MSD	1	15.73	1.325	15	PASS
CCV5	CCV	1	20.11	1.184	15	PASS
CCB5	CCB	1	0.19	21.835	15	<PQL
N037709-001B-MSD	MSD	5	3.11	2.021	15	PASS
N037709-002B	SAMP	1	18.18	0.88	15	PASS
N037709-002B	SAMP	5	3.67	1.86	15	PASS
N037709-003B	SAMP	1	5.29	2.621	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	1.04	1.368	15	PASS
N037723-001B	SAMP	1	88.7	0.636	15	PASS
N037723-001B	SAMP	5	18.03	1.437	15	PASS
N037723-002B	SAMP	1	190.44	0.847	15	PASS
N037723-002B	SAMP	5	38.11	2.007	15	PASS
N037723-003B	SAMP	1	59.88	0.834	15	PASS
CCV6	CCV	1	20.36	0.34	15	PASS
CCB6	CCB	1	0.25	12.337	15	PASS
N037723-003B	SAMP	5	11.7	1.569	15	PASS
N037723-004B	SAMP	1	13.9	1.224	15	PASS
N037723-004B	SAMP	5	2.9	1.043	15	PASS
N037735-001B	SAMP	1	13.08	2.222	15	PASS
N037735-001B	SAMP	5	2.79	6.932	15	PASS
N037756-001B	SAMP	1	11.29	4.856	15	PASS
N037756-001B	SAMP	5	2.32	3.131	15	PASS
CCV7	CCV	1	20.31	1.488	15	PASS
CCB7	CCB	1	0.16	6.193	15	PASS
ICSA3	ICSA	1	0.06	30.515	15	<PQL
ICSAB3	ICSAB	1	22.48	0.483	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	31.346	15	NR!	0.13	83.678	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.54	11.73	15	PASS	0.57	9.679	15	PASS
Std3-5/50 ppb	ICAL	1	5.02	2.171	15	PASS	4.53	13.876	15	PASS
Std4-10/100 ppb	ICAL	1	10.12	1.283	15	PASS	9.18	6.15	15	PASS
Std5-20/200 ppb	ICAL	1	20.34	1.971	15	PASS	20.58	1.035	15	PASS
Std6-40/400 ppb	ICAL	1	40.28	1.731	15	PASS	40.23	3.778	15	PASS
Std7-100/1000 ppb	ICAL	1	100.73	2.122	15	PASS	100.07	2.928	15	PASS
Std8-200/2000 ppb	ICAL	1	199.54	0.931	15	PASS	199.92	3.297	15	PASS
ICV	ICV	1	10.5	1.423	15	PASS	10.75	4	15	PASS
ICB	ICB	1	0.02	160.433	15	<PQL	0.09	86.586	15	<PQL
LLICV	CCV1	1	0.14	8.171	20	PASS	0.5	4.64	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0	1761.856	15	<PQL
ICSAB1	ICSAB	1	21.12	2.575	15	PASS	20.99	12.989	15	PASS
LLICV	CCV1	1	0.11	48.731	20	FAIL ~~NR!~~	0.47	56.07	20	<PQL
MB-75562	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-75562	LCS	1	10.45	3.603	15	PASS	9.24	5.38	15	PASS
CCV1	CCV	1	20.85	0.622	15	PASS	19.95	5.339	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037709-001B	SAMP	1	1.72	0.289	15	PASS	5.8	11.169	15	PASS
N037709-001B	SAMP	5	0.32	10.59	15	PASS	1.45	34.126	15	NR!
N037709-001B-PS	PS	1	12.21	1.121	15	PASS	14.51	2.816	15	PASS
N037709-001B-MS	MS	1	12.22	1.827	15	PASS	16.38	5.93	15	PASS
N037709-001B-MSD	MSD	1	12.65	2.788	15	PASS	14.88	10.613	15	PASS
N037709-002B	SAMP	1	2.12	3.574	15	PASS	6.3	4.605	15	PASS
N037709-003B	SAMP	1	1.29	6.019	15	PASS	4.67	6.496	15	PASS
N037723-001B	SAMP	1	6.37	3.828	15	PASS	0.03	162.943	15	<PQL
N037723-002B	SAMP	1	2.66	4.929	15	PASS	0.59	20.937	15	NR!
N037723-003B	SAMP	1	2.03	5.39	15	PASS	0.08	92.737	15	<PQL
CCV2	CCV	1	20.65	1.984	15	PASS	18.69	5.775	15	PASS
CCB2	CCB	1	0.01	607.855	15	<PQL	0.04	228.247	15	<PQL
MB-75562	MBLK	1	0.01	82.45	15	<PQL	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	1.75	5.208	15	PASS	4.16	4.989	15	PASS
N037756-001B	SAMP	1	1.46	0.611	15	PASS	1.93	26.531	15	NR!
N037723-002B	SAMP	1	2.44	4.152	15	PASS	0.8	22.383	15	NR!
N037756-001B	SAMP	1	1.53	4.092	15	PASS	2.32	4.505	15	PASS
CCV3	CCV	1	20.55	0.558	15	PASS	20.33	1.894	15	PASS
CCB3	CCB	1	0	1100.217	15	<PQL	0.07	95.604	15	<PQL
N037723-002B	SAMP	1	2.23	3.345	15	PASS	0.6	62.84	15	NR!
N037723-002B	SAMP	1	2.26	3.234	15	PASS	0.61	18.768	15	NR!
N037723-002B	SAMP	1	2.33	7.596	15	PASS	0.56	20.1	15	NR!

JRB 10/20/2019

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037723-002B	SAMP	1	2.1	3.123	15	PASS	0.45	17.788	15	<PQL
N037723-002B	SAMP	1	2.3	7.287	15	PASS	0.41	35.208	15	<PQL
CCV4	CCV	1	20.73	0.336	15	PASS	18.81	6.142	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.38	3.206	15	PASS	20.41	1.945	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011001.D	RINSE	RINSE	1	10/11/19 4:22 PM
B1011002.D	Cal Blank	IBLK	1	10/11/19 4:26 PM
B1011003.D	Std1-0.1/1 ppb	ICAL	1	10/11/19 4:31 PM
B1011004.D	Std2-0.5/5 ppb	ICAL	1	10/11/19 4:36 PM
B1011005.D	Std3-5/50 ppb	ICAL	1	10/11/19 4:41 PM
B1011006.D	Std4-10/100 ppb	ICAL	1	10/11/19 4:46 PM
B1011007.D	Std5-20/200 ppb	ICAL	1	10/11/19 4:51 PM
B1011008.D	Std6-40/400 ppb	ICAL	1	10/11/19 4:55 PM
B1011009.D	Std7-100/1000 ppb	ICAL	1	10/11/19 5:00 PM
B1011010.D	Std8-200/2000 ppb	ICAL	1	10/11/19 5:05 PM
B1011011.D	ICV	ICV	1	10/11/19 5:11 PM
B1011012.D	ICB	ICB	1	10/11/19 5:16 PM
B1011013.D	LLICV	CCV1	1	10/11/19 5:20 PM
B1011014.D	ICSA1	ICSA	1	10/11/19 5:25 PM
B1011015.D	ICSAB1	ICSAB	1	10/11/19 5:30 PM
B1011016.D	LLICV	CCV1	1	10/11/19 5:35 PM
B1011017.D	MB-75625	MBLK	1	10/11/19 5:39 PM
B1011018.D	LCS-75625	LCS	1	10/11/19 5:44 PM
B1011019.D	N037828-001A	SAMP	1	10/11/19 5:48 PM
B1011020.D	N037828-001A	SAMP	5	10/11/19 5:54 PM
B1011021.D	N037828-001A	SAMP	25	10/11/19 5:59 PM
B1011022.D	N037828-001A-PS	PS	1	10/11/19 6:04 PM
B1011023.D	N037828-001A-PS	PS	5	10/11/19 6:09 PM
B1011024.D	N037828-001A-MS	MS	1	10/11/19 6:14 PM
B1011025.D	N037828-001A-MS	MS	5	10/11/19 6:19 PM
B1011026.D	N037828-001A-MSD	MSD	1	10/11/19 6:25 PM
B1011027.D	CCV1	CCV	1	10/11/19 6:30 PM
B1011028.D	CCB1	CCB	1	10/11/19 6:34 PM
B1011029.D	N037828-001A-MSD	MSD	5	10/11/19 6:39 PM
B1011030.D	N037828-002A	SAMP	1	10/11/19 6:44 PM
B1011031.D	N037828-002A	SAMP	5	10/11/19 6:49 PM
B1011032.D	MB-75605	MBLK	1	10/11/19 6:54 PM
B1011033.D	LCS-75605	LCS	1	10/11/19 6:58 PM
B1011034.D	N037801-001B	SAMP	1	10/11/19 7:03 PM
B1011035.D	N037801-002B	SAMP	1	10/11/19 7:08 PM
B1011036.D	N037801-003B	SAMP	1	10/11/19 7:12 PM
B1011037.D	N037801-004B	SAMP	1	10/11/19 7:17 PM
B1011038.D	N037801-004B	SAMP	5	10/11/19 7:22 PM
B1011039.D	CCV2	CCV	1	10/11/19 7:27 PM
B1011040.D	CCB2	CCB	1	10/11/19 7:32 PM
B1011041.D	N037801-004B-PS	PS	1	10/11/19 7:36 PM
B1011042.D	N037801-004B-MS	MS	1	10/11/19 7:41 PM

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011043.D	N037801-004B-MSD	MSD	1	10/11/19 7:46 PM
B1011044.D	N037801-005B	SAMP	1	10/11/19 7:50 PM
B1011045.D	N037801-006B	SAMP	1	10/11/19 7:55 PM
B1011046.D	N037801-007B	SAMP	1	10/11/19 8:01 PM
B1011047.D	N037813-001B	SAMP	1	10/11/19 8:06 PM
B1011048.D	N037813-002B	SAMP	1	10/11/19 8:11 PM
B1011049.D	N037813-003B	SAMP	1	10/11/19 8:16 PM
B1011050.D	N037813-004B	SAMP	1	10/11/19 8:21 PM
B1011051.D	CCV3	CCV	1	10/11/19 8:26 PM
B1011052.D	CCB3	CCB	1	10/11/19 8:31 PM
B1011053.D	N037813-005B	SAMP	1	10/11/19 8:36 PM
B1011054.D	N037813-006B	SAMP	1	10/11/19 8:41 PM
B1011055.D	N037813-007B	SAMP	1	10/11/19 8:46 PM
B1011056.D	N037813-008B	SAMP	1	10/11/19 8:50 PM
B1011057.D	N037813-009B	SAMP	1	10/11/19 8:56 PM
B1011058.D	N037813-009B	SAMP	5	10/11/19 9:01 PM
B1011059.D	N037813-009B-PS	PS	1	10/11/19 9:06 PM
B1011060.D	N037813-009B-MS	MS	1	10/11/19 9:11 PM
B1011061.D	N037813-009B-MSD	MSD	1	10/11/19 9:16 PM
B1011062.D	N037813-010B	SAMP	1	10/11/19 9:21 PM
B1011063.D	CCV4	CCV	1	10/11/19 9:26 PM
B1011064.D	CCB4	CCB	1	10/11/19 9:31 PM
B1011065.D	ICSA2	ICSA	1	10/11/19 9:35 PM
B1011066.D	ICSAB2	ICSAB	1	10/11/19 9:40 PM
B1011067.D	MB-75562	MBLK	1	10/11/19 9:45 PM
B1011068.D	LCS-75562	LCS	1	10/11/19 9:49 PM
B1011069.D	N037709-001B	SAMP	1	10/11/19 9:54 PM
B1011070.D	N037709-001B	SAMP	5	10/11/19 9:59 PM
B1011071.D	N037709-001B	SAMP	25	10/11/19 10:04 PM
B1011072.D	N037709-001B-PS	PS	1	10/11/19 10:09 PM
B1011073.D	N037709-001B-PS	PS	5	10/11/19 10:14 PM
B1011074.D	N037709-001B-MS	MS	1	10/11/19 10:19 PM
B1011075.D	N037709-001B-MS	MS	5	10/11/19 10:24 PM
B1011076.D	N037709-001B-MSD	MSD	1	10/11/19 10:29 PM
B1011077.D	CCV5	CCV	1	10/11/19 10:34 PM
B1011078.D	CCB5	CCB	1	10/11/19 10:39 PM
B1011079.D	N037709-001B-MSD	MSD	5	10/11/19 10:43 PM
B1011080.D	N037709-002B	SAMP	1	10/11/19 10:48 PM
B1011081.D	N037709-002B	SAMP	5	10/11/19 10:53 PM
B1011082.D	N037709-003B	SAMP	1	10/11/19 10:58 PM
B1011083.D	N037709-003B	SAMP	5	10/11/19 11:03 PM
B1011084.D	N037723-001B	SAMP	1	10/11/19 11:07 PM

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011085.D	N037723-001B	SAMP	5	10/11/19 11:12 PM
B1011086.D	N037723-002B	SAMP	1	10/11/19 11:17 PM
B1011087.D	N037723-002B	SAMP	5	10/11/19 11:22 PM
B1011088.D	N037723-003B	SAMP	1	10/11/19 11:28 PM
B1011089.D	CCV6	CCV	1	10/11/19 11:33 PM
B1011090.D	CCB6	CCB	1	10/11/19 11:37 PM
B1011091.D	N037723-003B	SAMP	5	10/11/19 11:42 PM
B1011092.D	N037723-004B	SAMP	1	10/11/19 11:47 PM
B1011093.D	N037723-004B	SAMP	5	10/11/19 11:52 PM
B1011094.D	N037735-001B	SAMP	1	10/11/19 11:57 PM
B1011095.D	N037735-001B	SAMP	5	10/12/19 12:02 AM
B1011096.D	N037756-001B	SAMP	1	10/12/19 12:07 AM
B1011097.D	N037756-001B	SAMP	5	10/12/19 12:12 AM
B1011098.D	CCV7	CCV	1	10/12/19 12:17 AM
B1011099.D	CCB7	CCB	1	10/12/19 12:22 AM
B1011100.D	ICSA3	ICSA	1	10/12/19 12:26 AM
B1011101.D	ICSAB3	ICSAB	1	10/12/19 12:31 AM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014001.D	RINSE	RINSE	1	10/14/19 12:32 PM
B1014002.D	Cal Blank	IBLK	1	10/14/19 12:37 PM
B1014003.D	Std1-0.1/1 ppb	ICAL	1	10/14/19 12:42 PM
B1014004.D	Std2-0.5/5 ppb	ICAL	1	10/14/19 12:49 PM
B1014005.D	Std3-5/50 ppb	ICAL	1	10/14/19 12:54 PM
B1014006.D	Std4-10/100 ppb	ICAL	1	10/14/19 12:59 PM
B1014007.D	Std5-20/200 ppb	ICAL	1	10/14/19 1:04 PM
B1014008.D	Std6-40/400 ppb	ICAL	1	10/14/19 1:09 PM
B1014009.D	Std7-100/1000 ppb	ICAL	1	10/14/19 1:14 PM
B1014010.D	Std8-200/2000 ppb	ICAL	1	10/14/19 1:20 PM
B1014011.D	ICV	ICV	1	10/14/19 1:25 PM
B1014012.D	ICB	ICB	1	10/14/19 1:29 PM
B1014013.D	LLICV	CCV1	1	10/14/19 1:34 PM
B1014014.D	ICSA1	ICSA	1	10/14/19 1:39 PM
B1014015.D	ICSAB1	ICSAB	1	10/14/19 1:44 PM
B1014016.D	LLICV	CCV1	1	10/14/19 1:59 PM
B1014017.D	MB-75625	MBLK	1	10/14/19 2:04 PM
B1014018.D	LCS-75625	LCS	1	10/14/19 2:08 PM
B1014019.D	N037828-001A	SAMP	1	10/14/19 2:13 PM
B1014020.D	N037828-001A	SAMP	5	10/14/19 2:18 PM
B1014021.D	N037828-001A-PS	PS	1	10/14/19 2:23 PM
B1014022.D	N037828-001A-MS	MS	1	10/14/19 2:28 PM
B1014023.D	N037828-001A-MSD	MSD	1	10/14/19 2:33 PM
B1014024.D	N037828-002A	SAMP	1	10/14/19 2:39 PM
B1014025.D	MB-75562	MBLK	1	10/14/19 2:44 PM
B1014026.D	LCS-75562	LCS	1	10/14/19 2:49 PM
B1014027.D	CCV1	CCV	1	10/14/19 2:54 PM
B1014028.D	CCB1	CCB	1	10/14/19 2:59 PM
B1014029.D	N037709-001B	SAMP	1	10/14/19 3:04 PM
B1014030.D	N037709-001B	SAMP	5	10/14/19 3:09 PM
B1014031.D	N037709-001B-PS	PS	1	10/14/19 3:14 PM
B1014032.D	N037709-001B-MS	MS	1	10/14/19 3:19 PM
B1014033.D	N037709-001B-MSD	MSD	1	10/14/19 3:24 PM
B1014034.D	N037709-002B	SAMP	1	10/14/19 3:29 PM
B1014035.D	N037709-003B	SAMP	1	10/14/19 3:34 PM
B1014036.D	N037723-001B	SAMP	1	10/14/19 3:39 PM
B1014037.D	N037723-002B	SAMP	1	10/14/19 3:45 PM
B1014038.D	N037723-003B	SAMP	1	10/14/19 3:50 PM
B1014039.D	CCV2	CCV	1	10/14/19 3:55 PM
B1014040.D	CCB2	CCB	1	10/14/19 4:00 PM
B1014041.D	MB-75562	MBLK	1	10/14/19 4:05 PM
B1014042.D	N037723-004B	SAMP	1	10/14/19 4:10 PM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014043.D	N037756-001B	SAMP	1	10/14/19 4:16 PM
B1014044.D	N037828-002A	SAMP	1	10/14/19 4:21 PM
B1014045.D	N037723-002B	SAMP	1	10/14/19 4:26 PM
B1014046.D	N037756-001B	SAMP	1	10/14/19 4:31 PM
B1014047.D	N037828-002A	SAMP	1	10/14/19 4:36 PM
B1014048.D	N037666-003B	SAMP	1	10/14/19 4:41 PM
B1014049.D	N037666-006B	SAMP	1	10/14/19 4:46 PM
B1014050.D	N037666-007B	SAMP	1	10/14/19 4:51 PM
B1014051.D	CCV3	CCV	1	10/14/19 4:57 PM
B1014052.D	CCB3	CCB	1	10/14/19 5:02 PM
B1014053.D	N037828-002A	SAMP	1	10/14/19 5:06 PM
B1014054.D	N037723-002B	SAMP	1	10/14/19 5:12 PM
B1014055.D	N037666-006B	SAMP	1	10/14/19 5:17 PM
B1014056.D	N037828-002A	SAMP	1	10/14/19 5:22 PM
B1014057.D	N037723-002B	SAMP	1	10/14/19 5:27 PM
B1014058.D	N037723-002B	SAMP	1	10/14/19 5:32 PM
B1014059.D	N037723-002B	SAMP	1	10/14/19 5:37 PM
B1014060.D	N037723-002B	SAMP	1	10/14/19 5:43 PM
B1014061.D	CCV4	CCV	1	10/14/19 5:48 PM
B1014062.D	CCB4	CCB	1	10/14/19 5:53 PM
B1014063.D	ICSA2	ICSA	1	10/14/19 5:58 PM
B1014064.D	ICSAB2	ICSAB	1	10/14/19 6:03 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/7/2019 8:31:50 A**
Prep End Date: **10/7/2019 12:45:00**
Prep Batch **75562** Prep Code: **3010_W_MSDI**

Reviewed/ Date: JRB 10/20/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.0**	**02-2**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75562	Aqueous		25	☐	25	1.000		
MB-75562	Aqueous		25	☐	25	1.000		
N037709-001B	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-002B	Groundwater	<2	25	☐	25	1.000		
N037709-003B	Groundwater	<2	25	☐	25	1.000		
N037723-001B	Groundwater	<2	25	☐	25	1.000		
N037723-002B	Groundwater	<2	25	☐	25	1.000		
N037723-003B	Groundwater	<2	25	☐	25	1.000		
N037723-004B	Groundwater	<2	25	☐	25	1.000		
N037735-001B	Groundwater	<2	25	☐	25	1.000		
N037756-001B	Groundwater	<2	25	☐	25	1.000		

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

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2019 02:38:43 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	96050.50	0.00	
24 Mg	212058.00	0.00	
25 Mg	27559.70	0.00	
26 Mg	32141.80	0.00	
59 Co	186908.00	0.00	
115 In	253394.00	0.00	
206 Pb	84354.30	0.00	
207 Pb	74840.20	0.00	
208 Pb	182447.00	0.00	

RSD (%)

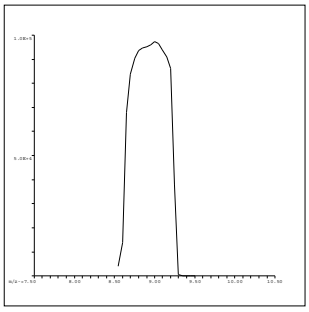
Element	Actual	Required	Flag
9 Be	0.84	5.00	
24 Mg	0.54	5.00	
25 Mg	1.61	5.00	
26 Mg	1.77	5.00	
59 Co	1.27	5.00	
115 In	0.69	5.00	
206 Pb	0.89	5.00	
207 Pb	0.47	5.00	
208 Pb	0.82	5.00	

Ion Ratio

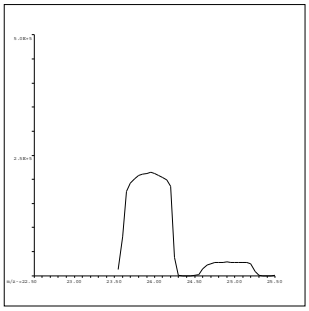
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

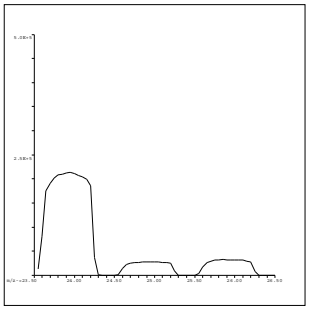
Element	Actual	Required	Flag



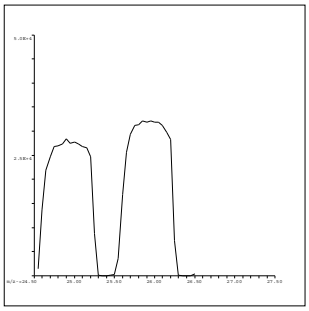
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



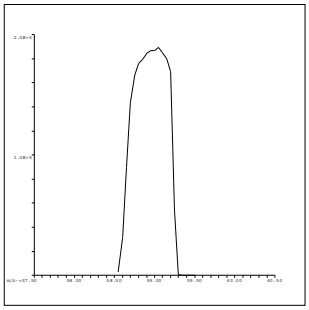
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



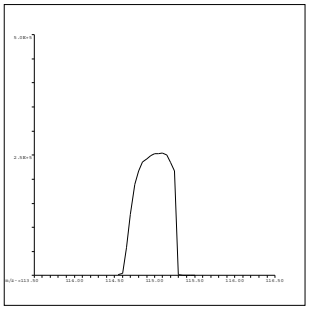
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



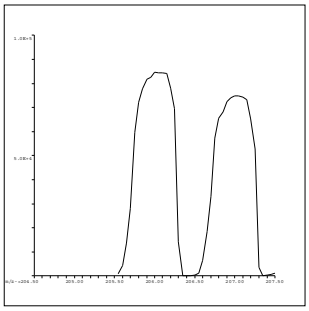
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



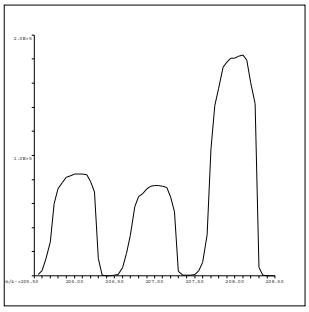
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



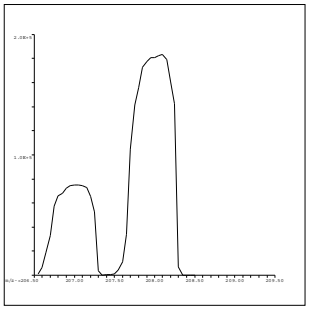
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Oct 2019 08:29:10 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	72409.90	0.00	
24 Mg	265407.00	0.00	
25 Mg	34485.40	0.00	
26 Mg	39923.50	0.00	
59 Co	229056.00	0.00	
115 In	366181.00	0.00	
206 Pb	109296.00	0.00	
207 Pb	96870.30	0.00	
208 Pb	236666.00	0.00	

RSD (%)

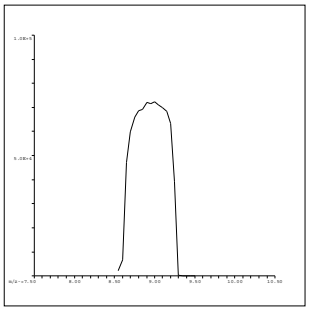
Element	Actual	Required	Flag
9 Be	0.81	5.00	
24 Mg	1.53	5.00	
25 Mg	2.48	5.00	
26 Mg	0.72	5.00	
59 Co	0.96	5.00	
115 In	0.58	5.00	
206 Pb	0.84	5.00	
207 Pb	0.59	5.00	
208 Pb	0.62	5.00	

Ion Ratio

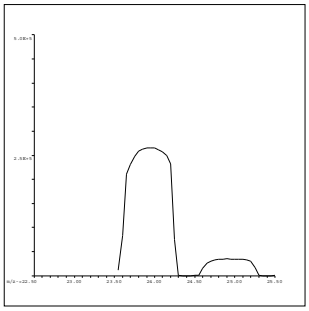
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

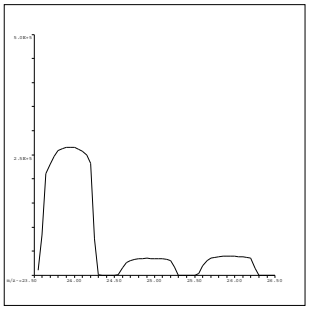
Element	Actual	Required	Flag



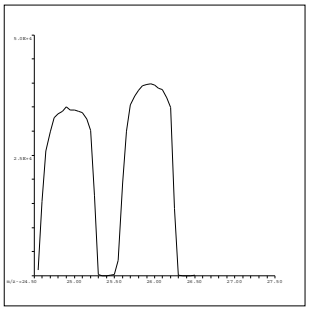
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



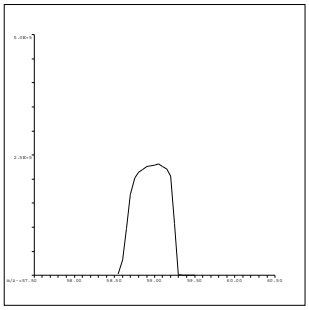
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



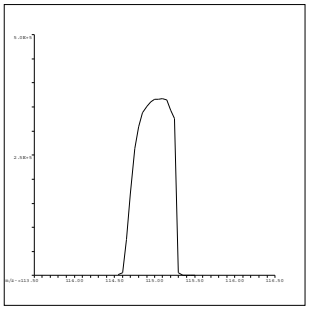
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



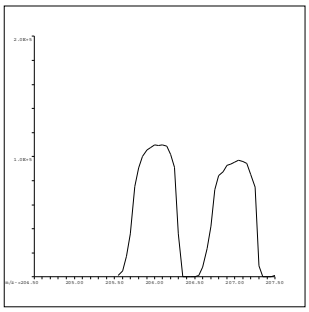
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



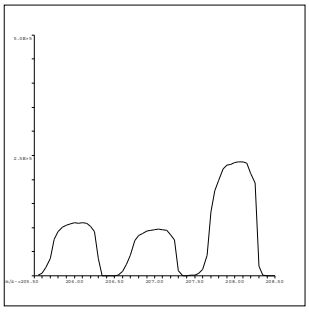
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



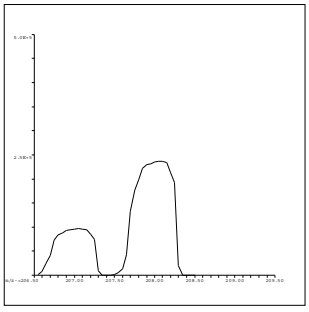
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191011B

Instrument ID: ICPMS-02

Analyte	Data File	B1011002.D	B1011003.D	B1011004.D	B1011005.D	B1011006.D	B1011007.D	B1011008.D	B1011009.D	B1011010.D	
	Acq. Date-Time	10/11/2019 04:26 PM	10/11/2019 04:31 PM	10/11/2019 04:36 PM	10/11/2019 04:41 PM	10/11/2019 04:46 PM	10/11/2019 04:51 PM	10/11/2019 04:55 PM	10/11/2019 05:00 PM	10/11/2019 05:05 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	47299.4		47746.1	48066	48900.7	48837.3	48629.8	48604	48951.9	
55 Mn [2]	CPS	38.4		798.5	7840.1	16113.2	31685	63847.8	158536.8	314555.4	1.0000
52 Cr [2]	CPS	415.5		1921.2	15615.2	30896.9	60882.5	121055.3	297755.9	593695.9	1.0000
72 Ge (ISTD) [1]	CPS	13284.9		13489.4	14012.1	14026.6	13638.5	13852	13772	13923.2	
78 Se [1]	CPS	0		16.7	242.2	457.8	990.1	1989.1	4725.4	9675.5	0.9999
72 Ge (ISTD) [2]	CPS	22263.8	22784.5	23120.5	23241.9	23081.8	22937	23148.3	23011.5	23011.6	
75 As [2]	CPS	46.7	81.3	221.3	1829.5	3750.7	7204.3	14552.4	35845.5	71869.1	1.0000
103 Rh (ISTD) [2]	CPS	528382.5		534713.4	536738.7	539558	536487.9	540658.8	536347.1	534410	
95 Mo [2]	CPS	27.8		736.7	6571.6	13439.5	26853.4	54337.6	134826.6	269609.7	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 191014B

Instrument ID: ICPMS-02

Analyte	Data File	B1014002.D	B1014003.D	B1014004.D	B1014005.D	B1014006.D	B1014007.D	B1014008.D	B1014009.D	B1014010.D	
	Acq. Date-Time	10/14/2019 12:37 PM	10/14/2019 12:42 PM	10/14/2019 12:49 PM	10/14/2019 12:54 PM	10/14/2019 12:59 PM	10/14/2019 01:04 PM	10/14/2019 01:09 PM	10/14/2019 01:14 PM	10/14/2019 01:20 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	20186.6		20431.4	19781.7	19693.8	19282.2	18764.9	19045.2	18984	
78 Se [1]	CPS	2.2		44.4	326.7	657.8	1441.2	2739.2	6914	13762	1.0000
72 Ge (ISTD) [2]	CPS	34779.3	34644.6	35180.2	34833.9	33890.8	34126.9	34050	33880.6	33819.5	
75 As [2]	CPS	91.6	147.6	380	2734.9	5272.9	10581.8	20813.8	51657.9	102069.5	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	108.438	0.50	100.0	0	108	90	110				
Molybdenum	10.416	0.50	10.00	0	104	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ZZZZZZ** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.564	0.50	0.5000	0	113	80	120				
Molybdenum	0.537	0.50	0.5000	0	107	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.500	0.50	20.00	0	102	90	110				
Molybdenum	20.415	0.50	20.00	0	102	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.968	0.50	20.00	0	99.8	90	110				
Molybdenum	19.933	0.50	20.00	0	99.7	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.524	0.50	20.00	0	103	90	110				
Molybdenum	20.104	0.50	20.00	0	101	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.350	0.50	20.00	0	102	90	110				
Molybdenum	20.414	0.50	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.285	0.50	20.00	0	101	90	110				
Molybdenum	20.112	0.50	20.00	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.299	0.50	20.00	0	101	90	110				
Molybdenum	20.361	0.50	20.00	0	102	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.348	0.50	20.00	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	20.313	0.50	20.00	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.501	0.10	10.00	0	105	90	110				
Selenium	10.752	0.50	10.00	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535805**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.500	0.50	0.5000	0	100	80	120				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.107	0.10	0.1000	0	107	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.851	0.10	20.00	0	104	90	110				
Selenium	19.953	0.50	20.00	0	99.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.650	0.10	20.00	0	103	90	110				
Selenium	18.686	0.50	20.00	0	93.4	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.546	0.10	20.00	0	103	90	110				
Selenium	20.327	0.50	20.00	0	102	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.726	0.10	20.00	0	104	90	110				
Selenium	18.811	0.50	20.00	0	94.1	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.949	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.101	1.0	1.000	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.605	1.0	20.00	0	98.0	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.091	1.0	20.00	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.737	1.0	20.00	0	98.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.912	1.0	20.00	0	99.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.287	1.0	20.00	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.152	1.0	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.525	1.0	20.00	0	103	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533763**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533779**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533791**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533803**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533815**

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

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533829**

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

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.249	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533850**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535854**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533672**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533688**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533700**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533712**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533724**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533738**

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

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533750**

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

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533759**

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

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSA** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533765**

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

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSAB** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.465	0.50	20.00	0	97.3	80	120				
Molybdenum	22.485	0.50	20.00	0	112	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSA** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533816**

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

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSAB** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.321	0.50	20.00	0	96.6	80	120				
Molybdenum	22.433	0.50	20.00	0	112	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSA** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/12/2019** SeqNo: **3533851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533851**

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

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.222	0.50	20.00	0	96.1	80	120				
Molybdenum	22.480	0.50	20.00	0	112	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSAB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.118	0.10	20.00	0	106	80	120				
Selenium	20.986	0.50	20.00	0	105	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSAB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.376	0.10	20.00	0	107	80	120				
Selenium	20.408	0.50	20.00	0	102	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533674**

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

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.289	1.0	20.00	0	101	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533725**

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

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.665	1.0	20.00	0	103	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533760**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.918	1.0	20.00	0	105	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	47299.4	47299.4	100	PASS	70-125	22263.8	22263.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	47669.4	47299.4	100.78	PASS	70-125	22784.5	22263.8	102.34	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	47746.1	47299.4	100.94	PASS	70-125	23120.5	22263.8	103.85	PASS	70-125
Std3-5/50 ppb	ICAL	1	48066	47299.4	101.62	PASS	70-125	23241.9	22263.8	104.39	PASS	70-125
Std4-10/100 ppb	ICAL	1	48900.7	47299.4	103.39	PASS	70-125	23081.8	22263.8	103.67	PASS	70-125
Std5-20/200 ppb	ICAL	1	48837.3	47299.4	103.25	PASS	70-125	22937	22263.8	103.02	PASS	70-125
Std6-40/400 ppb	ICAL	1	48629.8	47299.4	102.81	PASS	70-125	23148.3	22263.8	103.97	PASS	70-125
Std7-100/1000 ppb	ICAL	1	48604	47299.4	102.76	PASS	70-125	23011.5	22263.8	103.36	PASS	70-125
Std8-200/2000 ppb	ICAL	1	48951.9	47299.4	103.49	PASS	70-125	23011.6	22263.8	103.36	PASS	70-125
ICV	ICV	1	43981.5	47299.4	92.99	PASS	70-125	21139	22263.8	94.95	PASS	70-125
ICB	ICB	1	47435.3	47299.4	100.29	PASS	70-125	22338.3	22263.8	100.33	PASS	70-125
LLICV	CCV1	1	47112.2	47299.4	99.6	PASS	70-125	22606.4	22263.8	101.54	PASS	70-125
ICSA1	ICSA	1	50400.7	47299.4	106.56	PASS	70-125	23733.6	22263.8	106.6	PASS	70-125
ICSAB1	ICSAB	1	53205.1	47299.4	112.49	PASS	70-125	24810.9	22263.8	111.44	PASS	70-125
LLICV	CCV1	1	55627.5	47299.4	117.61	PASS	70-125	26623.8	22263.8	119.58	PASS	70-125
CCV1	CCV	1	54353.2	47299.4	114.91	PASS	70-125	25932.7	22263.8	116.48	PASS	70-125
CCB1	CCB	1	51230	47299.4	108.31	PASS	70-125	24536	22263.8	110.21	PASS	70-125
CCV2	CCV	1	52371.2	47299.4	110.72	PASS	70-125	25248.2	22263.8	113.4	PASS	70-125
CCB2	CCB	1	49797.7	47299.4	105.28	PASS	70-125	24697.3	22263.8	110.93	PASS	70-125
CCV3	CCV	1	52674.6	47299.4	111.36	PASS	70-125	25807.9	22263.8	115.92	PASS	70-125
CCB3	CCB	1	50310.3	47299.4	106.37	PASS	70-125	25172.5	22263.8	113.07	PASS	70-125
CCV4	CCV	1	51338.3	47299.4	108.54	PASS	70-125	25919.3	22263.8	116.42	PASS	70-125
CCB4	CCB	1	48825.9	47299.4	103.23	PASS	70-125	24625	22263.8	110.61	PASS	70-125
ICSA2	ICSA	1	48307.8	47299.4	102.13	PASS	70-125	23881.7	22263.8	107.27	PASS	70-125
ICSAB2	ICSAB	1	49450	47299.4	104.55	PASS	70-125	24938.8	22263.8	112.02	PASS	70-125
MB-75562	MBLK	1	52845.9	47299.4	111.73	PASS	70-125	26573.7	22263.8	119.36	PASS	70-125
LCS-75562	LCS	1	50494.4	47299.4	106.75	PASS	70-125	25963.8	22263.8	116.62	PASS	70-125
N037709-001B	SAMP	1	44847.2	47299.4	94.82	PASS	70-125	22895.8	22263.8	102.84	PASS	70-125
N037709-001B	SAMP	5	48828.1	47299.4	103.23	PASS	70-125	24806.5	22263.8	111.42	PASS	70-125
N037709-001B	SAMP	25	48740	47299.4	103.05	PASS	70-125	24488.2	22263.8	109.99	PASS	70-125
N037709-001B-PS	PS	1	46978.7	47299.4	99.32	PASS	70-125	23555.8	22263.8	105.8	PASS	70-125
N037709-001B-PS	PS	5	49212.5	47299.4	104.05	PASS	70-125	24749.6	22263.8	111.17	PASS	70-125
N037709-001B-MS	MS	1	46452.6	47299.4	98.21	PASS	70-125	23640.1	22263.8	106.18	PASS	70-125
N037709-001B-MS	MS	5	49443.3	47299.4	104.53	PASS	70-125	25163.6	22263.8	113.03	PASS	70-125
N037709-001B-MSD	MSD	1	45912.2	47299.4	97.07	PASS	70-125	23541.2	22263.8	105.74	PASS	70-125
CCV5	CCV	1	51300.2	47299.4	108.46	PASS	70-125	25920.3	22263.8	116.42	PASS	70-125
CCB5	CCB	1	48334.5	47299.4	102.19	PASS	70-125	24666.1	22263.8	110.79	PASS	70-125
N037709-001B-MSD	MSD	5	46463.8	47299.4	98.23	PASS	70-125	23910.6	22263.8	107.4	PASS	70-125
N037709-002B	SAMP	1	44300	47299.4	93.66	PASS	70-125	22668.8	22263.8	101.82	PASS	70-125
N037709-002B	SAMP	5	47865.5	47299.4	101.2	PASS	70-125	24434.7	22263.8	109.75	PASS	70-125
N037709-003B	SAMP	1	45553.5	47299.4	96.31	PASS	70-125	23146.1	22263.8	103.96	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	47730.7	47299.4	100.91	PASS	70-125	24371.3	22263.8	109.47	PASS	70-125
N037723-001B	SAMP	1	43243	47299.4	91.42	PASS	70-125	21383.7	22263.8	96.05	PASS	70-125
N037723-001B	SAMP	5	51188.6	47299.4	108.22	PASS	70-125	25185.9	22263.8	113.12	PASS	70-125
N037723-002B	SAMP	1	44627.6	47299.4	94.35	PASS	70-125	22039	22263.8	98.99	PASS	70-125
N037723-002B	SAMP	5	51753.7	47299.4	109.42	PASS	70-125	25293.8	22263.8	113.61	PASS	70-125
N037723-003B	SAMP	1	49412.1	47299.4	104.47	PASS	70-125	24223.3	22263.8	108.8	PASS	70-125
CCV6	CCV	1	55921.5	47299.4	118.23	PASS	70-125	28600.6	22263.8	128.46	NR!	70-125
CCB6	CCB	1	53597.1	47299.4	113.31	PASS	70-125	27211.3	22263.8	122.22	PASS	70-125
N037723-003B	SAMP	5	49482.2	47299.4	104.61	PASS	70-125	25101.3	22263.8	112.74	PASS	70-125
N037723-004B	SAMP	1	49744.4	47299.4	105.17	PASS	70-125	24716.3	22263.8	111.02	PASS	70-125
N037723-004B	SAMP	5	52463.6	47299.4	110.92	PASS	70-125	26471.2	22263.8	118.9	PASS	70-125
N037735-001B	SAMP	1	47582.5	47299.4	100.6	PASS	70-125	23536.7	22263.8	105.72	PASS	70-125
N037735-001B	SAMP	5	51189.7	47299.4	108.22	PASS	70-125	26184	22263.8	117.61	PASS	70-125
N037756-001B	SAMP	1	49228.5	47299.4	104.08	PASS	70-125	25173.7	22263.8	113.07	PASS	70-125
N037756-001B	SAMP	5	50375.1	47299.4	106.5	PASS	70-125	25556.4	22263.8	114.79	PASS	70-125
CCV7	CCV	1	50844.1	47299.4	107.49	PASS	70-125	26245.3	22263.8	117.88	PASS	70-125
CCB7	CCB	1	50856.3	47299.4	107.52	PASS	70-125	25970.4	22263.8	116.65	PASS	70-125
ICSA3	ICSA	1	48936.4	47299.4	103.46	PASS	70-125	24727.4	22263.8	111.07	PASS	70-125
ICSAB3	ICSAB	1	49123.5	47299.4	103.86	PASS	70-125	25212.6	22263.8	113.24	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	13284.9	13284.9	100	PASS	70-125	528382.5	528382.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	13310.5	13284.9	100.19	PASS	70-125	531282	528382.5	100.55	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	13489.4	13284.9	101.54	PASS	70-125	534713.4	528382.5	101.2	PASS	70-125
Std3-5/50 ppb	ICAL	1	14012.1	13284.9	105.47	PASS	70-125	536738.7	528382.5	101.58	PASS	70-125
Std4-10/100 ppb	ICAL	1	14026.6	13284.9	105.58	PASS	70-125	539558	528382.5	102.12	PASS	70-125
Std5-20/200 ppb	ICAL	1	13638.5	13284.9	102.66	PASS	70-125	536487.9	528382.5	101.53	PASS	70-125
Std6-40/400 ppb	ICAL	1	13852	13284.9	104.27	PASS	70-125	540658.8	528382.5	102.32	PASS	70-125
Std7-100/1000 ppb	ICAL	1	13772	13284.9	103.67	PASS	70-125	536347.1	528382.5	101.51	PASS	70-125
Std8-200/2000 ppb	ICAL	1	13923.2	13284.9	104.8	PASS	70-125	534410	528382.5	101.14	PASS	70-125
ICV	ICV	1	12734.3	13284.9	95.86	PASS	70-125	499367.1	528382.5	94.51	PASS	70-125
ICB	ICB	1	13567.3	13284.9	102.13	PASS	70-125	528393.8	528382.5	100	PASS	70-125
LLICV	CCV1	1	13549.5	13284.9	101.99	PASS	70-125	531330.8	528382.5	100.56	PASS	70-125
ICSA1	ICSA	1	14986.4	13284.9	112.81	PASS	70-125	512103.3	528382.5	96.92	PASS	70-125
ICSAB1	ICSAB	1	16375.5	13284.9	123.26	PASS	70-125	535124.8	528382.5	101.28	PASS	70-125
LLICV	CCV1	1	17305.4	13284.9	130.26	NR!	70-125	603020.7	528382.5	114.13	PASS	70-125
CCV1	CCV	1	17110.8	13284.9	128.8	NR!	70-125	571996.2	528382.5	108.25	PASS	70-125
CCB1	CCB	1	15313.4	13284.9	115.27	PASS	70-125	559078.5	528382.5	105.81	PASS	70-125
CCV2	CCV	1	15105.4	13284.9	113.7	PASS	70-125	568068.9	528382.5	107.51	PASS	70-125
CCB2	CCB	1	14047.7	13284.9	105.74	PASS	70-125	556602.8	528382.5	105.34	PASS	70-125
CCV3	CCV	1	16414.4	13284.9	123.56	PASS	70-125	567757.4	528382.5	107.45	PASS	70-125
CCB3	CCB	1	14485.9	13284.9	109.04	PASS	70-125	553388.2	528382.5	104.73	PASS	70-125
CCV4	CCV	1	15155.4	13284.9	114.08	PASS	70-125	550505.2	528382.5	104.19	PASS	70-125
CCB4	CCB	1	13975.5	13284.9	105.2	PASS	70-125	540585.3	528382.5	102.31	PASS	70-125
ICSA2	ICSA	1	13222.6	13284.9	99.53	PASS	70-125	499834.2	528382.5	94.6	PASS	70-125
ICSAB2	ICSAB	1	13843.1	13284.9	104.2	PASS	70-125	510594.1	528382.5	96.63	PASS	70-125
MB-75562	MBLK	1	14985.3	13284.9	112.8	PASS	70-125	580173.3	528382.5	109.8	PASS	70-125
LCS-75562	LCS	1	14064.4	13284.9	105.87	PASS	70-125	560142.8	528382.5	106.01	PASS	70-125
N037709-001B	SAMP	1	12631	13284.9	95.08	PASS	70-125	461750.6	528382.5	87.39	PASS	70-125
N037709-001B	SAMP	5	13947.6	13284.9	104.99	PASS	70-125	513529.3	528382.5	97.19	PASS	70-125
N037709-001B	SAMP	25	13689.6	13284.9	103.05	PASS	70-125	531517.9	528382.5	100.59	PASS	70-125
N037709-001B-PS	PS	1	12862.3	13284.9	96.82	PASS	70-125	482324.4	528382.5	91.28	PASS	70-125
N037709-001B-PS	PS	5	13909.8	13284.9	104.7	PASS	70-125	516061.7	528382.5	97.67	PASS	70-125
N037709-001B-MS	MS	1	12651	13284.9	95.23	PASS	70-125	482112.2	528382.5	91.24	PASS	70-125
N037709-001B-MS	MS	5	14013.3	13284.9	105.48	PASS	70-125	515062.8	528382.5	97.48	PASS	70-125
N037709-001B-MSD	MSD	1	12520.8	13284.9	94.25	PASS	70-125	478444.5	528382.5	90.55	PASS	70-125
CCV5	CCV	1	14092.2	13284.9	106.08	PASS	70-125	564247.8	528382.5	106.79	PASS	70-125
CCB5	CCB	1	13194.8	13284.9	99.32	PASS	70-125	547042.5	528382.5	103.53	PASS	70-125
N037709-001B-MSD	MSD	5	12176.2	13284.9	91.65	PASS	70-125	498730.5	528382.5	94.39	PASS	70-125
N037709-002B	SAMP	1	12090.6	13284.9	91.01	PASS	70-125	465258.7	528382.5	88.05	PASS	70-125
N037709-002B	SAMP	5	12834.5	13284.9	96.61	PASS	70-125	505954.5	528382.5	95.76	PASS	70-125
N037709-003B	SAMP	1	12113.9	13284.9	91.19	PASS	70-125	472923.9	528382.5	89.5	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	13383.9	13284.9	100.75	PASS	70-125	509898.4	528382.5	96.5	PASS	70-125
N037723-001B	SAMP	1	11199.9	13284.9	84.31	PASS	70-125	435766.4	528382.5	82.47	PASS	70-125
N037723-001B	SAMP	5	14106.6	13284.9	106.19	PASS	70-125	523759.4	528382.5	99.13	PASS	70-125
N037723-002B	SAMP	1	11622.4	13284.9	87.49	PASS	70-125	432175	528382.5	81.79	PASS	70-125
N037723-002B	SAMP	5	14884	13284.9	112.04	PASS	70-125	505560.5	528382.5	95.68	PASS	70-125
N037723-003B	SAMP	1	13472.8	13284.9	101.41	PASS	70-125	474073.5	528382.5	89.72	PASS	70-125
CCV6	CCV	1	15916.2	13284.9	119.81	PASS	70-125	600391.5	528382.5	113.63	PASS	70-125
CCB6	CCB	1	14493.7	13284.9	109.1	PASS	70-125	589095.7	528382.5	111.49	PASS	70-125
N037723-003B	SAMP	5	13120.3	13284.9	98.76	PASS	70-125	512325.7	528382.5	96.96	PASS	70-125
N037723-004B	SAMP	1	12718.8	13284.9	95.74	PASS	70-125	494152.8	528382.5	93.52	PASS	70-125
N037723-004B	SAMP	5	13610.8	13284.9	102.45	PASS	70-125	537481.4	528382.5	101.72	PASS	70-125
N037735-001B	SAMP	1	12182.8	13284.9	91.7	PASS	70-125	475565.9	528382.5	90	PASS	70-125
N037735-001B	SAMP	5	13199.2	13284.9	99.35	PASS	70-125	524224.5	528382.5	99.21	PASS	70-125
N037756-001B	SAMP	1	12925.7	13284.9	97.3	PASS	70-125	492603.6	528382.5	93.23	PASS	70-125
N037756-001B	SAMP	5	13098	13284.9	98.59	PASS	70-125	522654.7	528382.5	98.92	PASS	70-125
CCV7	CCV	1	13539.5	13284.9	101.92	PASS	70-125	561398.4	528382.5	106.25	PASS	70-125
CCB7	CCB	1	13341.6	13284.9	100.43	PASS	70-125	566173.3	528382.5	107.15	PASS	70-125
ICSA3	ICSA	1	12754.4	13284.9	96.01	PASS	70-125	510759.6	528382.5	96.66	PASS	70-125
ICSAB3	ICSAB	1	12814.5	13284.9	96.46	PASS	70-125	510352.1	528382.5	96.59	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	34779.3	34779.3	100	PASS	70-125	20186.6	20186.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	34644.6	34779.3	99.61	PASS	70-125	20518.1	20186.6	101.64	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	35180.2	34779.3	101.15	PASS	70-125	20431.4	20186.6	101.21	PASS	70-125
Std3-5/50 ppb	ICAL	1	34833.9	34779.3	100.16	PASS	70-125	19781.7	20186.6	97.99	PASS	70-125
Std4-10/100 ppb	ICAL	1	33890.8	34779.3	97.45	PASS	70-125	19693.8	20186.6	97.56	PASS	70-125
Std5-20/200 ppb	ICAL	1	34126.9	34779.3	98.12	PASS	70-125	19282.2	20186.6	95.52	PASS	70-125
Std6-40/400 ppb	ICAL	1	34050	34779.3	97.9	PASS	70-125	18764.9	20186.6	92.96	PASS	70-125
Std7-100/1000 ppb	ICAL	1	33880.6	34779.3	97.42	PASS	70-125	19045.2	20186.6	94.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	33819.5	34779.3	97.24	PASS	70-125	18984	20186.6	94.04	PASS	70-125
ICV	ICV	1	32716	34779.3	94.07	PASS	70-125	18584.7	20186.6	92.07	PASS	70-125
ICB	ICB	1	32417.6	34779.3	93.21	PASS	70-125	18296.5	20186.6	90.64	PASS	70-125
LLICV	CCV1	1	32433.3	34779.3	93.25	PASS	70-125	18501.2	20186.6	91.65	PASS	70-125
ICSA1	ICSA	1	32988.9	34779.3	94.85	PASS	70-125	18251.9	20186.6	90.42	PASS	70-125
ICSAB1	ICSAB	1	35087.8	34779.3	100.89	PASS	70-125	19879.5	20186.6	98.48	PASS	70-125
LLICV	CCV1	1	33587.7	34779.3	96.57	PASS	70-125	19124.2	20186.6	94.74	PASS	70-125
MB-75562	MBLK	1	38093.4	34779.3	109.53	PASS	70-125	23233	20186.6	115.09	PASS	70-125
LCS-75562	LCS	1	35753.6	34779.3	102.8	PASS	70-125	21815.4	20186.6	108.07	PASS	70-125
CCV1	CCV	1	35578.9	34779.3	102.3	PASS	70-125	20799.5	20186.6	103.04	PASS	70-125
CCB1	CCB	1	34702.4	34779.3	99.78	PASS	70-125	20601.5	20186.6	102.06	PASS	70-125
N037709-001B	SAMP	1	34041.1	34779.3	97.88	PASS	70-125	19931.8	20186.6	98.74	PASS	70-125
N037709-001B	SAMP	5	37331.6	34779.3	107.34	PASS	70-125	22393.9	20186.6	110.93	PASS	70-125
N037709-001B-PS	PS	1	36249.2	34779.3	104.23	PASS	70-125	21162.3	20186.6	104.83	PASS	70-125
N037709-001B-MS	MS	1	36795.9	34779.3	105.8	PASS	70-125	21090	20186.6	104.48	PASS	70-125
N037709-001B-MSD	MSD	1	36038.8	34779.3	103.62	PASS	70-125	21442.7	20186.6	106.22	PASS	70-125
N037709-002B	SAMP	1	35564.3	34779.3	102.26	PASS	70-125	21207.9	20186.6	105.06	PASS	70-125
N037709-003B	SAMP	1	36038.6	34779.3	103.62	PASS	70-125	22046.9	20186.6	109.22	PASS	70-125
N037723-001B	SAMP	1	33222.9	34779.3	95.52	PASS	70-125	19234.3	20186.6	95.28	PASS	70-125
N037723-002B	SAMP	1	32087	34779.3	92.26	PASS	70-125	18727	20186.6	92.77	PASS	70-125
N037723-003B	SAMP	1	33801.7	34779.3	97.19	PASS	70-125	20466.9	20186.6	101.39	PASS	70-125
CCV2	CCV	1	39561.5	34779.3	113.75	PASS	70-125	24784.2	20186.6	122.78	PASS	70-125
CCB2	CCB	1	38982.2	34779.3	112.08	PASS	70-125	23478.9	20186.6	116.31	PASS	70-125
MB-75562	MBLK	1	38341.8	34779.3	110.24	PASS	70-125	22872.6	20186.6	113.31	PASS	70-125
N037723-004B	SAMP	1	35617.9	34779.3	102.41	PASS	70-125	20597.2	20186.6	102.03	PASS	70-125
N037756-001B	SAMP	1	37221.4	34779.3	107.02	PASS	70-125	21568.3	20186.6	106.84	PASS	70-125
N037723-002B	SAMP	1	31576.1	34779.3	90.79	PASS	70-125	18386.6	20186.6	91.08	PASS	70-125
N037756-001B	SAMP	1	36990.7	34779.3	106.36	PASS	70-125	21810.9	20186.6	108.05	PASS	70-125
CCV3	CCV	1	40077.3	34779.3	115.23	PASS	70-125	24009.5	20186.6	118.94	PASS	70-125
CCB3	CCB	1	38564.5	34779.3	110.88	PASS	70-125	22688.8	20186.6	112.4	PASS	70-125
N037723-002B	SAMP	1	31641.7	34779.3	90.98	PASS	70-125	18010.7	20186.6	89.22	PASS	70-125
N037723-002B	SAMP	1	31255.3	34779.3	89.87	PASS	70-125	17572.3	20186.6	87.05	PASS	70-125
N037723-002B	SAMP	1	30985	34779.3	89.09	PASS	70-125	17212	20186.6	85.26	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037723-002B	SAMP	1	31116.1	34779.3	89.47	PASS	70-125	17067.4	20186.6	84.55	PASS	70-125
N037723-002B	SAMP	1	31146.4	34779.3	89.55	PASS	70-125	17354.4	20186.6	85.97	PASS	70-125
CCV4	CCV	1	39936.8	34779.3	114.83	PASS	70-125	24163.2	20186.6	119.7	PASS	70-125
CCB4	CCB	1	38828.4	34779.3	111.64	PASS	70-125	23856.1	20186.6	118.18	PASS	70-125
ICSA2	ICSA	1	36648.8	34779.3	105.38	PASS	70-125	21572.9	20186.6	106.87	PASS	70-125
ICSAB2	ICSAB	1	36033.1	34779.3	103.61	PASS	70-125	21304.7	20186.6	105.54	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037723
Test Method: EPA 6020
Analysis Date: 09 / 11 & 14 / 2019

Matrix: Groundwater
Batch No.: 75562

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037709-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N037709-001B DT 5x	Molybdenum	Mo	µg/L	4.817372	NA	4.820541	0.07%	10
N037709-001B DT 5x	Arsenic	As	µg/L	1.608673	NA	1.722009	6.58%	10
N037709-001B DT 5x	Selenium	Se	µg/L	7.237082	NA	5.803332	24.71%	10
N037709-001B DT 5x	Chromium	Cr	µg/L	149.6198	PASS	147.4822	1.45%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N037709-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	83.531	0.50	100.0	0	83.5	80	120				
Molybdenum	15.886	0.50	10.00	4.821	111	80	120				

Sample ID **N037709-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.211	0.10	10.00	1.722	105	80	120				
Selenium	14.509	0.50	10.00	5.803	87.1	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037723
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037709-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID:	**ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

MDL STUDY

Method Detection Limit

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

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

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

Method Detection Limit

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

Matrix: Water
Units: ug/L

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

October 22, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N037756

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

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

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

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

Sincerely,

Nancy Silbaugh for

Puri Romualdo
Laboratory Director

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

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary due to precipitation of sample upon the addition of eluent.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037709-001B-MS and N037709-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *22-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037756
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037756-001A	TW-02D-Q319	Groundwater	10/3/2019 9:05:00 AM	10/3/2019	10/22/2019
N037756-001B	TW-02D-Q319	Groundwater	10/3/2019 9:05:00 AM	10/3/2019	10/22/2019
N037756-001C	TW-02D-Q319	Groundwater	10/3/2019 9:05:00 AM	10/3/2019	10/22/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191004D**	QC Batch: **R136784**			PrepDate:			Analyst: **LR**
Specific Conductance	5500	0.10	0.10		umhos/cm	1	10/4/2019 01:55 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N037758-004CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **136784**
Client ID: **ZZZZZZ**	Batch ID: **R136784**	TestNo: **EPA 120.1**		Analysis Date: **10/4/2019**	SeqNo: **3526793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5670.000	0.10						5680	0.176	2	

Sample ID: **N037758-011CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **136784**
Client ID: **ZZZZZZ**	Batch ID: **R136784**	TestNo: **EPA 120.1**		Analysis Date: **10/4/2019**	SeqNo: **3526801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5080.000	0.10						5050	0.592	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191007D**	QC Batch: **75581**			PrepDate:	**10/7/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	3300	50	50		mg/L	1	10/7/2019 01:25 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-75581**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID: **LCSW**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	958.000	10	1000	0	95.8	80	120				

Sample ID: **MB-75581**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID: **PBW**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530248**

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

Sample ID: **N037771-001ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID: **ZZZZZZ**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	13380.000	200						13300	0.600	5	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191008B**	QC Batch: **R136842**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	95	0.66	4.0		µg/L	20	10/8/2019 10:23 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	110	0.13	1.0		µg/L	1	10/12/2019 12:07 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R136842**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **PBW**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530730**

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

Sample ID: **LCS-R136842**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **LCSW**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.839	0.20	5.000	0	96.8	90	110				

Sample ID: **N037801-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.091	0.20	1.000	0.09990	99.1	90	110				

Sample ID: **N037801-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.931	0.20	1.000	0.9826	94.9	90	110				

Sample ID: **N037801-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.6877	100	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037801-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.504	0.20	1.000	1.482	102	90	110				

Sample ID: **N037801-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.7001	99.3	90	110				

Sample ID: **N037801-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Sample ID: **N037801-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.466	0.20	1.000	0.4390	103	90	110				

Sample ID: **N037801-004AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.467	0.20	1.000	1.482	98.6	90	110	2.504	1.48	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037801-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.092	0.20						0.09990	0	20	

Sample ID: **N037756-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	202.190	4.0	100.0	95.08	107	90	110				

Sample ID: **N037757-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.046	0.20	1.000	0	105	90	110				

Sample ID: **N037757-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	650.145	10	250.0	408.1	96.8	90	110				

Sample ID: **N037772-002BMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.982	0.20	1.000	0	98.2	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-75562**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533727**

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

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.661	1.0	10.00	0	107	85	115				

Sample ID: **N037709-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	152.511	1.0	10.00	147.5	50.3	75	125				S

Sample ID: **N037709-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	153.869	1.0	10.00	147.5	63.9	75	125	152.5	0.886	20	S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **N037709-001B-PS** SampType: **PS** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ZZZZZZ** Batch ID: **75562** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/11/2019** SeqNo: **3533732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191004B**	QC Batch: **R136779**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	10/4/2019 09:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R136779**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **LCSW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	103.037	5.0	100.0	0	103	85	115				

Sample ID: **MB-R136779**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **PBW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526631**

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

Sample ID: **N037758-003DDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	280.911	5.0						277.7	1.17	30	

Sample ID: **N037758-005DMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	170.282	5.0	100.0	73.75	96.5	75	125				

Sample ID: **N037758-005DMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	171.367	5.0	100.0	73.75	97.6	75	125	170.3	0.635	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037756
Project: PG&E Topock - GMP, 30019131
Lab ID: N037756-001

Client Sample ID: TW-02D-Q319
Collection Date: 10/3/2019 9:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191007B** QC Batch: **R136817**				PrepDate:			Analyst: **RAB**
Bromide	ND	0.15	2.5		mg/L	5	10/8/2019 01:50 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191008B** QC Batch: **R136840**				PrepDate:			Analyst: **RAB**
Chloride	1600	17	250		mg/L	500	10/9/2019 05:02 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191008B** QC Batch: **R136840**				PrepDate:			Analyst: **RAB**
Sulfate	360	2.0	25		mg/L	50	10/9/2019 06:21 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **LCS-R136817_BR**	SampType: **LCS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **LCSW**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/7/2019**	SeqNo: **3530540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.263	0.50	1.250	0	101	90	110				

Sample ID: **MB-R136817_BR**	SampType: **MBLK**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **PBW**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/7/2019**	SeqNo: **3530541**

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

Sample ID: **N037756-001CDUP**	SampType: **DUP**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **ZZZZZZ**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.542	2.5						0.5740	0	20	

Sample ID: **N037756-001CMS**	SampType: **MS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **ZZZZZZ**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.697	2.5	6.250	0.5740	98.0	80	120				

Sample ID: **N037756-001CMSD**	SampType: **MSD**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **ZZZZZZ**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.549	2.5	6.250	0.5740	95.6	80	120	6.697	2.24	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R136840_CL** SampType: **LCS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **LCSW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.008	0.50	2.000	0	100	90	110				

Sample ID: **MB-R136840_CL** SampType: **MBLK** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **PBW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531675**

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

Sample ID: **N037758-003DMS** SampType: **MS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3126.150	250	1000	2133	99.3	80	120				

Sample ID: **N037758-003DMSD** SampType: **MSD** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3150.600	250	1000	2133	102	80	120	3126	0.779	20	

Sample ID: **N037758-009DMS** SampType: **MS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/9/2019** SeqNo: **3531682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3107.750	250	1000	2082	103	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N037758-005DDUP**	SampType: **DUP**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **ZZZZZZ**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2109.350	250						2115	0.258	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R136840_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **LCSW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.090	0.50	4.000	0	102	90	110				

Sample ID: **MB-R136840_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **PBW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531738**

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

Sample ID: **N037758-003DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	679.475	25	200.0	485.9	96.8	80	120				

Sample ID: **N037758-003DMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	681.870	25	200.0	485.9	98.0	80	120	679.5	0.352	20	

Sample ID: **N037758-009DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/9/2019** SeqNo: **3531745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	676.040	25	200.0	482.9	96.6	80	120				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N037758-005DDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/9/2019** SeqNo: **3531749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	467.285	25						471.5	0.902	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**				PrepDate:	**10/7/2019**	Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	10/12/2019 12:07 AM
Molybdenum	11	0.21	0.50		µg/L	1	10/12/2019 12:07 AM
Selenium	2.3	0.36	0.50		µg/L	1	10/14/2019 04:31 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-75562**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533818**

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

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.815	0.50	100.0	0	108	85	115				
Molybdenum	10.518	0.50	10.00	0	105	85	115				

Sample ID: **N037709-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	83.952	0.50	100.0	0	84.0	75	125				
Molybdenum	15.737	0.50	10.00	4.821	109	75	125				

Sample ID: **N037709-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	84.416	0.50	100.0	0	84.4	75	125	83.95	0.552	20	
Molybdenum	15.725	0.50	10.00	4.821	109	75	125	15.74	0.0725	20	

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.240	0.50	10.00	0	92.4	85	115				

Sample ID: **N037709-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	16.378	0.50	10.00	5.803	106	75	125				

Sample ID: **N037709-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	14.879	0.50	10.00	5.803	90.8	75	125	16.38	9.59	20	

Sample ID: **MB-75562**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535833**

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

Qualifiers:

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

ARCUS02 C: 10/17/201 12:00 AM
FOLDER R: 10/3/2019
N037756-002A 1 of 1

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ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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P: 562.219.7435 F:562.219.7436
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Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200
Title: Scientist 1		Fax:
Signature: Date: 10/3/19	Sampled By: Nara Tay	P.O.# SWA-ASSET-C9817-051
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for	
Project Name: PG&E Topock - GMP	Signature: 10/3/2019	
Project Number: 30019131		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number		
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 2.7/1.8		
				Courier: ASSET		
				Tracking No.:		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037756-01	TW-02D-Q319	10/3/2019	9:05		X			X	X	X	X		X	X	X	X				E	3	P	BNS	
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Reliquished by (Signature and Printed Name): Nara Tay Date/Time: 10/3/19 1605
Reliquished by (Signature and Printed Name): J. JORDAN Date/Time: 10/3/19 1605
Reliquished by (Signature and Printed Name): J. JORDAN Date/Time: 10/3/19 1605
Reliquished by (Signature and Printed Name): Date/Time:
Reliquished by (Signature and Printed Name): Date/Time:
Reliquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

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

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

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	10/3/2019	Workorder:	N037756
Rep sample Temp (Deg C):	2.7/1.8	IR Gun ID:	1

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

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

Comments:

Checklist Completed By: YR YRJ 10/4/2019

Reviewed By: LG 100919

ASSET Laboratories

WORK ORDER Summary

04-Oct-19

WorkOrder: N037756

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 10/3/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037756-001A	TW-02D-Q319	10/3/2019 9:05:00 AM	10/17/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037756-001B			10/17/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/17/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037756-001C			10/17/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/17/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/17/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/17/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037756-002A	FOLDER	10/17/2019	10/17/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037756

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 22, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N037756

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

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

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

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

Sincerely,

Nancy Silbaugh for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037756

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary due to precipitation of sample upon the addition of eluent.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037709-001B-MS and N037709-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *22-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037756
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037756-001A	TW-02D-Q319	Groundwater	10/3/2019 9:05:00 AM	10/3/2019	10/22/2019
N037756-001B	TW-02D-Q319	Groundwater	10/3/2019 9:05:00 AM	10/3/2019	10/22/2019
N037756-001C	TW-02D-Q319	Groundwater	10/3/2019 9:05:00 AM	10/3/2019	10/22/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191004D**	QC Batch: **R136784**			PrepDate:			Analyst: **LR**
Specific Conductance	5500	0.10	0.10		umhos/cm	1	10/4/2019 01:55 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N037758-004CDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **136784**
Client ID: **ZZZZZZ** Batch ID: **R136784** TestNo: **EPA 120.1** Analysis Date: **10/4/2019** SeqNo: **3526793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5670.000	0.10						5680	0.176	2	

Sample ID: **N037758-011CDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **136784**
Client ID: **ZZZZZZ** Batch ID: **R136784** TestNo: **EPA 120.1** Analysis Date: **10/4/2019** SeqNo: **3526801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5080.000	0.10						5050	0.592	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191007D**	QC Batch: **75581**			PrepDate:		**10/7/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	3300	50	50		mg/L	1	10/7/2019 01:25 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-75581**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID: **LCSW**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	958.000	10	1000	0	95.8	80	120				

Sample ID: **MB-75581**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID: **PBW**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530248**

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

Sample ID: **N037771-001ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID: **ZZZZZZ**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	13380.000	200						13300	0.600	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037756
Project: PG&E Topock - GMP, 30019131
Lab ID: N037756-001

Client Sample ID: TW-02D-Q319
Collection Date: 10/3/2019 9:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191008B** QC Batch: **R136842**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	95	0.66	4.0		µg/L	20	10/8/2019 10:23 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011A** QC Batch: **75562**				PrepDate:	**10/7/2019**		Analyst: **CEI**
Chromium	110	0.13	1.0		µg/L	1	10/12/2019 12:07 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R136842**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **136842**			
Client ID: **PBW**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**			SeqNo: **3530730**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R136842**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **136842**			
Client ID: **LCSW**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**			SeqNo: **3530731**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.839	0.20	5.000	0	96.8	90	110				

Sample ID: **N037801-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **136842**			
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**			SeqNo: **3530733**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.091	0.20	1.000	0.09990	99.1	90	110				

Sample ID: **N037801-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **136842**			
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**			SeqNo: **3530735**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.931	0.20	1.000	0.9826	94.9	90	110				

Sample ID: **N037801-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **136842**			
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**			SeqNo: **3530737**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.6877	100	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037801-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.504	0.20	1.000	1.482	102	90	110				

Sample ID: **N037801-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.7001	99.3	90	110				

Sample ID: **N037801-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Sample ID: **N037801-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.466	0.20	1.000	0.4390	103	90	110				

Sample ID: **N037801-004AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.467	0.20	1.000	1.482	98.6	90	110	2.504	1.48	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037801-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136842**		
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**				SeqNo: **3530749**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.092	0.20						0.09990	0	20	

Sample ID: **N037756-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136842**		
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**				SeqNo: **3530763**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	202.190	4.0	100.0	95.08	107	90	110				

Sample ID: **N037757-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136842**		
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**				SeqNo: **3530765**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.046	0.20	1.000	0	105	90	110				

Sample ID: **N037757-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136842**		
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**				SeqNo: **3530767**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	650.145	10	250.0	408.1	96.8	90	110				

Sample ID: **N037772-002BMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136842**		
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**				SeqNo: **3530769**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.982	0.20	1.000	0	98.2	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-75562**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533727**

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

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.661	1.0	10.00	0	107	85	115				

Sample ID: **N037709-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	152.511	1.0	10.00	147.5	50.3	75	125				S

Sample ID: **N037709-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	153.869	1.0	10.00	147.5	63.9	75	125	152.5	0.886	20	S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **N037709-001B-PS** SampType: **PS** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ZZZZZZ** Batch ID: **75562** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/11/2019** SeqNo: **3533732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q319
Lab Order:	N037756	**Collection Date:**	10/3/2019 9:05:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037756-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191004B**	QC Batch: **R136779**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	10/4/2019 09:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R136779**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **LCSW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	103.037	5.0	100.0	0	103	85	115				

Sample ID: **MB-R136779**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **PBW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526631**

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

Sample ID: **N037758-003DDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	280.911	5.0						277.7	1.17	30	

Sample ID: **N037758-005DMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	170.282	5.0	100.0	73.75	96.5	75	125				

Sample ID: **N037758-005DMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	171.367	5.0	100.0	73.75	97.6	75	125	170.3	0.635	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037756
Project: PG&E Topock - GMP, 30019131
Lab ID: N037756-001

Client Sample ID: TW-02D-Q319
Collection Date: 10/3/2019 9:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191007B** QC Batch: **R136817**				PrepDate:			Analyst: **RAB**
Bromide	ND	0.15	2.5		mg/L	5	10/8/2019 01:50 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191008B** QC Batch: **R136840**				PrepDate:			Analyst: **RAB**
Chloride	1600	17	250		mg/L	500	10/9/2019 05:02 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191008B** QC Batch: **R136840**				PrepDate:			Analyst: **RAB**
Sulfate	360	2.0	25		mg/L	50	10/9/2019 06:21 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **LCS-R136817_BR**	SampType: **LCS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **LCSW**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/7/2019**	SeqNo: **3530540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.263	0.50	1.250	0	101	90	110				

Sample ID: **MB-R136817_BR**	SampType: **MBLK**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **PBW**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/7/2019**	SeqNo: **3530541**

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

Sample ID: **N037756-001CDUP**	SampType: **DUP**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **ZZZZZZ**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.542	2.5						0.5740	0	20	

Sample ID: **N037756-001CMS**	SampType: **MS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **ZZZZZZ**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.697	2.5	6.250	0.5740	98.0	80	120				

Sample ID: **N037756-001CMSD**	SampType: **MSD**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **ZZZZZZ**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.549	2.5	6.250	0.5740	95.6	80	120	6.697	2.24	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R136840_CL** SampType: **LCS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **LCSW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.008	0.50	2.000	0	100	90	110				

Sample ID: **MB-R136840_CL** SampType: **MBLK** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **PBW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531675**

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

Sample ID: **N037758-003DMS** SampType: **MS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3126.150	250	1000	2133	99.3	80	120				

Sample ID: **N037758-003DMSD** SampType: **MSD** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3150.600	250	1000	2133	102	80	120	3126	0.779	20	

Sample ID: **N037758-009DMS** SampType: **MS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/9/2019** SeqNo: **3531682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3107.750	250	1000	2082	103	80	120				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N037758-005DDUP**	SampType: **DUP**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:				RunNo: **136840**			
Client ID: **ZZZZZZ**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**				SeqNo: **3531687**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2109.350	250						2115	0.258	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R136840_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **LCSW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.090	0.50	4.000	0	102	90	110				

Sample ID: **MB-R136840_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **PBW** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531738**

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

Sample ID: **N037758-003DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	679.475	25	200.0	485.9	96.8	80	120				

Sample ID: **N037758-003DMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/8/2019** SeqNo: **3531743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	681.870	25	200.0	485.9	98.0	80	120	679.5	0.352	20	

Sample ID: **N037758-009DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/9/2019** SeqNo: **3531745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	676.040	25	200.0	482.9	96.6	80	120				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N037758-005DDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136840**
Client ID: **ZZZZZZ** Batch ID: **R136840** TestNo: **EPA 300.0** Analysis Date: **10/9/2019** SeqNo: **3531749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	467.285	25						471.5	0.902	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037756
Project: PG&E Topock - GMP, 30019131
Lab ID: N037756-001

Client Sample ID: TW-02D-Q319
Collection Date: 10/3/2019 9:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191011A**	QC Batch: **75562**			PrepDate:		**10/7/2019**	Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	10/12/2019 12:07 AM
Molybdenum	11	0.21	0.50		µg/L	1	10/12/2019 12:07 AM
Selenium	2.3	0.36	0.50		µg/L	1	10/14/2019 04:31 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-75562**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533818**

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

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.815	0.50	100.0	0	108	85	115				
Molybdenum	10.518	0.50	10.00	0	105	85	115				

Sample ID: **N037709-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	83.952	0.50	100.0	0	84.0	75	125				
Molybdenum	15.737	0.50	10.00	4.821	109	75	125				

Sample ID: **N037709-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	84.416	0.50	100.0	0	84.4	75	125	83.95	0.552	20	
Molybdenum	15.725	0.50	10.00	4.821	109	75	125	15.74	0.0725	20	

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-75562**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **LCSW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.240	0.50	10.00	0	92.4	85	115				

Sample ID: **N037709-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	16.378	0.50	10.00	5.803	106	75	125				

Sample ID: **N037709-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	14.879	0.50	10.00	5.803	90.8	75	125	16.38	9.59	20	

Sample ID: **MB-75562**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/7/2019**	RunNo: **136952**
Client ID: **PBW**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/14/2019**	SeqNo: **3535833**

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

Qualifiers:

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

Calculations are based on raw values

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

SAMPLE RECEIVING ITEMS

ARCUS02 C: 10/17/201 12:00 AM
FOLDER R: 10/3/2019
N037756-002A 1 of 1

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 1 of 1

P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200
Title: Scientist 1		Fax:
Signature: Date: 10/3/19	Sampled By: Nara Tay	P.O.# SWA-ASSET-C9817-051
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for	
Project Name: PG&E Topock - GMP	Signature: 10/3/2019	
Project Number: 30019131		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number		
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 2.7/1.8		
				Courier: ASSET		
				Tracking No.:		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037756-01	TW-02D-Q319	10/3/2019	9:05		X			X	X	X	X		X	X	X	X				E	3	P	BNS	
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Reliquished by (Signature and Printed Name): Nara Tay Date/Time: 10/3/19 1605
Received by (Signature and Printed Name): D. ROAN Date/Time: 10/3/19 1605
Reliquished by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 615
Received by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 615 PM

Turn Around Time (TAT)

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

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

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	10/3/2019	Workorder:	N037756
Rep sample Temp (Deg C):	2.7/1.8	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed By: YR YRJ 10/4/2019

Reviewed By: LG 100919

ASSET Laboratories

WORK ORDER Summary

04-Oct-19

WorkOrder: N037756

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 10/3/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037756-001A	TW-02D-Q319	10/3/2019 9:05:00 AM	10/17/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037756-001B			10/17/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/17/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037756-001C			10/17/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/17/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/17/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/17/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037756-002A	FOLDER	10/17/2019	10/17/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037756

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Lilia Ramit	EPA 120.1, SM 2540C, SM 2320 B
Ria Abes	EPA 300.0
Hanah Glodoviza	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136784 **Analyst:** LSR

ASSET #: N037756 **Date Analyzed:** 4-Oct

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 10/7/2019

2nd Level Reviewer: Mary 10/22/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 10/4/19 1355
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CINV-190724B	10.19 @20.9°C	% Rec: (90-110%)
1410	D	1413 @20.9°C	
9985	F	9930 @20.9°C	
100033	CINV-190904A	100200 @20.8°C	

	Sample ID	Matrix	Reading	Comments
1	NB37756-1C	H_2O	5460 @20.9°C	*MB = 035
2	NB37757-1C		3260 @20.7°C	
3	1 2C		7080 @20.4°C	
4	NB37758-1D		7460 @20.2°C	
5	2D		7480 @20.4°C	7440 um-10/9
6	3D		7480 @20.3°C	
7	4C		5680 @20.4°C	
8	4CDUP		5670 @20.5°C	
9	5D		7230 @20.4°C	
10	6D		7380 @20.6°C	
Dup	7C		3490 @20.6°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 10/7/2019

Date:
Analyst: CONTD

Standard	Std ID	Reading	Comments
1413 uS/cm	CINV-190726A	1438 @21.5°C	% Rec: (90-110%)
10000	190724G	10090 @21.9°C	
99999	190524A	100800 @22.0°C	

	Sample ID	Matrix	Reading	Comments
1	NB37758-8D	H_2O	7270 @20.5°C	
2	9D		7260 @20.6°C	
3	10D		7280 @20.7°C	
4	11C		5050 @20.8°C	
5	11CDUP		5080 @20.5°C	
6				
7				
8				
9				
10	1413 uS/cm	CINV-190726A	1444 @21.7°C	
Dup	10000	190724G	10030 @21.0°C	RPD Criteria: 2%
	Std Chk: 99999	190524A	101100 @22.2°C	% Rec: (90-110%)

Logbook # 7

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75581 **Analyst:** LSR

ASSET #: N037756 **Date Analyzed:** 7-Oct

Method: EPA 160.1 / SM 2540C

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 10/9/2019

2nd Level Reviewer: Mary 10/22/2019 Date: ——

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

Where:

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

For **N037756-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.5392 - 61.4731)*1000000}{20}$$

= 3305 mg/L

Reporting result in two significant figures,

TDS=3300 mg/L

Silvia Ramit 10/9/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/7/2019 1:25:04 P**
Prep End Date: **10/8/2019 11:55:00**
Reviewed/ Date: 10/22/2019
Initials/ Date: Lilia Ramit 10/9/2019
Prep Batch **75581** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75581	Water		100	☐	100	1.000		
MB-75581	Water		100	☐	100	1.000		
N037756-001C	Groundwater		20	☐	100	5.000		
N037757-001C	Groundwater		40	☐	100	2.500		
N037757-002C	Groundwater		20	☐	100	5.000		
N037758-011C	Groundwater		20	☐	100	5.000		
N037767-001A	Drinking Water		100	☐	100	1.000		
N037771-001A	Groundwater		5	☐	100	20.000		
N037771-001A-DU	Groundwater		5	☐	100	20.000		
N037771-002A	Groundwater		10	☐	100	10.000		
N037771-003A	Groundwater		20	☐	100	5.000		

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

Number	Reagent Name
10419	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST191001A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/7/2019 1:25:04 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 10/9/2019

Prep Batch **75581** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75581	Water	WSTI9I0 01A	100	☐	100	1.000		
MB-75581	Water		100	☐	100	1.000		
N037756-001C	Groundwater	5460	100 /20	☐	100	1.000		
N037757-001C	Groundwater	3260	100 /40	☐	100	1.000		
N037757-002C	Groundwater	7080	100 /20	☐	100	1.000		
N037758-011C	Groundwater	5050	100 /20	☐	100	1.000		
N037767-001A	Drinking Water	396	✓100	☐	100	1.000		
N037771-001A	Groundwater	22800	100 /5	☐	100	1.000		
N037771-001A-DU	Groundwater		100 /5	☐	100	1.000		
N037771-002A	Groundwater	19380	100 /10	☐	100	1.000		
N037771-003A	Groundwater	8220	100 /20	☐	100	1.000		

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

10/9

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/7/19 BJS KK	MB 75581	100	70.0652 70.0659	70.0661 70.0660	
NN	LCS 75581	100	69.7226 69.7224	69.8181 69.8182	
IJ	NM7756-1C	20	61.4839 low wt 61.4835 61.4739	61.5392 61.5392	
D	NM7757 1C	40	49.3131 49.3134	49.3918 49.3918	
K	2C	20	60.5760 60.5765	60.6576 60.6580	1
M	NM7758-11C	20	48.8901 48.8904	48.9625 48.9630	
CC	NM7767-1A	100	69.6921 69.6923	69.7163 69.7161	
KJ	NM7771-1A	5	47.9764 47.9766	48.0433 48.0431	
V	1A DUP	5	48.8479 48.8483	48.9153 48.9152	
Q	2A	10	50.6242 50.6246	50.7414 50.7416	

Julia Ramit 10/9/2019

ASSET LABORATORIES
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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/7/18 1X	NO37771-3A	20	60.4168 60.4168	60.5122 60.5119	
	Julia Ramit	10/9/2019			
	180°C TIME IN 820 TIME OUT 1110		1155 49.9998 @ 1140	10/8/19	

ASSET Laboratories Logbook#17

TOTAL DISSOLVED SOLIDS, TDS

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

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

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
10/8/2019									
MB-75581	100	70.0659	70.066	1	1	1			MBLK
LCS-75581	100	69.7224	69.8182	958	1	958			LCS
N037756-001C	20	61.4731	61.5392	661	5	3305	5460	0.605	SAMP
N037757-001C	40	49.3134	49.3918	784	2.5	1960	3260	0.601	SAMP
N037757-002C	20	60.5765	60.658	815	5	4075	7080	0.576	SAMP
N037758-011C	20	48.8904	48.963	726	5	3630	5050	0.719	SAMP
N037767-001A	100	69.6923	69.7161	238	1	238	396	0.601	SAMP
N037771-001A	5	47.9766	48.0431	665	20	13300	22800	0.583	SAMP
N037771-001ADUP	5	48.8483	48.9152	669	20	13380	22800	0.587	DUP
N037771-002A	10	50.6246	50.7416	1170	10	11700	19380	0.604	SAMP
N037771-003A	20	60.4168	60.5119	951	5	4755	8220	0.578	SAMP

Silvia Ramit 10/9/2019

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136842
ASSET #: N037756

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 10/8/2019

Method:

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: HSG Date: 10/14/2019

2nd Level Reviewer: NS 10/14/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

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

where:

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

For Sample **N037756-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.7540 * 20$$

$$Cr^{+6}, \mu g/L = 95.0800$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 95}$$

ANALYSIS RUN LOG

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	10/03/19 11:57 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/19 12:08 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	10/03/19 12:17 PM	Reported
13	MB-R136776	MBLK	1	Hexavalent Chromium	10/03/19 12:27 PM	Reported
14	LCS-R136776	LCS	1	Hexavalent Chromium	10/03/19 12:36 PM	Reported
15	N037721-001BMS	MS	500	Hexavalent Chromium	10/03/19 1:25 PM	Reported
16	N037722-001A	SAMP	1	Hexavalent Chromium	10/03/19 1:36 PM	Reported
17	N037722-001AMS	MS	1	Hexavalent Chromium	10/03/19 1:46 PM	Reported
18	N037722-002A	SAMP	1	Hexavalent Chromium	10/03/19 1:55 PM	Reported
19	N037722-002AMS	MS	1	Hexavalent Chromium	10/03/19 2:04 PM	Reported
20	N037721-001B	SAMP	500	Hexavalent Chromium	10/03/19 2:14 PM	Reported
21	N037721-001BMSD	MSD	500	Hexavalent Chromium	10/03/19 2:23 PM	Reported
22	N037722-002ADUP	DUP	1	Hexavalent Chromium	10/03/19 2:33 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	10/03/19 2:42 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	10/03/19 2:52 PM	Reported
25	N037723-001A	SAMP	1	Hexavalent Chromium	10/03/19 3:01 PM	Reported
26	N037723-001AMS	MS	1	Hexavalent Chromium	10/03/19 3:11 PM	Reported
27	N037723-002A	SAMP	1	Hexavalent Chromium	10/03/19 3:20 PM	Not Reported
28	N037723-002AMS	MS	1	Hexavalent Chromium	10/03/19 3:30 PM	Not Reported
29	N037723-003A	SAMP	1	Hexavalent Chromium	10/03/19 3:39 PM	Reported
30	N037723-003AMS	MS	1	Hexavalent Chromium	10/03/19 3:49 PM	Reported
31	N037723-004A	SAMP	100	Hexavalent Chromium	10/03/19 3:58 PM	Reported
32	N037723-004AMS	MS	100	Hexavalent Chromium	10/03/19 4:07 PM	Reported
33	N037723-005A	SAMP	1	Hexavalent Chromium	10/03/19 4:17 PM	Reported
34	N037723-005AMS	MS	1	Hexavalent Chromium	10/03/19 4:26 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	10/03/19 4:36 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	10/03/19 4:45 PM	Reported
37	N037723-001A	SAMP	5	Hexavalent Chromium	10/03/19 4:55 PM	Not Reported
38	N037723-001AMS	MS	5	Hexavalent Chromium	10/03/19 5:04 PM	Not Reported
39	N037723-002A	SAMP	5	Hexavalent Chromium	10/03/19 5:14 PM	Reported
40	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 5:23 PM	Reported
41	N037723-003A	SAMP	5	Hexavalent Chromium	10/03/19 5:33 PM	Not Reported
42	N037723-003AMS	MS	5	Hexavalent Chromium	10/03/19 5:42 PM	Not Reported

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037718-001C	SAMP	50	Hexavalent Chromium	10/03/19 5:52 PM	Not Reported
44	N037718-001CMS	MS	50	Hexavalent Chromium	10/03/19 6:01 PM	Not Reported
45	N037718-002C	SAMP	1	Hexavalent Chromium	10/03/19 6:10 PM	Reported
46	N037718-002CMS	MS	1	Hexavalent Chromium	10/03/19 6:20 PM	Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	10/03/19 6:29 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	10/03/19 6:39 PM	Reported
49	N037718-003B	SAMP	5	Hexavalent Chromium	10/03/19 6:48 PM	Reported
50	N037718-003BMS	MS	5	Hexavalent Chromium	10/03/19 6:58 PM	Reported
51	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 7:07 PM	Not Reported
52	CCV-4	CCV	1	Hexavalent Chromium	10/03/19 7:17 PM	Reported
53	CCB-4	CCB	1	Hexavalent Chromium	10/03/19 7:26 PM	Reported
54	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 7:36 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191003B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Oct/19 09:29:25**
No. of Injections:	**57**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1	1	1000	Unknown		10/03/2019 11:57	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	2	1000	Unknown		10/03/2019 12:08	Finished	PQL @ 0.2ppb
12	ICB,ICB,1	3	1000	Unknown		10/03/2019 12:17	Finished	CCB R190830A
13	MB-H2O,MBLK,1,	4	1000	Unknown		10/03/2019 12:27	Finished	MB R190830A
14	LCS-H2O,LCS,1,	5	1000	Unknown		10/03/2019 12:36	Finished	LCS @5ppb, IWST-190702B
15	N037721-001BMS,MS	6	1000	Unknown		10/03/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
16	N037722-001A,SAMP	7	1000	Unknown		10/03/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
17	N037722-001AMS,MS	8	1000	Unknown		10/03/2019 13:46	Finished	MS (5ppb), IWST-190702B,10
18	N037722-002A,SAMP	9	1000	Unknown		10/03/2019 13:55	Finished	MS (1ppb), IWST-190702B,10
19	N037722-002AMS,MS	10	1000	Unknown		10/03/2019 14:04	Finished	SAMP, 2>10 mL
20	N037721-001B,SAMP	11	1000	Unknown		10/03/2019 14:14	Finished	MS (1ppb), IWST-190702B,2>1
21	N037721-001BMSD,M	12	1000	Unknown		10/03/2019 14:23	Finished	
22	N037722-002ADUP,D	13	1000	Unknown		10/03/2019 14:33	Finished	
23	CCV-1,CCV1,1,	14	1000	Unknown		10/03/2019 14:42	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	15	1000	Unknown		10/03/2019 14:52	Finished	CCB R190830A
25	N037723-001A,SAMP	16	1000	Unknown		10/03/2019 15:01	Finished	
26	N037723-001AMS,MS	17	1000	Unknown		10/03/2019 15:11	Finished	
27	N037723-002A,SAMP	18	1000	Unknown		10/03/2019 15:20	Finished	
28	N037723-002AMS,MS	19	1000	Unknown		10/03/2019 15:30	Finished	
29	N037723-003A,SAMP	20	1000	Unknown		10/03/2019 15:39	Finished	
30	N037723-003AMS,MS	21	1000	Unknown		10/03/2019 15:49	Finished	
31	N037723-004A,SAMP	22	1000	Unknown		10/03/2019 15:58	Finished	
32	N037723-004AMS,MS	23	1000	Unknown		10/03/2019 16:07	Finished	
33	N037723-005A,SAMP	24	1000	Unknown		10/03/2019 16:17	Finished	
34	N037723-005AMS,MS	25	1000	Unknown		10/03/2019 16:26	Finished	
35	CCV-2,CCV,1,	26	1000	Unknown		10/03/2019 16:36	Finished	CCV @5ppb, IWST-190702A
36	CCB-2,CCB,1,	27	1000	Unknown		10/03/2019 16:45	Finished	CCB R190830A
37	N037723-001A,SAMP	28	1000	Unknown		10/03/2019 16:55	Finished	
38	N037723-001AMS,MS	29	1000	Unknown		10/03/2019 17:04	Finished	
39	N037723-002A,SAMP	30	1000	Unknown		10/03/2019 17:14	Finished	
40	N037723-002AMS,MS	31	1000	Unknown		10/03/2019 17:23	Finished	
41	N037723-003A,SAMP	32	1000	Unknown		10/03/2019 17:33	Finished	
42	N037723-003AMS,MS	33	1000	Unknown		10/03/2019 17:42	Finished	
43	N037718-001C,SAMP	34	1000	Unknown		10/03/2019 17:52	Finished	
44	N037718-001CMS,MS	35	1000	Unknown		10/03/2019 18:01	Finished	
45	N037718-002C,SAMP	36	1000	Unknown		10/03/2019 18:10	Finished	
46	N037718-002CMS,MS	37	1000	Unknown		10/03/2019 18:20	Finished	
47	CCV-3,CCV1,1,	38	1000	Unknown		10/03/2019 18:29	Finished	CCV @10ppb, IWST-190702A
48	CCB-3,CCB,1,	39	1000	Unknown		10/03/2019 18:39	Finished	CCB R190830A
49	N037718-003C,SAMP	40	1000	Unknown		10/03/2019 18:48	Finished	
50	N037718-003CMS,MS	41	1000	Unknown		10/03/2019 18:58	Finished	
51	N037723-002AMS,MS	42	1000	Unknown		10/03/2019 19:07	Finished	
52	CCV-4,CCV,1,	43	1000	Unknown		10/03/2019 19:17	Finished	CCV @5ppb, IWST-190702A
53	CCB-4,CCB,1,	44	1000	Unknown		10/03/2019 19:26	Finished	CCB R190830A
54	BLANK	45	1000	Unknown		10/03/2019 19:36	Finished	BLANK
55	SHUTDOWN	46	1000	Unknown		10/03/2019 19:45	Finished	
56	Eluent: R190930D	47	1000	Unknown		n.a.	Finished	Eluent
57	PCR: R190930E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 7:39 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	10/08/19 7:49 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/08/19 7:59 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	10/08/19 8:08 AM	Reported
14	MB-R136808	MBLK	1	Hexavalent Chromium	10/08/19 8:18 AM	Reported
15	LCS-R136808	LCS	1	Hexavalent Chromium	10/08/19 8:27 AM	Reported
16	N037770-001AMS	MS	1	Hexavalent Chromium	10/08/19 8:43 AM	Not Reported
17	N037770-001A	SAMP	5	Hexavalent Chromium	10/08/19 8:54 AM	Reported
18	N037770-001AMS	MS	5	Hexavalent Chromium	10/08/19 9:04 AM	Reported
19	N037770-002AMS	MS	1	Hexavalent Chromium	10/08/19 9:13 AM	Not Reported
20	N037770-002A	SAMP	5	Hexavalent Chromium	10/08/19 9:23 AM	Reported
21	N037770-002AMS	MS	5	Hexavalent Chromium	10/08/19 9:32 AM	Reported
22	N037770-003A	SAMP	1	Hexavalent Chromium	10/08/19 9:42 AM	Not Reported
23	N037770-003AMS	MS	1	Hexavalent Chromium	10/08/19 9:51 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	10/08/19 10:01 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	10/08/19 10:10 AM	Reported
26	N037770-004A	SAMP	1	Hexavalent Chromium	10/08/19 10:20 AM	Reported
27	N037770-004AMS	MS	1	Hexavalent Chromium	10/08/19 10:31 AM	Reported
28	N037770-005A	SAMP	1	Hexavalent Chromium	10/08/19 10:41 AM	Reported
29	N037770-005AMS	MS	1	Hexavalent Chromium	10/08/19 10:50 AM	Reported
30	N037770-005ADUP	DUP	1	Hexavalent Chromium	10/08/19 11:00 AM	Reported
31	N037770-001AMSD	MSD	5	Hexavalent Chromium	10/08/19 11:09 AM	Reported
32	N037770-003A	SAMP	5	Hexavalent Chromium	10/08/19 11:19 AM	Reported
33	N037770-003AMS	MS	5	Hexavalent Chromium	10/08/19 11:28 AM	Reported
34	N037790-001AMS	MS	1	Hexavalent Chromium	10/08/19 11:38 AM	Not Reported
35	N037790-002AMS	MS	1	Hexavalent Chromium	10/08/19 11:47 AM	Not Reported
36	CCV-3	CCV	1	Hexavalent Chromium	10/08/19 11:57 AM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	10/08/19 12:06 PM	Reported
38	N037792-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:17 PM	Reported
39	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:28 PM	Not Reported
40	N037798-001AMS	MS	1	Hexavalent Chromium	10/08/19 12:38 PM	Not Reported
41	N037798-002AMS	MS	1	Hexavalent Chromium	10/08/19 12:47 PM	Not Reported
42	N037790-001A	SAMP	50	Hexavalent Chromium	10/08/19 12:57 PM	Reported

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Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037790-001AMS	MS	50	Hexavalent Chromium	10/08/19 1:06 PM	Reported
44	N037790-002A	SAMP	10	Hexavalent Chromium	10/08/19 1:15 PM	Reported
45	N037790-002AMS	MS	10	Hexavalent Chromium	10/08/19 1:25 PM	Reported
46	N037792-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:34 PM	Reported
47	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:44 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	10/08/19 1:53 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	10/08/19 2:03 PM	Reported
50	N037798-001AMS	MS	5	Hexavalent Chromium	10/08/19 2:19 PM	Reported
51	N037798-002A	SAMP	10	Hexavalent Chromium	10/08/19 2:30 PM	Reported
52	N037798-002AMS	MS	10	Hexavalent Chromium	10/08/19 2:39 PM	Reported
53	N037798-001A	SAMP	5	Hexavalent Chromium	10/08/19 2:49 PM	Reported
54	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 2:58 PM	Reported
55	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 3:08 PM	Reported
56	N037736-001A	SAMP	1	Hexavalent Chromium	10/08/19 3:38 PM	Reported
57	N037736-001AMS	MS	1	Hexavalent Chromium	10/08/19 3:49 PM	Reported
58	N037736-002A	SAMP	1	Hexavalent Chromium	10/08/19 3:58 PM	Reported
59	N037736-002AMS	MS	1	Hexavalent Chromium	10/08/19 4:08 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	10/08/19 4:17 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	10/08/19 4:27 PM	Reported
62	N037736-003A	SAMP	1	Hexavalent Chromium	10/08/19 4:36 PM	Reported
63	N037736-003AMS	MS	1	Hexavalent Chromium	10/08/19 4:45 PM	Reported
64	N037736-004A	SAMP	1	Hexavalent Chromium	10/08/19 4:55 PM	Reported
65	N037736-004AMS	MS	1	Hexavalent Chromium	10/08/19 5:04 PM	Reported
66	N037736-005A	SAMP	1	Hexavalent Chromium	10/08/19 5:14 PM	Reported
67	N037736-005AMS	MS	1	Hexavalent Chromium	10/08/19 5:23 PM	Reported
68	N037736-006A	SAMP	1	Hexavalent Chromium	10/08/19 5:33 PM	Reported
69	N037736-006AMS	MS	1	Hexavalent Chromium	10/08/19 5:42 PM	Reported
70	N037736-007A	SAMP	1	Hexavalent Chromium	10/08/19 5:52 PM	Reported
71	N037736-007AMS	MS	1	Hexavalent Chromium	10/08/19 6:01 PM	Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	10/08/19 6:11 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	10/08/19 6:20 PM	Reported
74	N037736-008A	SAMP	1	Hexavalent Chromium	10/08/19 6:35 PM	Reported
75	N037736-008AMS	MS	1	Hexavalent Chromium	10/08/19 6:45 PM	Reported
76	MB-R136842	MBLK	1	Hexavalent Chromium	10/08/19 6:55 PM	Reported
77	LCS-R136842	LCS	1	Hexavalent Chromium	10/08/19 7:04 PM	Reported
78	N037801-001A	SAMP	1	Hexavalent Chromium	10/08/19 7:14 PM	Reported
79	N037801-001AMS	MS	1	Hexavalent Chromium	10/08/19 7:23 PM	Reported
80	N037801-002A	SAMP	1	Hexavalent Chromium	10/08/19 7:33 PM	Reported
81	N037801-002AMS	MS	1	Hexavalent Chromium	10/08/19 7:42 PM	Reported
82	N037801-003A	SAMP	1	Hexavalent Chromium	10/08/19 7:52 PM	Reported
83	N037801-003AMS	MS	1	Hexavalent Chromium	10/08/19 8:01 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	10/08/19 8:11 PM	Reported

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Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	10/08/19 8:20 PM	Reported
86	N037801-004A	SAMP	1	Hexavalent Chromium	10/08/19 8:29 PM	Reported
87	N037801-004AMS	MS	1	Hexavalent Chromium	10/08/19 8:39 PM	Reported
88	N037801-005A	SAMP	1	Hexavalent Chromium	10/08/19 8:48 PM	Reported
89	N037801-005AMS	MS	1	Hexavalent Chromium	10/08/19 8:58 PM	Reported
90	N037801-006A	SAMP	1	Hexavalent Chromium	10/08/19 9:07 PM	Reported
91	N037801-006AMS	MS	1	Hexavalent Chromium	10/08/19 9:17 PM	Reported
92	N037801-007A	SAMP	1	Hexavalent Chromium	10/08/19 9:26 PM	Reported
93	N037801-007AMS	MS	1	Hexavalent Chromium	10/08/19 9:36 PM	Reported
94	N037801-004AMSD	MSD	1	Hexavalent Chromium	10/08/19 9:45 PM	Reported
95	N037801-001ADUP	DUP	1	Hexavalent Chromium	10/08/19 9:55 PM	Reported
96	CCV-8	CCV1	1	Hexavalent Chromium	10/08/19 10:04 PM	Reported
97	CCB-8	CCB	1	Hexavalent Chromium	10/08/19 10:14 PM	Reported
98	N037756-001A	SAMP	20	Hexavalent Chromium	10/08/19 10:23 PM	Reported
99	N037756-001AMS	MS	20	Hexavalent Chromium	10/08/19 10:32 PM	Reported
100	N037757-001A	SAMP	1	Hexavalent Chromium	10/08/19 10:42 PM	Reported
101	N037757-001AMS	MS	1	Hexavalent Chromium	10/08/19 10:51 PM	Reported
102	N037757-002A	SAMP	50	Hexavalent Chromium	10/08/19 11:01 PM	Reported
103	N037757-002AMS	MS	50	Hexavalent Chromium	10/08/19 11:10 PM	Reported
104	N037772-002B	SAMP	1	Hexavalent Chromium	10/08/19 11:20 PM	Reported
105	N037772-002BMS	MS	1	Hexavalent Chromium	10/08/19 11:29 PM	Reported
106	CCV-9	CCV	1	Hexavalent Chromium	10/08/19 11:39 PM	Reported
107	CCB-9	CCB	1	Hexavalent Chromium	10/08/19 11:48 PM	Reported
108	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 11:58 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191008A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**09/Oct/19 09:51:48**
No. of Injections:	**111**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	BLANK	1	1000	Unknown		10/08/2019 07:39	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		10/08/2019 07:49	Finished	CCV @5ppb, IWST-190702A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/08/2019 07:59	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		10/08/2019 08:08	Finished	CCB R190830A
14	MB-H2O,MBLK,1,	5	1000	Unknown		10/08/2019 08:18	Finished	MB R190830A
15	LCS-H2O,LCS,1,	6	1000	Unknown		10/08/2019 08:27	Finished	LCS @5ppb, IWST-190702B
16	N037770-001AMS,MS	7	1000	Unknown		10/08/2019 08:43	Finished	MS (1ppb), IWST-190702B,10
17	N037770-001A,SAMP	8	1000	Unknown		10/08/2019 08:54	Finished	SAMP,2>10 mL
18	N037770-001AMS,MS	9	1000	Unknown		10/08/2019 09:04	Finished	MS (1ppb), IWST-190702B,2>1
19	N037770-002AMS,MS	10	1000	Unknown		10/08/2019 09:13	Finished	MS (1ppb), IWST-190702B,10
20	N037770-002A,SAMP	11	1000	Unknown		10/08/2019 09:23	Finished	SAMP,2>10 mL
21	N037770-002AMS,MS	12	1000	Unknown		10/08/2019 09:32	Finished	MS (1ppb), IWST-190702B,2>1
22	N037770-003A,SAMP	13	1000	Unknown		10/08/2019 09:42	Finished	SAMP, 10 mL
23	N037770-003AMS,MS	14	1000	Unknown		10/08/2019 09:51	Finished	MS (1ppb), IWST-190702B,10
24	CCV-2,CCV1,1,	15	1000	Unknown		10/08/2019 10:01	Finished	CCV @10ppb, IWST-190702A
25	CCB-2,CCB,1,	16	1000	Unknown		10/08/2019 10:10	Finished	CCB R190830A
26	N037770-004A,SAMP	17	1000	Unknown		10/08/2019 10:20	Finished	SAMP, 10 mL
27	N037770-004AMS,MS	18	1000	Unknown		10/08/2019 10:31	Finished	MS (1ppb), IWST-190702B,10
28	N037770-005A,SAMP	19	1000	Unknown		10/08/2019 10:41	Finished	SAMP, 10 mL
29	N037770-005AMS,MS	20	1000	Unknown		10/08/2019 10:50	Finished	MS (1ppb), IWST-190702B,10
30	N037770-005ADUP,D	21	1000	Unknown		10/08/2019 11:00	Finished	DUP, 10 mL
31	N037770-001AMSD,M	22	1000	Unknown		10/08/2019 11:09	Finished	MSD (1ppb), IWST-190702B,10
32	N037770-003A,SAMP	23	1000	Unknown		10/08/2019 11:19	Finished	MS (1ppb), IWST-190702B,10
33	N037770-003AMS,MS	24	1000	Unknown		10/08/2019 11:28	Finished	MS (1ppb), IWST-190702B,10
34	N037790-001AMS,MS	25	1000	Unknown		10/08/2019 11:38	Finished	MS (1ppb), IWST-190702B,10
35	N037790-002AMS,MS	26	1000	Unknown		10/08/2019 11:47	Finished	MS (1ppb), IWST-190702B,10
36	CCV-3,CCV,1,	27	1000	Unknown		10/08/2019 11:57	Finished	CCV @5ppb, IWST-190702A
37	CCB-3,CCB,1,	28	1000	Unknown		10/08/2019 12:06	Finished	CCB R190830A
38	N037792-001AMS,MS	29	1000	Unknown		10/08/2019 12:17	Finished	MS (5ppb), IWST-190702B,0.0
39	N037794-001AMS,MS	30	1000	Unknown		10/08/2019 12:28	Finished	MS (5ppb), IWST-190702B,0.0
40	N037798-001AMS,MS	31	1000	Unknown		10/08/2019 12:38	Finished	MS (1ppb), IWST-190702B,10
41	N037798-002AMS,MS	32	1000	Unknown		10/08/2019 12:47	Finished	MS (1ppb), IWST-190702B,10
42	N037790-001A,SAMP	33	1000	Unknown		10/08/2019 12:57	Finished	SAMP,0.2>10mL
43	N037790-001AMS,MS	34	1000	Unknown		10/08/2019 13:06	Finished	MS (5ppb), IWST-190702B,0.2
44	N037790-002A,SAMP	35	1000	Unknown		10/08/2019 13:15	Finished	SAMP,1>10mL
45	N037790-002AMS,MS	36	1000	Unknown		10/08/2019 13:25	Finished	MS (5ppb), IWST-190702B,1>1
46	N037792-001A,SAMP	37	1000	Unknown		10/08/2019 13:34	Finished	SAMP,0.05>10mL
47	N037794-001A,SAMP	38	1000	Unknown		10/08/2019 13:44	Finished	SAMP,0.05>10mL
48	CCV-4,CCV1,1,	39	1000	Unknown		10/08/2019 13:53	Finished	CCV @10ppb, IWST-190702A
49	CCB-4,CCB,1,	40	1000	Unknown		10/08/2019 14:03	Finished	CCB R190830A
50	N037798-001AMS,MS	41	1000	Unknown		10/08/2019 14:19	Finished	MS (1ppb), IWST-190702B,2>1
51	N037798-002A,SAMP	42	1000	Unknown		10/08/2019 14:30	Finished	SAMP,1>10mL
52	N037798-002AMS,MS	43	1000	Unknown		10/08/2019 14:39	Finished	MS (5ppb), IWST-190702B,1>1
53	N037798-001A,SAMP	44	1000	Unknown		10/08/2019 14:49	Finished	SAMP,2>10mL
54	N037794-001A,SAMP	45	1000	Unknown		10/08/2019 14:58	Finished	SAMP,0.05>10mL
55	N037794-001AMS,MS	46	1000	Unknown		10/08/2019 15:08	Finished	MS (5ppb), IWST-190702B,0.0
56	N037736-001A,SAMP	1	1000	Unknown		10/08/2019 15:38	Finished	SAMP, 10mL
57	N037736-001AMS,MS	2	1000	Unknown		10/08/2019 15:49	Finished	MS (1ppb), IWST-190702B,10
58	N037736-002A,SAMP	3	1000	Unknown		10/08/2019 15:58	Finished	SAMP, 10mL
59	N037736-002AMS,MS	4	1000	Unknown		10/08/2019 16:08	Finished	MS (1ppb), IWST-190702B,10
60	CCV-5,CCV,1,	5	1000	Unknown		10/08/2019 16:17	Finished	CCV @5ppb, IWST-190702A

61	CCB-5,CCB,1,	6	1000	Unknown		10/08/2019 16:27	Finished	CCB R190830A
62	N037736-003A,SAMF	7	1000	Unknown		10/08/2019 16:36	Finished	SAMP, 10mL
63	N037736-003AMS,MS	8	1000	Unknown		10/08/2019 16:45	Finished	MS (1ppb), IWST-190702B,10
64	N037736-004A,SAMF	9	1000	Unknown		10/08/2019 16:55	Finished	SAMP, 10mL
65	N037736-004AMS,MS	10	1000	Unknown		10/08/2019 17:04	Finished	MS (1ppb), IWST-190702B,10
66	N037736-005A,SAMF	11	1000	Unknown		10/08/2019 17:14	Finished	SAMP, 10mL
67	N037736-005AMS,MS	12	1000	Unknown		10/08/2019 17:23	Finished	MS (1ppb), IWST-190702B,10
68	N037736-006A,SAMF	13	1000	Unknown		10/08/2019 17:33	Finished	SAMP, 10mL
69	N037736-006AMS,MS	14	1000	Unknown		10/08/2019 17:42	Finished	MS (1ppb), IWST-190702B,10
70	N037736-007A,SAMF	15	1000	Unknown		10/08/2019 17:52	Finished	
71	N037736-007AMS,MS	16	1000	Unknown		10/08/2019 18:01	Finished	
72	CCV-6,CCV1,1,	17	1000	Unknown		10/08/2019 18:11	Finished	CCV @10ppb, IWST-190702A
73	CCB-6,CCB,1,	18	1000	Unknown		10/08/2019 18:20	Finished	CCB R190830A
74	N037736-008A,SAMF	1	1000	Unknown		10/08/2019 18:35	Finished	SAMP, 10mL
75	N037736-008AMS,MS	2	1000	Unknown		10/08/2019 18:45	Finished	MS (1ppb), IWST-190702B,10
76	MB-H2O,MBLK,1,	3	1000	Unknown		10/08/2019 18:55	Finished	MB R190830A
77	LCS-H2O,LCS,1,	4	1000	Unknown		10/08/2019 19:04	Finished	LCS @5ppb, IWST-190702B
78	N037801-001A,SAMF	5	1000	Unknown		10/08/2019 19:14	Finished	SAMP, 10mL
79	N037801-001AMS,MS	6	1000	Unknown		10/08/2019 19:23	Finished	MS (1ppb), IWST-190702B,10
80	N037801-002A,SAMF	7	1000	Unknown		10/08/2019 19:33	Finished	SAMP, 10mL
81	N037801-002AMS,MS	8	1000	Unknown		10/08/2019 19:42	Finished	MS (1ppb), IWST-190702B,10
82	N037801-003A,SAMF	9	1000	Unknown		10/08/2019 19:52	Finished	SAMP, 10mL
83	N037801-003AMS,MS	10	1000	Unknown		10/08/2019 20:01	Finished	MS (1ppb), IWST-190702B,10
84	CCV-7,CCV,1,	11	1000	Unknown		10/08/2019 20:11	Finished	CCV @5ppb, IWST-190702A
85	CCB-7,CCB,1,	12	1000	Unknown		10/08/2019 20:20	Finished	CCB R190830A
86	N037801-004A,SAMF	13	1000	Unknown		10/08/2019 20:29	Finished	SAMP, 10mL
87	N037801-004AMS,MS	14	1000	Unknown		10/08/2019 20:39	Finished	MS (1ppb), IWST-190702B,10
88	N037801-005A,SAMF	15	1000	Unknown		10/08/2019 20:48	Finished	SAMP, 10mL
89	N037801-005AMS,MS	16	1000	Unknown		10/08/2019 20:58	Finished	MS (1ppb), IWST-190702B,10
90	N037801-006A,SAMF	17	1000	Unknown		10/08/2019 21:07	Finished	SAMP, 10mL
91	N037801-006AMS,MS	18	1000	Unknown		10/08/2019 21:17	Finished	MS (1ppb), IWST-190702B,10
92	N037801-007A,SAMF	19	1000	Unknown		10/08/2019 21:26	Finished	SAMP, 10mL
93	N037801-007AMS,MS	20	1000	Unknown		10/08/2019 21:36	Finished	MS (1ppb), IWST-190702B,10
94	N037801-004AMSD,M	21	1000	Unknown		10/08/2019 21:45	Finished	MSD (1ppb), IWST-190702B,1
95	N037801-001ADUP,D	22	1000	Unknown		10/08/2019 21:55	Finished	DUP, 10mL
96	CCV-8,CCV1,1,	23	1000	Unknown		10/08/2019 22:04	Finished	CCV @10ppb, IWST-190702A
97	CCB-8,CCB,1,	24	1000	Unknown		10/08/2019 22:14	Finished	CCB R190830A
98	N037756-001A,SAMF	25	1000	Unknown		10/08/2019 22:23	Finished	SAMP, 0.5>10mL
99	N037756-001AMS,MS	26	1000	Unknown		10/08/2019 22:32	Finished	MS (5ppb), IWST-190702B,0.5
100	N037757-001A,SAMF	27	1000	Unknown		10/08/2019 22:42	Finished	SAMP, 10mL
101	N037757-001AMS,MS	28	1000	Unknown		10/08/2019 22:51	Finished	MS (1ppb), IWST-190702B,10
102	N037757-002A,SAMF	29	1000	Unknown		10/08/2019 23:01	Finished	SAMP, 0.2>10mL
103	N037757-002AMS,MS	30	1000	Unknown		10/08/2019 23:10	Finished	MS (5ppb), IWST-190702B,0.2
104	~~N037772-001A,SAMF~~ N037772-002B	31	1000	Unknown		10/08/2019 23:20	Finished	SAMP, 10mL
105	~~N037772-001AMS,MS~~ N037772-002BMS	32	1000	Unknown		10/08/2019 23:29	Finished	MS (1ppb), IWST-190702B,10
106	CCV-9,CCV,1,	33	1000	Unknown		10/08/2019 23:39	Finished	CCV @5ppb, IWST-190702A
107	CCB-9,CCB,1,	34	1000	Unknown		10/08/2019 23:48	Finished	CCB R190830A
108	BLANK	35	1000	Unknown		10/08/2019 23:58	Finished	BLANK
109	SHUTDOWN	36	1000	Unknown		10/09/2019 00:07	Finished	
110	Eluent: R191008C	37	1000	Unknown		n.a.	Finished	Eluent
111	PCR: R191007B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

10/9/2019

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 10/3/19
Time Prepared: 1410
Prepared By: HG

SLOPE: 97.1%
pH 4: 4.02
7: 7.01
10: 10.02

Reagent ID: GN NaOH : R190722A
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190930D
NH4OH + NH4SO4 buffer: R190830A, R190816D

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037735-1A	9.09	9.38	~250 mL	~250 mL	+3 drops GN	NaOH
2)	-2A	9.39	—				
3)	N037736-1A	9.37	—				
4)	-2A	9.28	9.37			+1 drop GN	NaOH
5)	-3A	9.30	—				
6)	-4A	9.38	—				
7)	-5A	9.35	—				
8)	-6A	9.49	—				
9)	-7A	9.30	—				
10)	-8A	9.51	—				
11)	N037753-10/C	7.28	9.30	~125 mL	~125 mL		LAB FILTERED/PRESERVED
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 10/4/19
Time Prepared: 1045
Prepared By: HG

SLOPE: 97.7%
pH 4: 4.01
7: 7.02
10: 10.02

Reagent ID: R190722A (GN NaOH)
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190930D
NH4OH + NH4SO4 buffer: R190830A, R190816D

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037759-1B	9.41	—	~250 mL	~250 mL		
2)	N037760-1B	9.38	—				
3)	N037756-1A	9.22	9.35			+1 drops GN	NaOH
4)	N037757-1A	9.15	9.35			+2 drops GN	NaOH
5)	-2A	9.18	9.37			+2 drops GN	NaOH
6)	N037758-1A	9.31	—				
7)	-2A	9.30	—				
8)	-3A	9.04	9.35			+4 drops GN	NaOH
9)	-4A	9.21	9.30			+1 drop GN	NaOH
10)	-5A	9.31	—				
11)	-6A	9.22	9.30				
12)	-7A	9.38	—				
13)	-8	9.43	—				
14)	-9	9.40	—				
15)	-10	9.39	—				
	-11	9.35	—				
	-12	9.37	—				
	-13	9.45	—				

Logbook No. 17

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 10/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0504	0.2845	1.2983	2.6645	4.0089	5.4295	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.033	0.20	10.00	0	100	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCV**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.913	0.20	5.000	0	98.3	95	105				

Sample ID **CCV-8**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.876	0.20	10.00	0	98.8	95	105				

Sample ID **CCV-9**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCV**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.982	0.20	5.000	0	99.6	95	105				

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ICV**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3531041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.885	0.20	5.000	0	97.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3531042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.217	0.20	0.2000	0	108	80	120				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530729**

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

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530739**

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

Sample ID **CCB-8**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530751**

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

Sample ID **CCB-9**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530771**

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

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ICB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3531043**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	

Average	4.716
Actual RT Window	4.636 - 4.796
Applied RT Window	4.516 - 4.916

MB-R136808	N.A.	N.A.
LCS-R136808	4.731	PASS
N037770-001AMS	N.A.	N.A.
N037770-001A	N.A.	N.A.
N037770-001AMS	4.665	PASS
N037770-002AMS	N.A.	N.A.
N037770-002A	4.665	PASS
N037770-002AMS	4.673	PASS
N037770-003A	N.A.	N.A.
N037770-003AMS	4.598	PASS
N037770-004A	N.A.	N.A.
N037770-004AMS	4.731	PASS
N037770-005A	N.A.	N.A.
N037770-005AMS	4.715	PASS
N037770-005ADUP	N.A.	N.A.
N037770-001AMSD	4.665	PASS
N037770-003A	N.A.	N.A.
N037770-003AMS	4.706	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037790-001AMS	4.698	PASS
N037790-002AMS	4.681	PASS
N037792-001AMS	4.740	PASS
N037794-001AMS	4.740	PASS
N037798-001AMS	N.A.	N.A.
N037798-002AMS	4.640	PASS
N037790-001A	4.723	PASS
N037790-001AMS	4.723	PASS
N037790-002A	4.715	PASS
N037790-002AMS	4.715	PASS
N037792-001A	4.740	PASS
N037794-001A	4.731	PASS
N037798-001AMS	4.698	PASS
N037798-002A	4.698	PASS
N037798-002AMS	4.715	PASS
N037798-001A	4.698	PASS
N037794-001A	4.723	PASS
N037794-001AMS	4.715	PASS
N037736-001A	4.606	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037736-001AMS	4.606	PASS
N037736-002A	4.606	PASS
N037736-002AMS	4.606	PASS
N037736-003A	4.606	PASS
N037736-003AMS	4.615	PASS
N037736-004A	4.615	PASS
N037736-004AMS	4.606	PASS
N037736-005A	4.606	PASS
N037736-005AMS	4.606	PASS
N037736-006A	4.606	PASS
N037736-006AMS	4.606	PASS
N037736-007A	4.598	PASS
N037736-007AMS	4.598	PASS
N037736-008A	N.A.	N.A.
N037736-008AMS	4.706	PASS
MB-R136842	N.A.	N.A.
LCS-R136842	4.706	PASS
N037801-001A	4.706	PASS
N037801-001AMS	4.715	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037801-002A	4.715	PASS
N037801-002AMS	4.715	PASS
N037801-003A	4.715	PASS
N037801-003AMS	4.715	PASS
N037801-004A	4.715	PASS
N037801-004AMS	4.706	PASS
N037801-005A	4.706	PASS
N037801-005AMS	4.706	PASS
N037801-006A	N.A.	N.A.
N037801-006AMS	4.706	PASS
N037801-007A	4.698	PASS
N037801-007AMS	4.698	PASS
N037801-004AMSD	4.706	PASS
N037801-001ADUP	4.715	PASS
N037756-001A	4.706	PASS
N037756-001AMS	4.706	PASS
N037757-001A	N.A.	N.A.
N037757-001AMS	4.690	PASS
N037757-002A	4.706	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037757-002AMS	4.706	PASS
N037772-002B	N.A.	N.A.
N037772-002BMS	4.706	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	10/03/19 11:57 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/19 12:08 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	10/03/19 12:17 PM	Reported
13	MB-R136776	MBLK	1	Hexavalent Chromium	10/03/19 12:27 PM	Reported
14	LCS-R136776	LCS	1	Hexavalent Chromium	10/03/19 12:36 PM	Reported
15	N037721-001BMS	MS	500	Hexavalent Chromium	10/03/19 1:25 PM	Reported
16	N037722-001A	SAMP	1	Hexavalent Chromium	10/03/19 1:36 PM	Reported
17	N037722-001AMS	MS	1	Hexavalent Chromium	10/03/19 1:46 PM	Reported
18	N037722-002A	SAMP	1	Hexavalent Chromium	10/03/19 1:55 PM	Reported
19	N037722-002AMS	MS	1	Hexavalent Chromium	10/03/19 2:04 PM	Reported
20	N037721-001B	SAMP	500	Hexavalent Chromium	10/03/19 2:14 PM	Reported
21	N037721-001BMSD	MSD	500	Hexavalent Chromium	10/03/19 2:23 PM	Reported
22	N037722-002ADUP	DUP	1	Hexavalent Chromium	10/03/19 2:33 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	10/03/19 2:42 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	10/03/19 2:52 PM	Reported
25	N037723-001A	SAMP	1	Hexavalent Chromium	10/03/19 3:01 PM	Reported
26	N037723-001AMS	MS	1	Hexavalent Chromium	10/03/19 3:11 PM	Reported
27	N037723-002A	SAMP	1	Hexavalent Chromium	10/03/19 3:20 PM	Not Reported
28	N037723-002AMS	MS	1	Hexavalent Chromium	10/03/19 3:30 PM	Not Reported
29	N037723-003A	SAMP	1	Hexavalent Chromium	10/03/19 3:39 PM	Reported
30	N037723-003AMS	MS	1	Hexavalent Chromium	10/03/19 3:49 PM	Reported
31	N037723-004A	SAMP	100	Hexavalent Chromium	10/03/19 3:58 PM	Reported
32	N037723-004AMS	MS	100	Hexavalent Chromium	10/03/19 4:07 PM	Reported
33	N037723-005A	SAMP	1	Hexavalent Chromium	10/03/19 4:17 PM	Reported
34	N037723-005AMS	MS	1	Hexavalent Chromium	10/03/19 4:26 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	10/03/19 4:36 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	10/03/19 4:45 PM	Reported
37	N037723-001A	SAMP	5	Hexavalent Chromium	10/03/19 4:55 PM	Not Reported
38	N037723-001AMS	MS	5	Hexavalent Chromium	10/03/19 5:04 PM	Not Reported
39	N037723-002A	SAMP	5	Hexavalent Chromium	10/03/19 5:14 PM	Reported
40	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 5:23 PM	Reported
41	N037723-003A	SAMP	5	Hexavalent Chromium	10/03/19 5:33 PM	Not Reported
42	N037723-003AMS	MS	5	Hexavalent Chromium	10/03/19 5:42 PM	Not Reported

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037718-001C	SAMP	50	Hexavalent Chromium	10/03/19 5:52 PM	Not Reported
44	N037718-001CMS	MS	50	Hexavalent Chromium	10/03/19 6:01 PM	Not Reported
45	N037718-002C	SAMP	1	Hexavalent Chromium	10/03/19 6:10 PM	Reported
46	N037718-002CMS	MS	1	Hexavalent Chromium	10/03/19 6:20 PM	Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	10/03/19 6:29 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	10/03/19 6:39 PM	Reported
49	N037718-003B	SAMP	5	Hexavalent Chromium	10/03/19 6:48 PM	Reported
50	N037718-003BMS	MS	5	Hexavalent Chromium	10/03/19 6:58 PM	Reported
51	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 7:07 PM	Not Reported
52	CCV-4	CCV	1	Hexavalent Chromium	10/03/19 7:17 PM	Reported
53	CCB-4	CCB	1	Hexavalent Chromium	10/03/19 7:26 PM	Reported
54	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 7:36 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191003B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Oct/19 09:29:25**
No. of Injections:	**57**	*Updated By:*	**ics 5000**

Injection Details

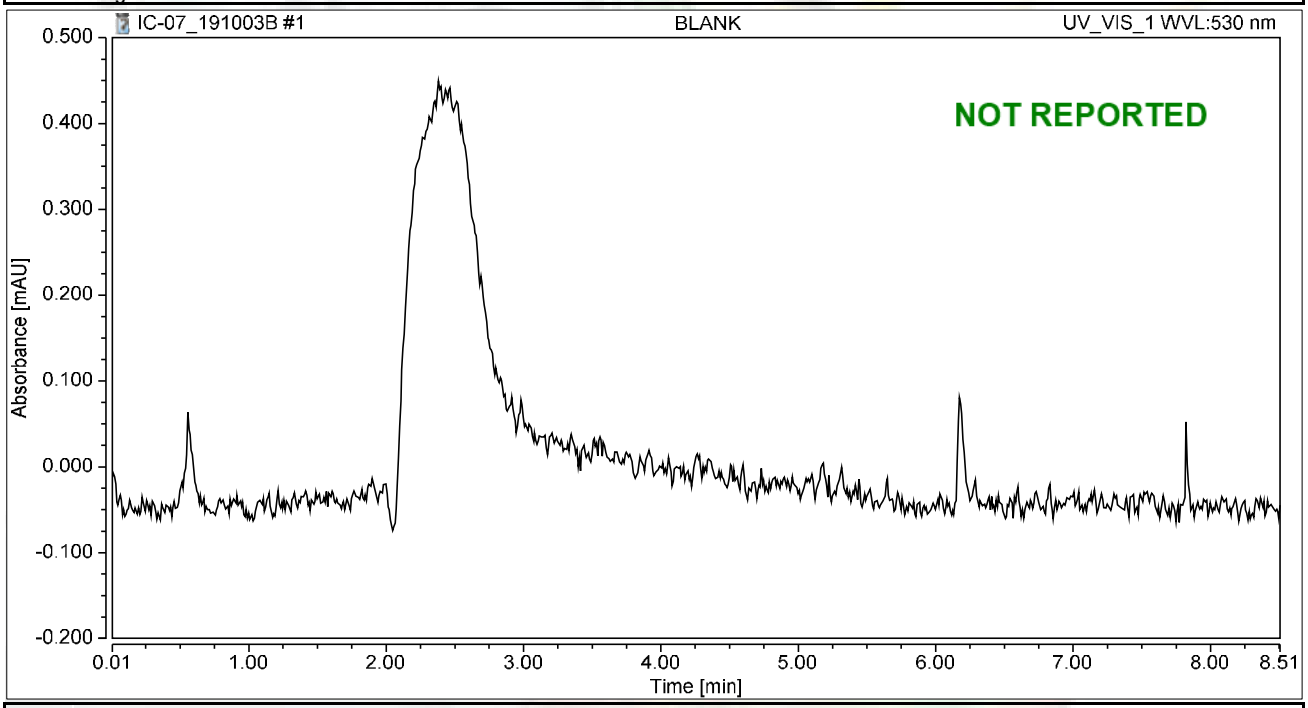
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1	1	1000	Unknown		10/03/2019 11:57	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	2	1000	Unknown		10/03/2019 12:08	Finished	PQL @ 0.2ppb
12	ICB,ICB,1	3	1000	Unknown		10/03/2019 12:17	Finished	CCB R190830A
13	MB-H2O,MBLK,1,	4	1000	Unknown		10/03/2019 12:27	Finished	MB R190830A
14	LCS-H2O,LCS,1,	5	1000	Unknown		10/03/2019 12:36	Finished	LCS @5ppb, IWST-190702B
15	N037721-001BMS,MS	6	1000	Unknown		10/03/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
16	N037722-001A,SAMF	7	1000	Unknown		10/03/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
17	N037722-001AMS,MS	8	1000	Unknown		10/03/2019 13:46	Finished	MS (5ppb), IWST-190702B,10
18	N037722-002A,SAMF	9	1000	Unknown		10/03/2019 13:55	Finished	MS (1ppb), IWST-190702B,10
19	N037722-002AMS,MS	10	1000	Unknown		10/03/2019 14:04	Finished	SAMP, 2>10 mL
20	N037721-001B,SAMF	11	1000	Unknown		10/03/2019 14:14	Finished	MS (1ppb), IWST-190702B,2>1
21	N037721-001BMSD,M	12	1000	Unknown		10/03/2019 14:23	Finished	
22	N037722-002ADUP,D	13	1000	Unknown		10/03/2019 14:33	Finished	
23	CCV-1,CCV1,1,	14	1000	Unknown		10/03/2019 14:42	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	15	1000	Unknown		10/03/2019 14:52	Finished	CCB R190830A
25	N037723-001A,SAMF	16	1000	Unknown		10/03/2019 15:01	Finished	
26	N037723-001AMS,MS	17	1000	Unknown		10/03/2019 15:11	Finished	
27	N037723-002A,SAMF	18	1000	Unknown		10/03/2019 15:20	Finished	
28	N037723-002AMS,MS	19	1000	Unknown		10/03/2019 15:30	Finished	
29	N037723-003A,SAMF	20	1000	Unknown		10/03/2019 15:39	Finished	
30	N037723-003AMS,MS	21	1000	Unknown		10/03/2019 15:49	Finished	
31	N037723-004A,SAMF	22	1000	Unknown		10/03/2019 15:58	Finished	
32	N037723-004AMS,MS	23	1000	Unknown		10/03/2019 16:07	Finished	
33	N037723-005A,SAMF	24	1000	Unknown		10/03/2019 16:17	Finished	
34	N037723-005AMS,MS	25	1000	Unknown		10/03/2019 16:26	Finished	
35	CCV-2,CCV,1,	26	1000	Unknown		10/03/2019 16:36	Finished	CCV @5ppb, IWST-190702A
36	CCB-2,CCB,1,	27	1000	Unknown		10/03/2019 16:45	Finished	CCB R190830A
37	N037723-001A,SAMF	28	1000	Unknown		10/03/2019 16:55	Finished	
38	N037723-001AMS,MS	29	1000	Unknown		10/03/2019 17:04	Finished	
39	N037723-002A,SAMF	30	1000	Unknown		10/03/2019 17:14	Finished	
40	N037723-002AMS,MS	31	1000	Unknown		10/03/2019 17:23	Finished	
41	N037723-003A,SAMF	32	1000	Unknown		10/03/2019 17:33	Finished	
42	N037723-003AMS,MS	33	1000	Unknown		10/03/2019 17:42	Finished	
43	N037718-001C,SAMF	34	1000	Unknown		10/03/2019 17:52	Finished	
44	N037718-001CMS,MS	35	1000	Unknown		10/03/2019 18:01	Finished	
45	N037718-002C,SAMF	36	1000	Unknown		10/03/2019 18:10	Finished	
46	N037718-002CMS,MS	37	1000	Unknown		10/03/2019 18:20	Finished	
47	CCV-3,CCV1,1,	38	1000	Unknown		10/03/2019 18:29	Finished	CCV @10ppb, IWST-190702A
48	CCB-3,CCB,1,	39	1000	Unknown		10/03/2019 18:39	Finished	CCB R190830A
49	N037718-003C,SAMF	40	1000	Unknown		10/03/2019 18:48	Finished	
50	N037718-003CMS,MS	41	1000	Unknown		10/03/2019 18:58	Finished	
51	N037723-002AMS,MS	42	1000	Unknown		10/03/2019 19:07	Finished	
52	CCV-4,CCV,1,	43	1000	Unknown		10/03/2019 19:17	Finished	CCV @5ppb, IWST-190702A
53	CCB-4,CCB,1,	44	1000	Unknown		10/03/2019 19:26	Finished	CCB R190830A
54	BLANK	45	1000	Unknown		10/03/2019 19:36	Finished	BLANK
55	SHUTDOWN	46	1000	Unknown		10/03/2019 19:45	Finished	
56	Eluent: R190930D	47	1000	Unknown		n.a.	Finished	Eluent
57	PCR: R190930E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

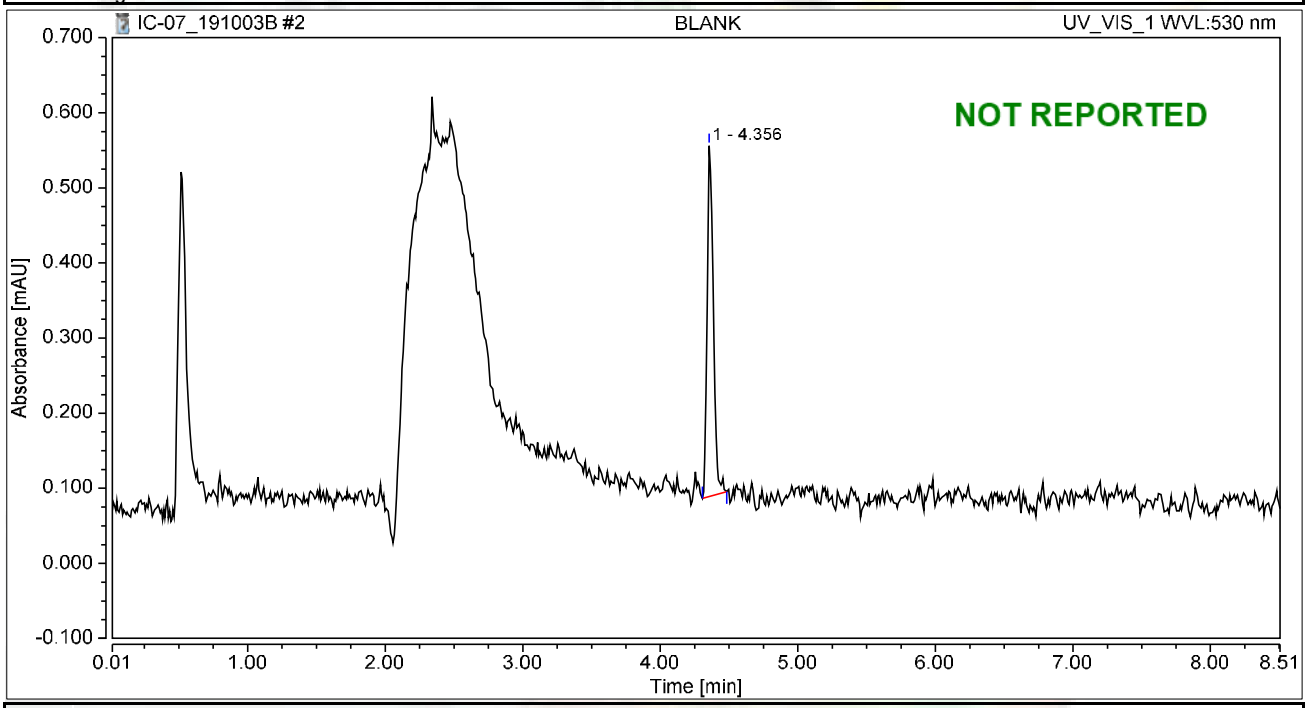
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

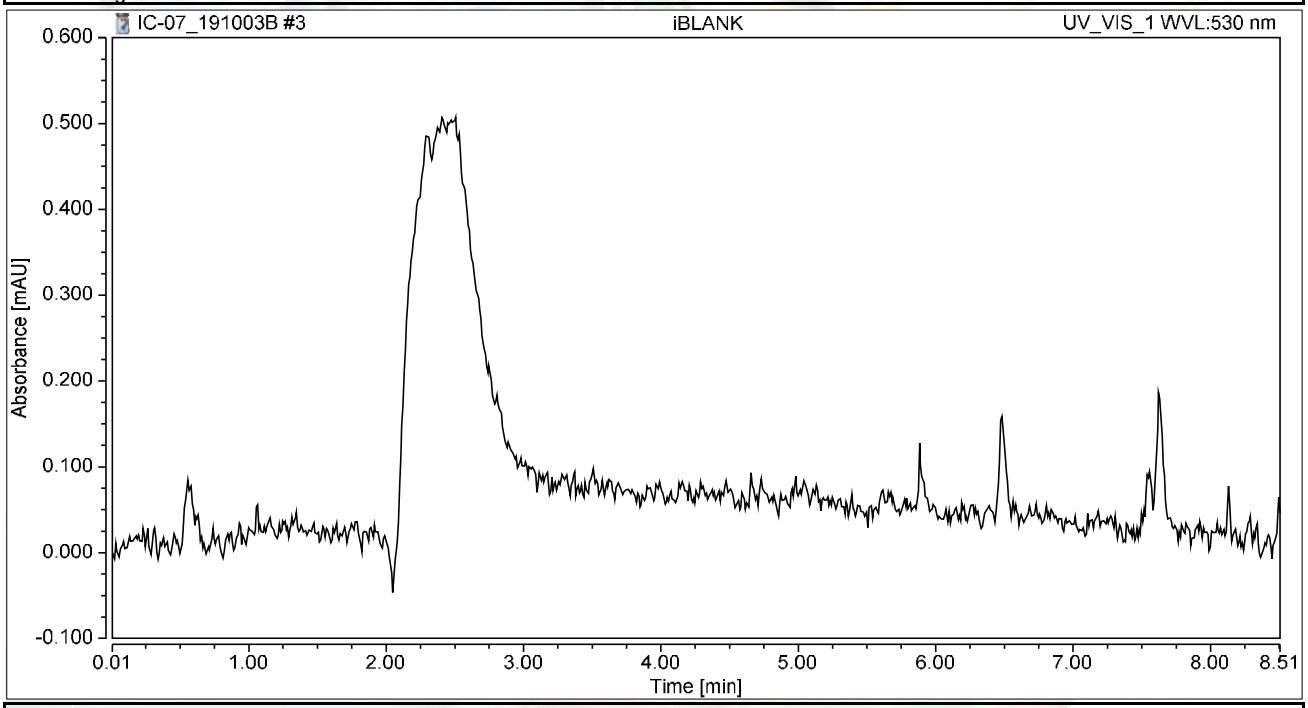
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.356	0.024	0.467	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.024**	**0.467**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

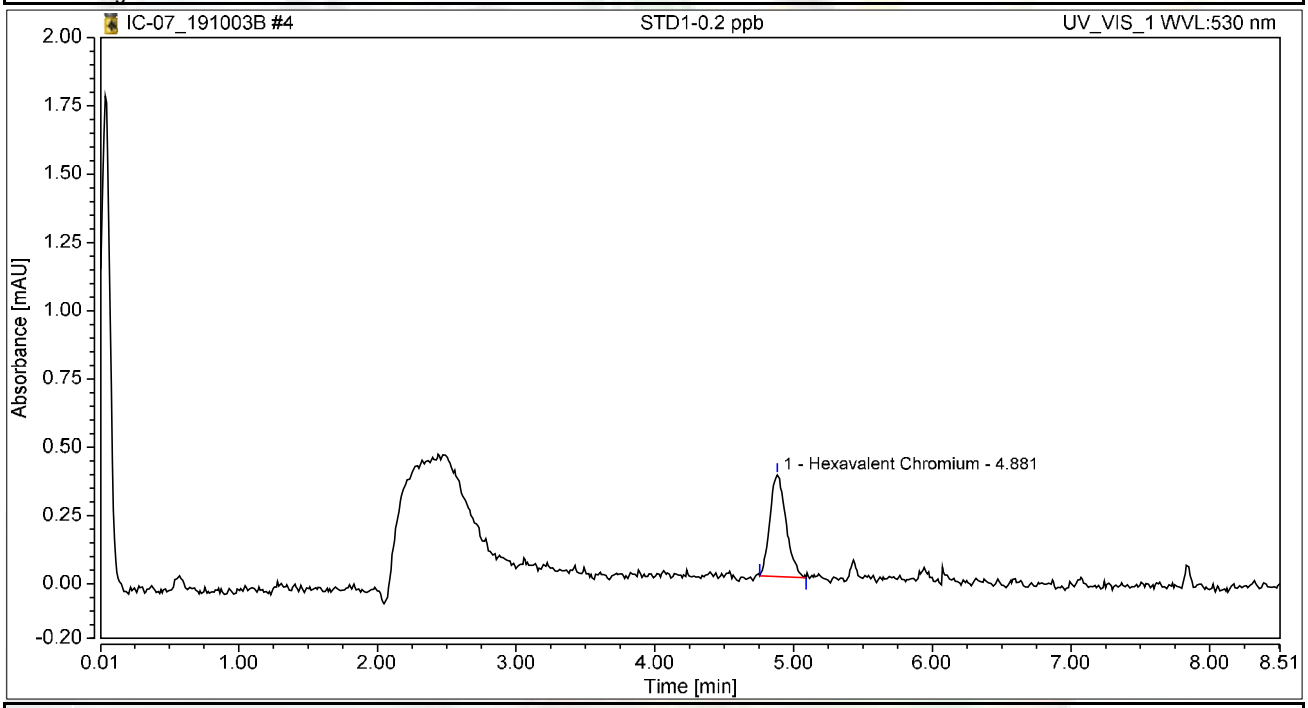
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

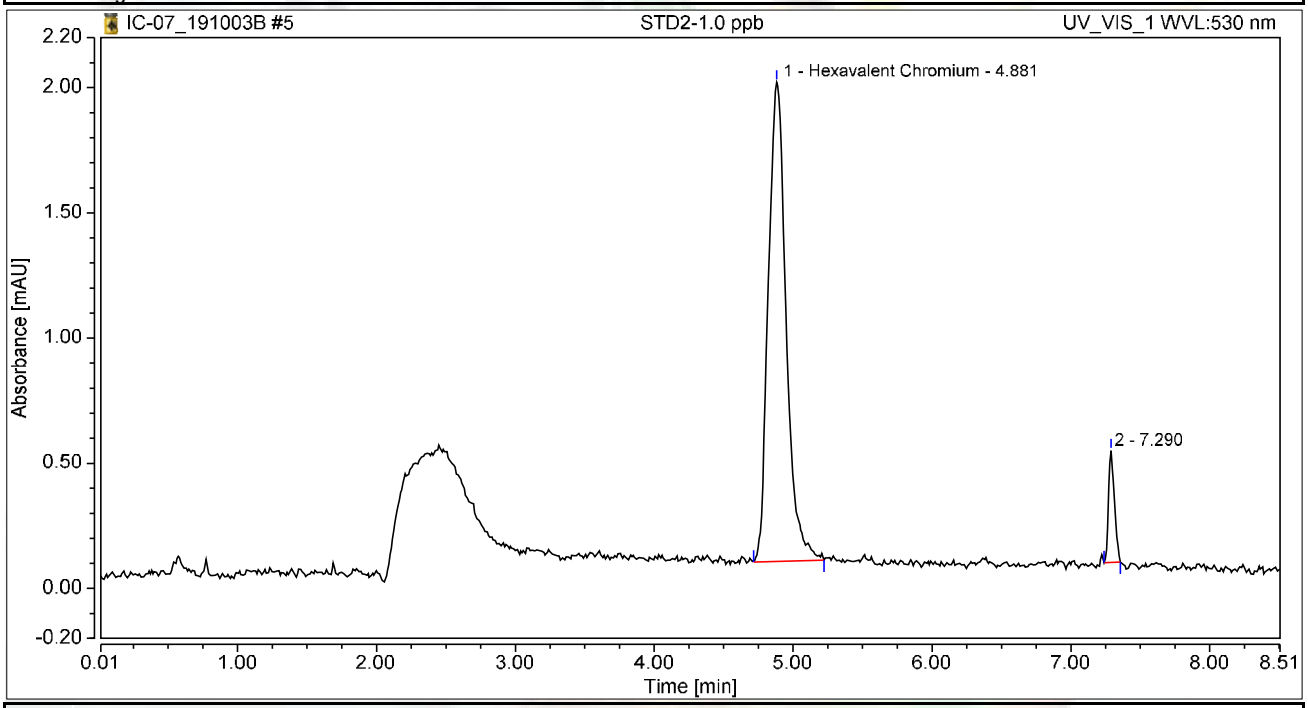
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	0.050	0.372	100.00	100.00	0.1873
Total:			**0.050**	**0.372**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

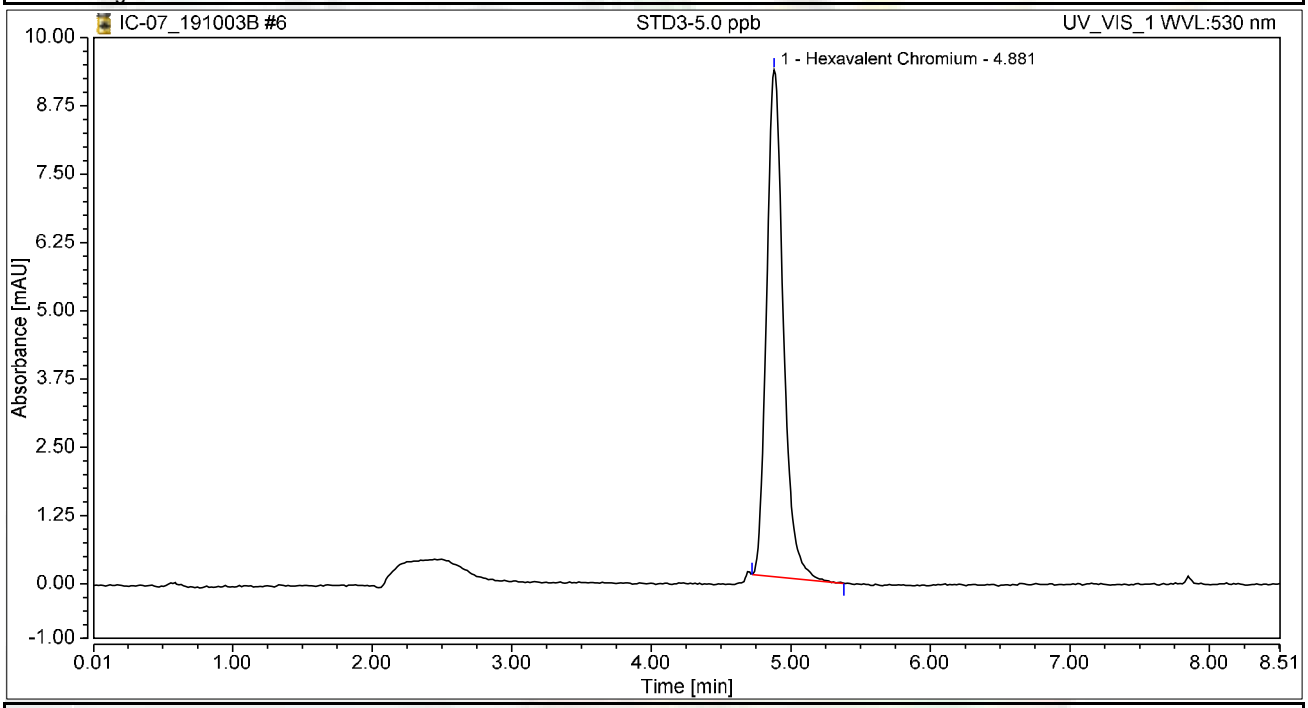
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	0.285	1.914	92.83	81.09	1.0571
2		7.290	0.022	0.446	7.17	18.91	n.a.
Total:			**0.306**	**2.360**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

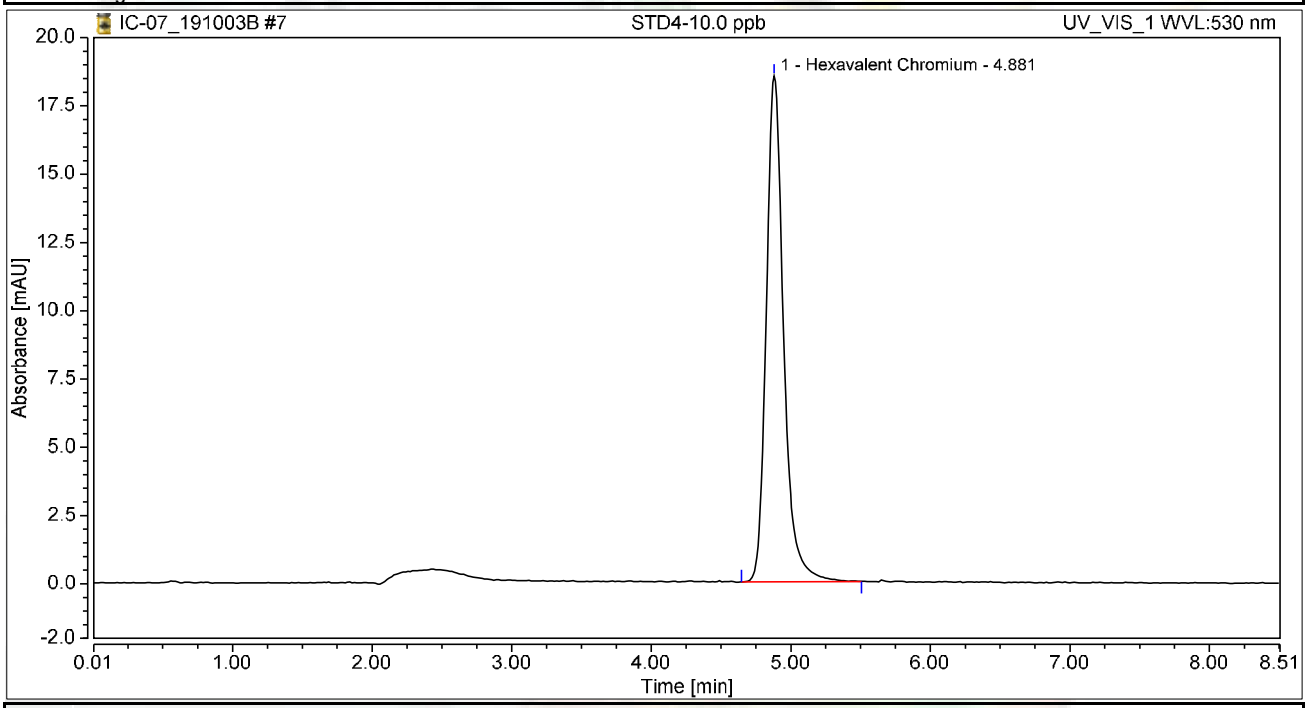
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.298	9.280	100.00	100.00	4.8236
Total:			**1.298**	**9.280**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

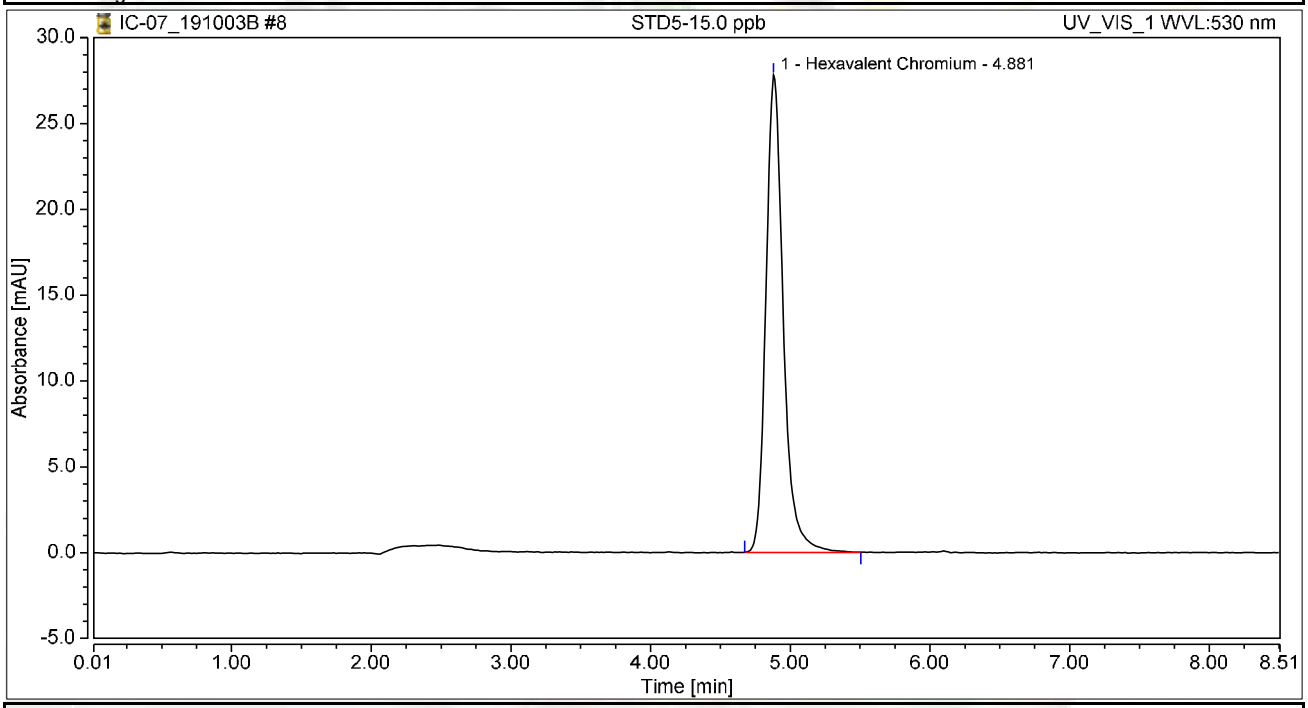
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	2.665	18.516	100.00	100.00	9.8992
Total:			**2.665**	**18.516**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

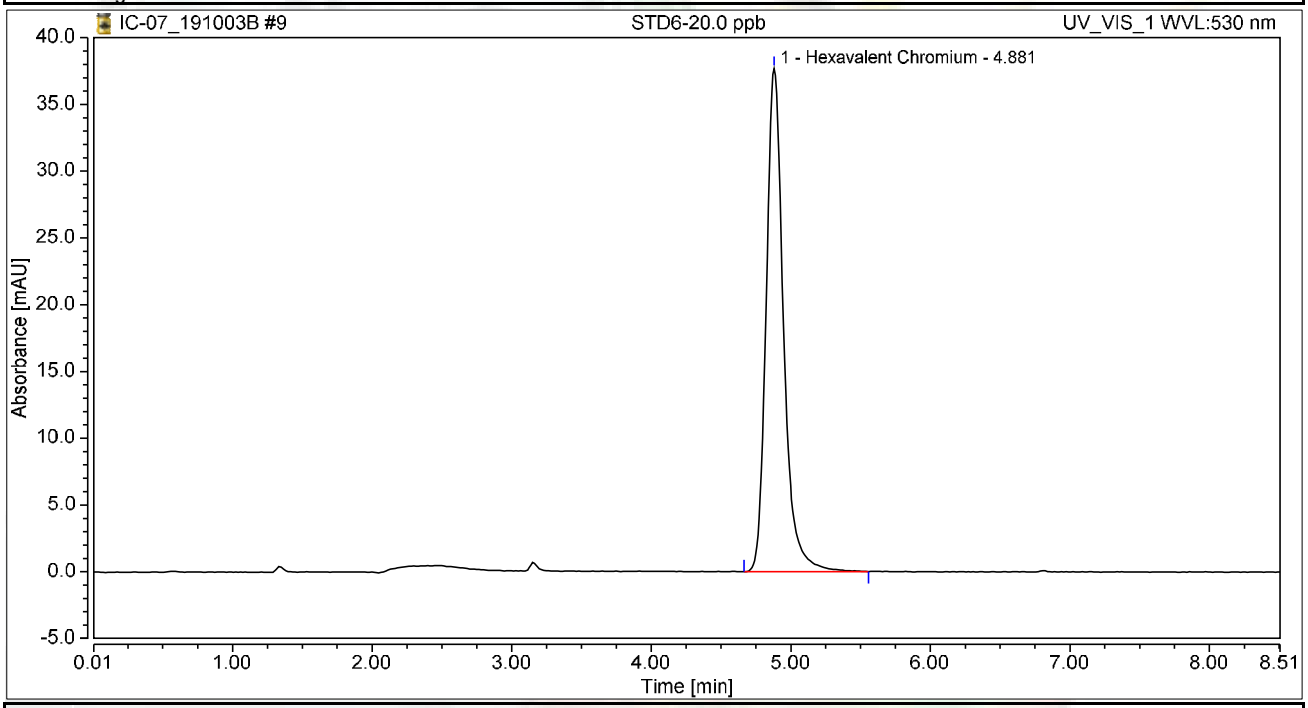
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	4.009	27.812	100.00	100.00	14.8937
Total:			**4.009**	**27.812**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



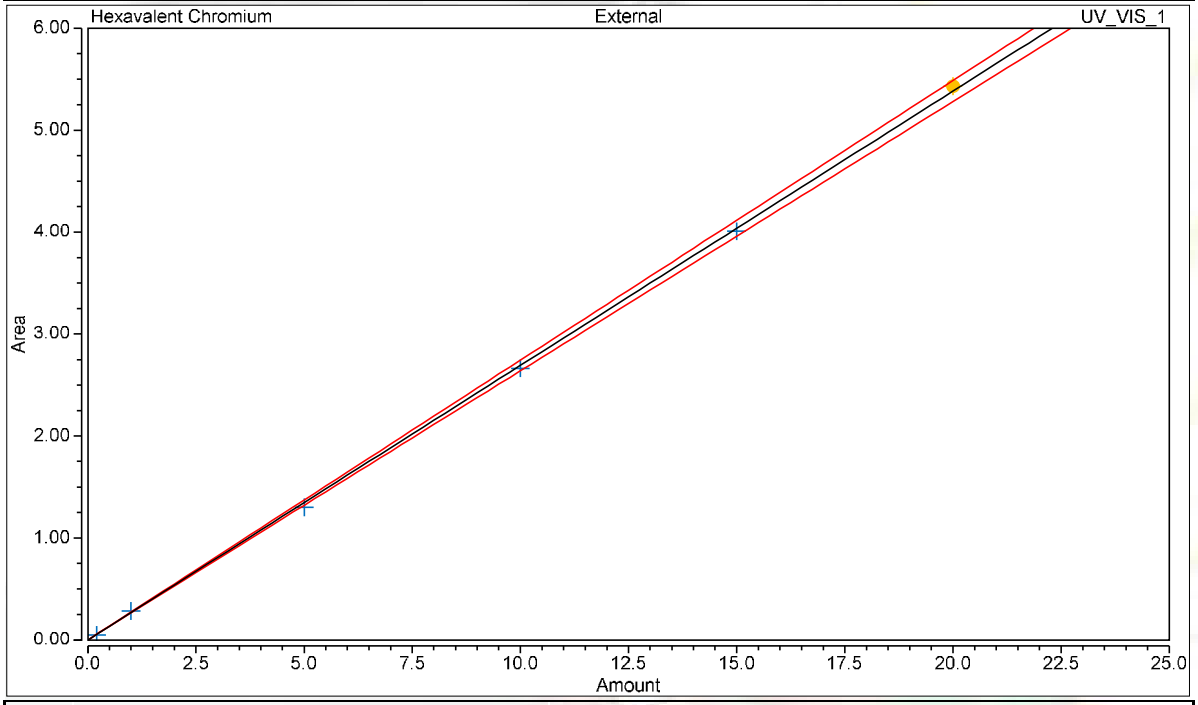
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	5.430	37.680	100.00	100.00	20.1715
Total:			**5.430**	**37.680**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2692
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99973

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

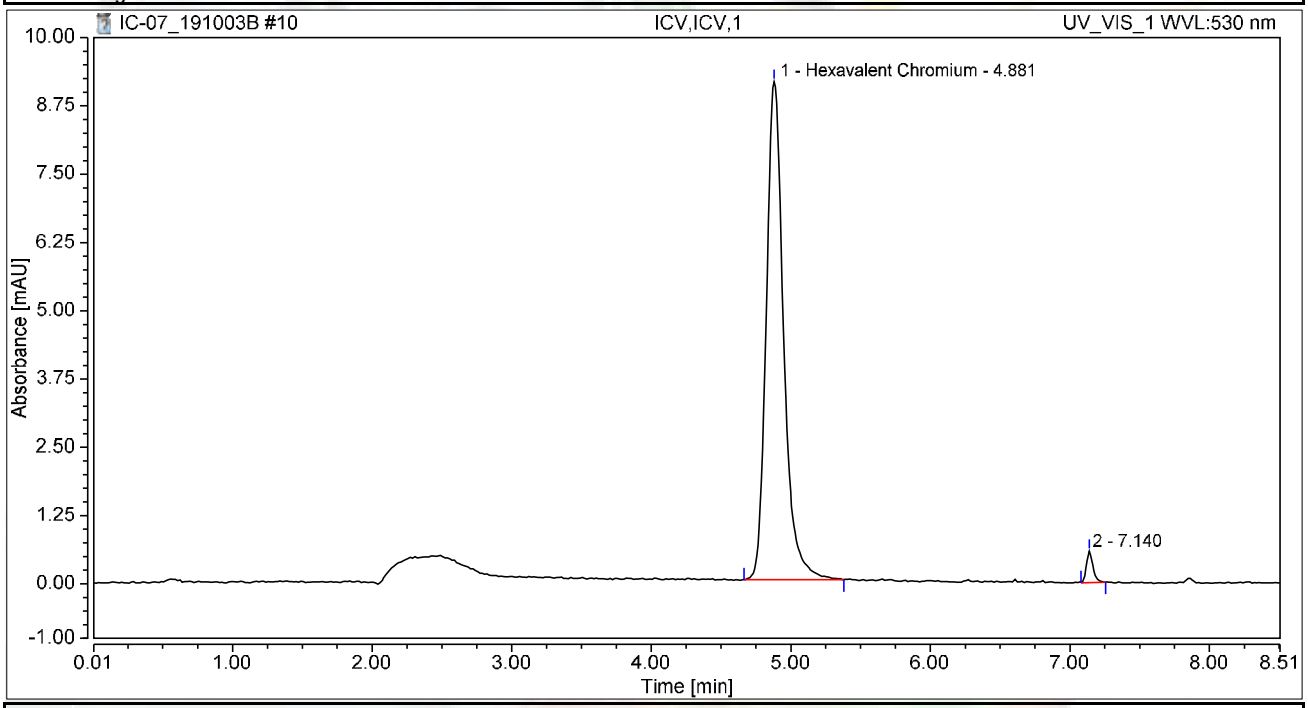
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0504	0.050	0.372
5	STD2-1.0 ppb	02	1.0000	0.2845	0.285	1.914
6	STD3-5.0 ppb	03	5.0000	1.2983	1.298	9.280
7	STD4-10.0 ppb	04	10.0000	2.6645	2.665	18.516
8	STD5-15.0 ppb	05	15.0000	4.0089	4.009	27.812
9	STD6-20.0 ppb	06	20.0000	5.4295	5.430	37.680

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

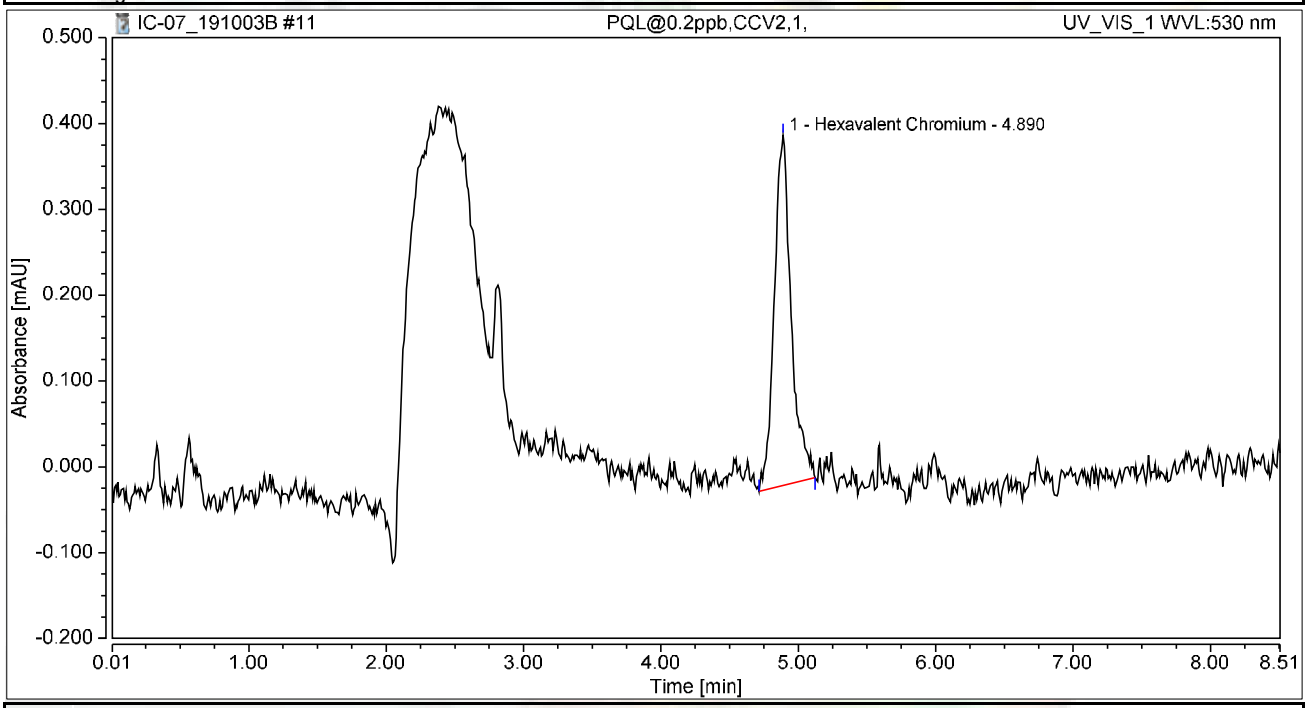
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.315	9.117	97.72	94.14	4.8852
2		7.140	0.031	0.568	2.28	5.86	n.a.
Total:			**1.346**	**9.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

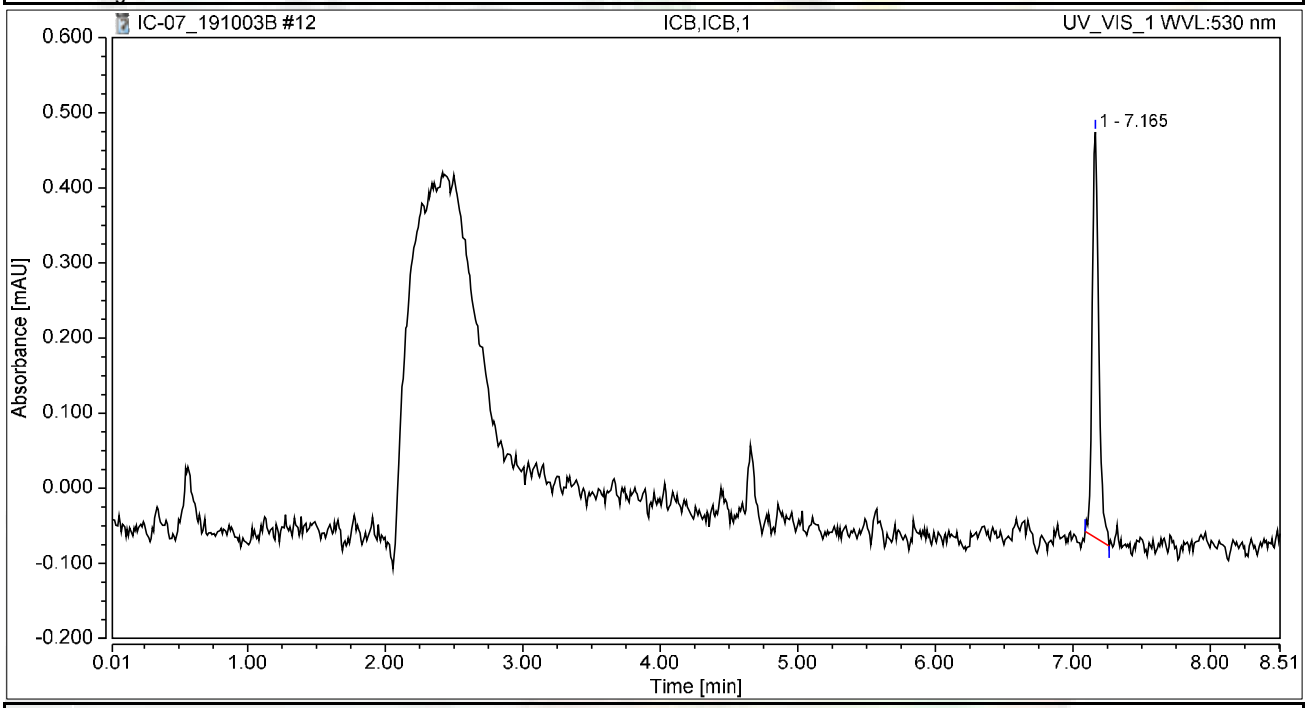
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.890	0.058	0.408	100.00	100.00	0.2165
Total:			**0.058**	**0.408**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.165	0.030	0.540	100.00	100.00	n.a.
Total:			**0.030**	**0.540**	**100.00**	**100.00**	

RAW DATA

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 7:39 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	10/08/19 7:49 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/08/19 7:59 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	10/08/19 8:08 AM	Reported
14	MB-R136808	MBLK	1	Hexavalent Chromium	10/08/19 8:18 AM	Reported
15	LCS-R136808	LCS	1	Hexavalent Chromium	10/08/19 8:27 AM	Reported
16	N037770-001AMS	MS	1	Hexavalent Chromium	10/08/19 8:43 AM	Not Reported
17	N037770-001A	SAMP	5	Hexavalent Chromium	10/08/19 8:54 AM	Reported
18	N037770-001AMS	MS	5	Hexavalent Chromium	10/08/19 9:04 AM	Reported
19	N037770-002AMS	MS	1	Hexavalent Chromium	10/08/19 9:13 AM	Not Reported
20	N037770-002A	SAMP	5	Hexavalent Chromium	10/08/19 9:23 AM	Reported
21	N037770-002AMS	MS	5	Hexavalent Chromium	10/08/19 9:32 AM	Reported
22	N037770-003A	SAMP	1	Hexavalent Chromium	10/08/19 9:42 AM	Not Reported
23	N037770-003AMS	MS	1	Hexavalent Chromium	10/08/19 9:51 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	10/08/19 10:01 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	10/08/19 10:10 AM	Reported
26	N037770-004A	SAMP	1	Hexavalent Chromium	10/08/19 10:20 AM	Reported
27	N037770-004AMS	MS	1	Hexavalent Chromium	10/08/19 10:31 AM	Reported
28	N037770-005A	SAMP	1	Hexavalent Chromium	10/08/19 10:41 AM	Reported
29	N037770-005AMS	MS	1	Hexavalent Chromium	10/08/19 10:50 AM	Reported
30	N037770-005ADUP	DUP	1	Hexavalent Chromium	10/08/19 11:00 AM	Reported
31	N037770-001AMSD	MSD	5	Hexavalent Chromium	10/08/19 11:09 AM	Reported
32	N037770-003A	SAMP	5	Hexavalent Chromium	10/08/19 11:19 AM	Reported
33	N037770-003AMS	MS	5	Hexavalent Chromium	10/08/19 11:28 AM	Reported
34	N037790-001AMS	MS	1	Hexavalent Chromium	10/08/19 11:38 AM	Not Reported
35	N037790-002AMS	MS	1	Hexavalent Chromium	10/08/19 11:47 AM	Not Reported
36	CCV-3	CCV	1	Hexavalent Chromium	10/08/19 11:57 AM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	10/08/19 12:06 PM	Reported
38	N037792-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:17 PM	Reported
39	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:28 PM	Not Reported
40	N037798-001AMS	MS	1	Hexavalent Chromium	10/08/19 12:38 PM	Not Reported
41	N037798-002AMS	MS	1	Hexavalent Chromium	10/08/19 12:47 PM	Not Reported
42	N037790-001A	SAMP	50	Hexavalent Chromium	10/08/19 12:57 PM	Reported

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037790-001AMS	MS	50	Hexavalent Chromium	10/08/19 1:06 PM	Reported
44	N037790-002A	SAMP	10	Hexavalent Chromium	10/08/19 1:15 PM	Reported
45	N037790-002AMS	MS	10	Hexavalent Chromium	10/08/19 1:25 PM	Reported
46	N037792-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:34 PM	Reported
47	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:44 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	10/08/19 1:53 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	10/08/19 2:03 PM	Reported
50	N037798-001AMS	MS	5	Hexavalent Chromium	10/08/19 2:19 PM	Reported
51	N037798-002A	SAMP	10	Hexavalent Chromium	10/08/19 2:30 PM	Reported
52	N037798-002AMS	MS	10	Hexavalent Chromium	10/08/19 2:39 PM	Reported
53	N037798-001A	SAMP	5	Hexavalent Chromium	10/08/19 2:49 PM	Reported
54	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 2:58 PM	Reported
55	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 3:08 PM	Reported
56	N037736-001A	SAMP	1	Hexavalent Chromium	10/08/19 3:38 PM	Reported
57	N037736-001AMS	MS	1	Hexavalent Chromium	10/08/19 3:49 PM	Reported
58	N037736-002A	SAMP	1	Hexavalent Chromium	10/08/19 3:58 PM	Reported
59	N037736-002AMS	MS	1	Hexavalent Chromium	10/08/19 4:08 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	10/08/19 4:17 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	10/08/19 4:27 PM	Reported
62	N037736-003A	SAMP	1	Hexavalent Chromium	10/08/19 4:36 PM	Reported
63	N037736-003AMS	MS	1	Hexavalent Chromium	10/08/19 4:45 PM	Reported
64	N037736-004A	SAMP	1	Hexavalent Chromium	10/08/19 4:55 PM	Reported
65	N037736-004AMS	MS	1	Hexavalent Chromium	10/08/19 5:04 PM	Reported
66	N037736-005A	SAMP	1	Hexavalent Chromium	10/08/19 5:14 PM	Reported
67	N037736-005AMS	MS	1	Hexavalent Chromium	10/08/19 5:23 PM	Reported
68	N037736-006A	SAMP	1	Hexavalent Chromium	10/08/19 5:33 PM	Reported
69	N037736-006AMS	MS	1	Hexavalent Chromium	10/08/19 5:42 PM	Reported
70	N037736-007A	SAMP	1	Hexavalent Chromium	10/08/19 5:52 PM	Reported
71	N037736-007AMS	MS	1	Hexavalent Chromium	10/08/19 6:01 PM	Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	10/08/19 6:11 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	10/08/19 6:20 PM	Reported
74	N037736-008A	SAMP	1	Hexavalent Chromium	10/08/19 6:35 PM	Reported
75	N037736-008AMS	MS	1	Hexavalent Chromium	10/08/19 6:45 PM	Reported
76	MB-R136842	MBLK	1	Hexavalent Chromium	10/08/19 6:55 PM	Reported
77	LCS-R136842	LCS	1	Hexavalent Chromium	10/08/19 7:04 PM	Reported
78	N037801-001A	SAMP	1	Hexavalent Chromium	10/08/19 7:14 PM	Reported
79	N037801-001AMS	MS	1	Hexavalent Chromium	10/08/19 7:23 PM	Reported
80	N037801-002A	SAMP	1	Hexavalent Chromium	10/08/19 7:33 PM	Reported
81	N037801-002AMS	MS	1	Hexavalent Chromium	10/08/19 7:42 PM	Reported
82	N037801-003A	SAMP	1	Hexavalent Chromium	10/08/19 7:52 PM	Reported
83	N037801-003AMS	MS	1	Hexavalent Chromium	10/08/19 8:01 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	10/08/19 8:11 PM	Reported

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	10/08/19 8:20 PM	Reported
86	N037801-004A	SAMP	1	Hexavalent Chromium	10/08/19 8:29 PM	Reported
87	N037801-004AMS	MS	1	Hexavalent Chromium	10/08/19 8:39 PM	Reported
88	N037801-005A	SAMP	1	Hexavalent Chromium	10/08/19 8:48 PM	Reported
89	N037801-005AMS	MS	1	Hexavalent Chromium	10/08/19 8:58 PM	Reported
90	N037801-006A	SAMP	1	Hexavalent Chromium	10/08/19 9:07 PM	Reported
91	N037801-006AMS	MS	1	Hexavalent Chromium	10/08/19 9:17 PM	Reported
92	N037801-007A	SAMP	1	Hexavalent Chromium	10/08/19 9:26 PM	Reported
93	N037801-007AMS	MS	1	Hexavalent Chromium	10/08/19 9:36 PM	Reported
94	N037801-004AMSD	MSD	1	Hexavalent Chromium	10/08/19 9:45 PM	Reported
95	N037801-001ADUP	DUP	1	Hexavalent Chromium	10/08/19 9:55 PM	Reported
96	CCV-8	CCV1	1	Hexavalent Chromium	10/08/19 10:04 PM	Reported
97	CCB-8	CCB	1	Hexavalent Chromium	10/08/19 10:14 PM	Reported
98	N037756-001A	SAMP	20	Hexavalent Chromium	10/08/19 10:23 PM	Reported
99	N037756-001AMS	MS	20	Hexavalent Chromium	10/08/19 10:32 PM	Reported
100	N037757-001A	SAMP	1	Hexavalent Chromium	10/08/19 10:42 PM	Reported
101	N037757-001AMS	MS	1	Hexavalent Chromium	10/08/19 10:51 PM	Reported
102	N037757-002A	SAMP	50	Hexavalent Chromium	10/08/19 11:01 PM	Reported
103	N037757-002AMS	MS	50	Hexavalent Chromium	10/08/19 11:10 PM	Reported
104	N037772-002B	SAMP	1	Hexavalent Chromium	10/08/19 11:20 PM	Reported
105	N037772-002BMS	MS	1	Hexavalent Chromium	10/08/19 11:29 PM	Reported
106	CCV-9	CCV	1	Hexavalent Chromium	10/08/19 11:39 PM	Reported
107	CCB-9	CCB	1	Hexavalent Chromium	10/08/19 11:48 PM	Reported
108	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 11:58 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191008A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**09/Oct/19 09:51:48**
No. of Injections:	**111**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	BLANK	1	1000	Unknown		10/08/2019 07:39	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		10/08/2019 07:49	Finished	CCV @5ppb, IWST-190702A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/08/2019 07:59	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		10/08/2019 08:08	Finished	CCB R190830A
14	MB-H2O,MBLK,1,	5	1000	Unknown		10/08/2019 08:18	Finished	MB R190830A
15	LCS-H2O,LCS,1,	6	1000	Unknown		10/08/2019 08:27	Finished	LCS @5ppb, IWST-190702B
16	N037770-001AMS,MS	7	1000	Unknown		10/08/2019 08:43	Finished	MS (1ppb), IWST-190702B,10
17	N037770-001A,SAMP	8	1000	Unknown		10/08/2019 08:54	Finished	SAMP,2>10 mL
18	N037770-001AMS,MS	9	1000	Unknown		10/08/2019 09:04	Finished	MS (1ppb), IWST-190702B,2>1
19	N037770-002AMS,MS	10	1000	Unknown		10/08/2019 09:13	Finished	MS (1ppb), IWST-190702B,10
20	N037770-002A,SAMP	11	1000	Unknown		10/08/2019 09:23	Finished	SAMP,2>10 mL
21	N037770-002AMS,MS	12	1000	Unknown		10/08/2019 09:32	Finished	MS (1ppb), IWST-190702B,2>1
22	N037770-003A,SAMP	13	1000	Unknown		10/08/2019 09:42	Finished	SAMP, 10 mL
23	N037770-003AMS,MS	14	1000	Unknown		10/08/2019 09:51	Finished	MS (1ppb), IWST-190702B,10
24	CCV-2,CCV1,1,	15	1000	Unknown		10/08/2019 10:01	Finished	CCV @10ppb, IWST-190702A
25	CCB-2,CCB,1,	16	1000	Unknown		10/08/2019 10:10	Finished	CCB R190830A
26	N037770-004A,SAMP	17	1000	Unknown		10/08/2019 10:20	Finished	SAMP, 10 mL
27	N037770-004AMS,MS	18	1000	Unknown		10/08/2019 10:31	Finished	MS (1ppb), IWST-190702B,10
28	N037770-005A,SAMP	19	1000	Unknown		10/08/2019 10:41	Finished	SAMP, 10 mL
29	N037770-005AMS,MS	20	1000	Unknown		10/08/2019 10:50	Finished	MS (1ppb), IWST-190702B,10
30	N037770-005ADUP,D	21	1000	Unknown		10/08/2019 11:00	Finished	DUP, 10 mL
31	N037770-001AMSD,M	22	1000	Unknown		10/08/2019 11:09	Finished	MSD (1ppb), IWST-190702B,10
32	N037770-003A,SAMP	23	1000	Unknown		10/08/2019 11:19	Finished	MS (1ppb), IWST-190702B,10
33	N037770-003AMS,MS	24	1000	Unknown		10/08/2019 11:28	Finished	MS (1ppb), IWST-190702B,10
34	N037790-001AMS,MS	25	1000	Unknown		10/08/2019 11:38	Finished	MS (1ppb), IWST-190702B,10
35	N037790-002AMS,MS	26	1000	Unknown		10/08/2019 11:47	Finished	MS (1ppb), IWST-190702B,10
36	CCV-3,CCV,1,	27	1000	Unknown		10/08/2019 11:57	Finished	CCV @5ppb, IWST-190702A
37	CCB-3,CCB,1,	28	1000	Unknown		10/08/2019 12:06	Finished	CCB R190830A
38	N037792-001AMS,MS	29	1000	Unknown		10/08/2019 12:17	Finished	MS (5ppb), IWST-190702B,0.0
39	N037794-001AMS,MS	30	1000	Unknown		10/08/2019 12:28	Finished	MS (5ppb), IWST-190702B,0.0
40	N037798-001AMS,MS	31	1000	Unknown		10/08/2019 12:38	Finished	MS (1ppb), IWST-190702B,10
41	N037798-002AMS,MS	32	1000	Unknown		10/08/2019 12:47	Finished	MS (1ppb), IWST-190702B,10
42	N037790-001A,SAMP	33	1000	Unknown		10/08/2019 12:57	Finished	SAMP,0.2>10mL
43	N037790-001AMS,MS	34	1000	Unknown		10/08/2019 13:06	Finished	MS (5ppb), IWST-190702B,0.2
44	N037790-002A,SAMP	35	1000	Unknown		10/08/2019 13:15	Finished	SAMP,1>10mL
45	N037790-002AMS,MS	36	1000	Unknown		10/08/2019 13:25	Finished	MS (5ppb), IWST-190702B,1>1
46	N037792-001A,SAMP	37	1000	Unknown		10/08/2019 13:34	Finished	SAMP,0.05>10mL
47	N037794-001A,SAMP	38	1000	Unknown		10/08/2019 13:44	Finished	SAMP,0.05>10mL
48	CCV-4,CCV1,1,	39	1000	Unknown		10/08/2019 13:53	Finished	CCV @10ppb, IWST-190702A
49	CCB-4,CCB,1,	40	1000	Unknown		10/08/2019 14:03	Finished	CCB R190830A
50	N037798-001AMS,MS	41	1000	Unknown		10/08/2019 14:19	Finished	MS (1ppb), IWST-190702B,2>1
51	N037798-002A,SAMP	42	1000	Unknown		10/08/2019 14:30	Finished	SAMP,1>10mL
52	N037798-002AMS,MS	43	1000	Unknown		10/08/2019 14:39	Finished	MS (5ppb), IWST-190702B,1>1
53	N037798-001A,SAMP	44	1000	Unknown		10/08/2019 14:49	Finished	SAMP,2>10mL
54	N037794-001A,SAMP	45	1000	Unknown		10/08/2019 14:58	Finished	SAMP,0.05>10mL
55	N037794-001AMS,MS	46	1000	Unknown		10/08/2019 15:08	Finished	MS (5ppb), IWST-190702B,0.0
56	N037736-001A,SAMP	1	1000	Unknown		10/08/2019 15:38	Finished	SAMP, 10mL
57	N037736-001AMS,MS	2	1000	Unknown		10/08/2019 15:49	Finished	MS (1ppb), IWST-190702B,10
58	N037736-002A,SAMP	3	1000	Unknown		10/08/2019 15:58	Finished	SAMP, 10mL
59	N037736-002AMS,MS	4	1000	Unknown		10/08/2019 16:08	Finished	MS (1ppb), IWST-190702B,10
60	CCV-5,CCV,1,	5	1000	Unknown		10/08/2019 16:17	Finished	CCV @5ppb, IWST-190702A

61	CCB-5,CCB,1,	6	1000	Unknown		10/08/2019 16:27	Finished	CCB R190830A
62	N037736-003A,SAMF	7	1000	Unknown		10/08/2019 16:36	Finished	SAMP, 10mL
63	N037736-003AMS,MS	8	1000	Unknown		10/08/2019 16:45	Finished	MS (1ppb), IWST-190702B,10
64	N037736-004A,SAMF	9	1000	Unknown		10/08/2019 16:55	Finished	SAMP, 10mL
65	N037736-004AMS,MS	10	1000	Unknown		10/08/2019 17:04	Finished	MS (1ppb), IWST-190702B,10
66	N037736-005A,SAMF	11	1000	Unknown		10/08/2019 17:14	Finished	SAMP, 10mL
67	N037736-005AMS,MS	12	1000	Unknown		10/08/2019 17:23	Finished	MS (1ppb), IWST-190702B,10
68	N037736-006A,SAMF	13	1000	Unknown		10/08/2019 17:33	Finished	SAMP, 10mL
69	N037736-006AMS,MS	14	1000	Unknown		10/08/2019 17:42	Finished	MS (1ppb), IWST-190702B,10
70	N037736-007A,SAMF	15	1000	Unknown		10/08/2019 17:52	Finished	
71	N037736-007AMS,MS	16	1000	Unknown		10/08/2019 18:01	Finished	
72	CCV-6,CCV1,1,	17	1000	Unknown		10/08/2019 18:11	Finished	CCV @10ppb, IWST-190702A
73	CCB-6,CCB,1,	18	1000	Unknown		10/08/2019 18:20	Finished	CCB R190830A
74	N037736-008A,SAMF	1	1000	Unknown		10/08/2019 18:35	Finished	SAMP, 10mL
75	N037736-008AMS,MS	2	1000	Unknown		10/08/2019 18:45	Finished	MS (1ppb), IWST-190702B,10
76	MB-H2O,MBLK,1,	3	1000	Unknown		10/08/2019 18:55	Finished	MB R190830A
77	LCS-H2O,LCS,1,	4	1000	Unknown		10/08/2019 19:04	Finished	LCS @5ppb, IWST-190702B
78	N037801-001A,SAMF	5	1000	Unknown		10/08/2019 19:14	Finished	SAMP, 10mL
79	N037801-001AMS,MS	6	1000	Unknown		10/08/2019 19:23	Finished	MS (1ppb), IWST-190702B,10
80	N037801-002A,SAMF	7	1000	Unknown		10/08/2019 19:33	Finished	SAMP, 10mL
81	N037801-002AMS,MS	8	1000	Unknown		10/08/2019 19:42	Finished	MS (1ppb), IWST-190702B,10
82	N037801-003A,SAMF	9	1000	Unknown		10/08/2019 19:52	Finished	SAMP, 10mL
83	N037801-003AMS,MS	10	1000	Unknown		10/08/2019 20:01	Finished	MS (1ppb), IWST-190702B,10
84	CCV-7,CCV,1,	11	1000	Unknown		10/08/2019 20:11	Finished	CCV @5ppb, IWST-190702A
85	CCB-7,CCB,1,	12	1000	Unknown		10/08/2019 20:20	Finished	CCB R190830A
86	N037801-004A,SAMF	13	1000	Unknown		10/08/2019 20:29	Finished	SAMP, 10mL
87	N037801-004AMS,MS	14	1000	Unknown		10/08/2019 20:39	Finished	MS (1ppb), IWST-190702B,10
88	N037801-005A,SAMF	15	1000	Unknown		10/08/2019 20:48	Finished	SAMP, 10mL
89	N037801-005AMS,MS	16	1000	Unknown		10/08/2019 20:58	Finished	MS (1ppb), IWST-190702B,10
90	N037801-006A,SAMF	17	1000	Unknown		10/08/2019 21:07	Finished	SAMP, 10mL
91	N037801-006AMS,MS	18	1000	Unknown		10/08/2019 21:17	Finished	MS (1ppb), IWST-190702B,10
92	N037801-007A,SAMF	19	1000	Unknown		10/08/2019 21:26	Finished	SAMP, 10mL
93	N037801-007AMS,MS	20	1000	Unknown		10/08/2019 21:36	Finished	MS (1ppb), IWST-190702B,10
94	N037801-004AMSD,M	21	1000	Unknown		10/08/2019 21:45	Finished	MSD (1ppb), IWST-190702B,1(
95	N037801-001ADUP,D	22	1000	Unknown		10/08/2019 21:55	Finished	DUP, 10mL
96	CCV-8,CCV1,1,	23	1000	Unknown		10/08/2019 22:04	Finished	CCV @10ppb, IWST-190702A
97	CCB-8,CCB,1,	24	1000	Unknown		10/08/2019 22:14	Finished	CCB R190830A
98	N037756-001A,SAMF	25	1000	Unknown		10/08/2019 22:23	Finished	SAMP, 0.5>10mL
99	N037756-001AMS,MS	26	1000	Unknown		10/08/2019 22:32	Finished	MS (5ppb), IWST-190702B,0.5
100	N037757-001A,SAMF	27	1000	Unknown		10/08/2019 22:42	Finished	SAMP, 10mL
101	N037757-001AMS,MS	28	1000	Unknown		10/08/2019 22:51	Finished	MS (1ppb), IWST-190702B,10
102	N037757-002A,SAMF	29	1000	Unknown		10/08/2019 23:01	Finished	SAMP, 0.2>10mL
103	N037757-002AMS,MS	30	1000	Unknown		10/08/2019 23:10	Finished	MS (5ppb), IWST-190702B,0.2
N037772-002B 104	~~N037772-001A,SAMF~~	31	1000	Unknown		10/08/2019 23:20	Finished	SAMP, 10mL
N037772-002BMS 105	~~N037772-001AMS,MS~~	32	1000	Unknown		10/08/2019 23:29	Finished	MS (1ppb), IWST-190702B,10
106	CCV-9,CCV,1,	33	1000	Unknown		10/08/2019 23:39	Finished	CCV @5ppb, IWST-190702A
107	CCB-9,CCB,1,	34	1000	Unknown		10/08/2019 23:48	Finished	CCB R190830A
108	BLANK	35	1000	Unknown		10/08/2019 23:58	Finished	BLANK
109	SHUTDOWN	36	1000	Unknown		10/09/2019 00:07	Finished	
110	Eluent: R191008C	37	1000	Unknown		n.a.	Finished	Eluent
111	PCR: R191007B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

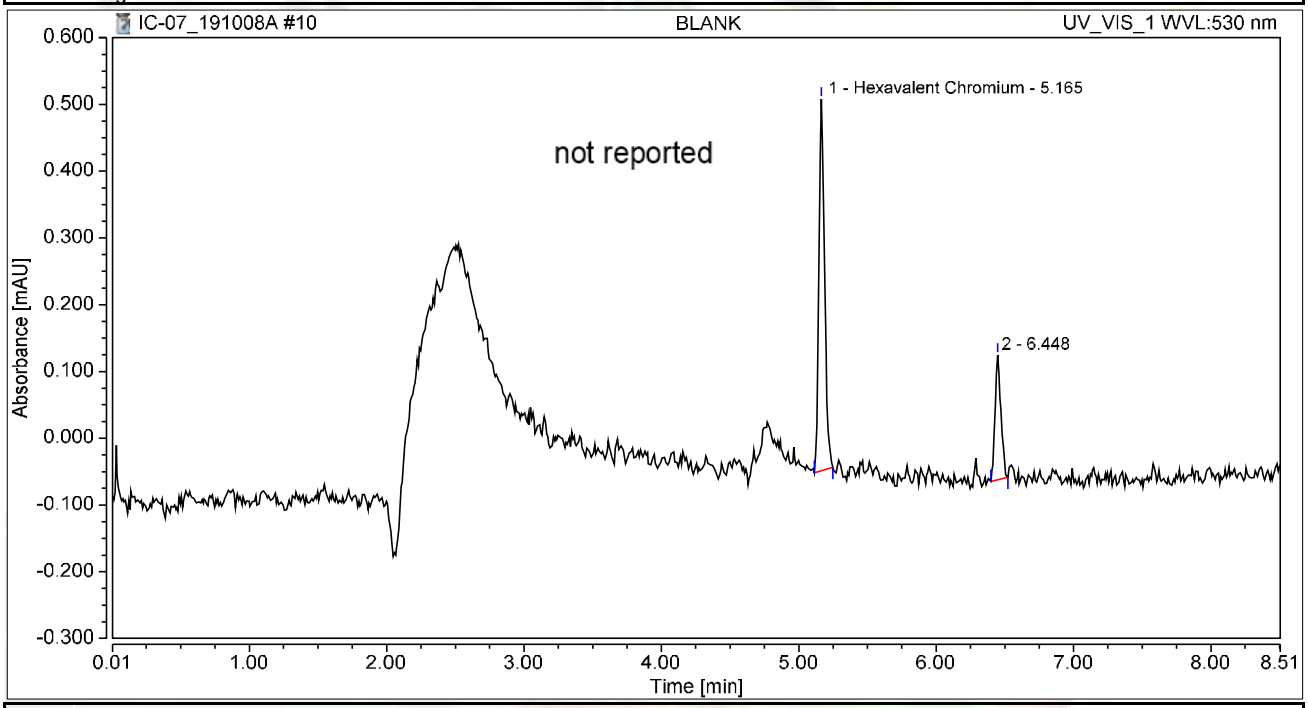
10/9/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 07:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

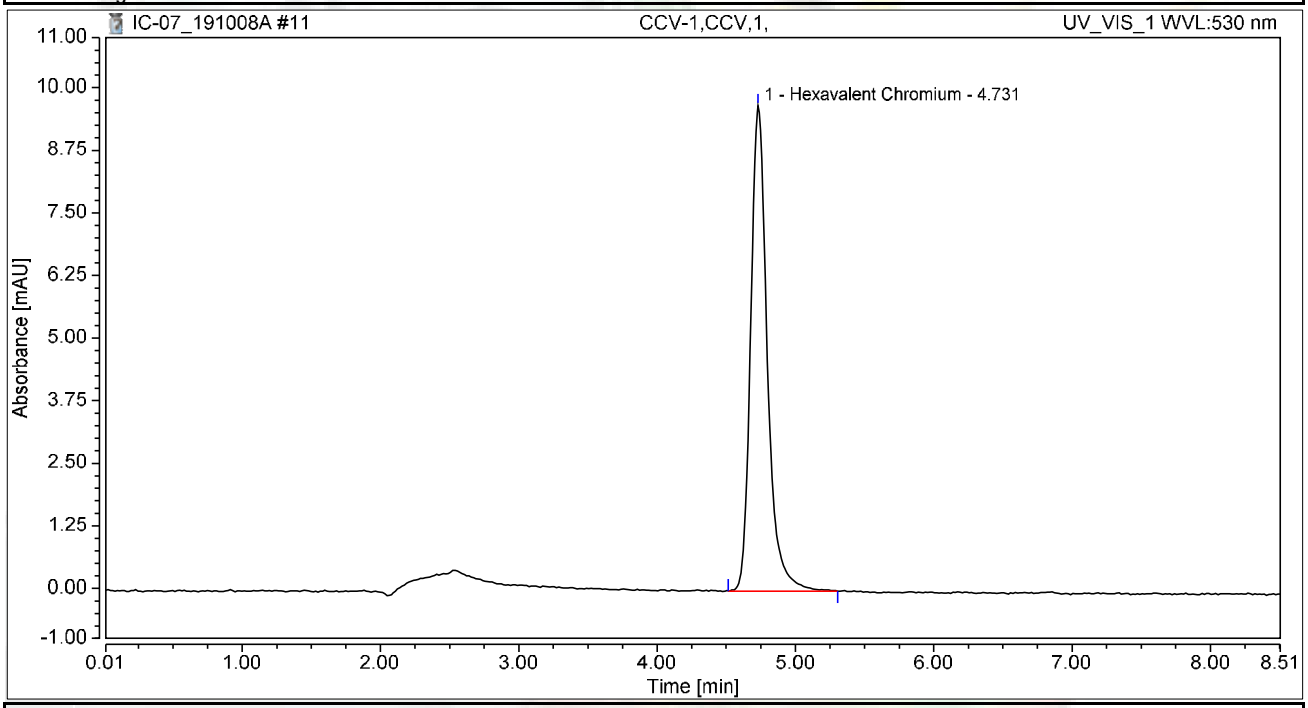
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	5.165	0.027	0.557	74.55	74.87	0.0998
2		6.448	0.009	0.187	25.45	25.13	n.a.
Total:			**0.036**	**0.744**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 07:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

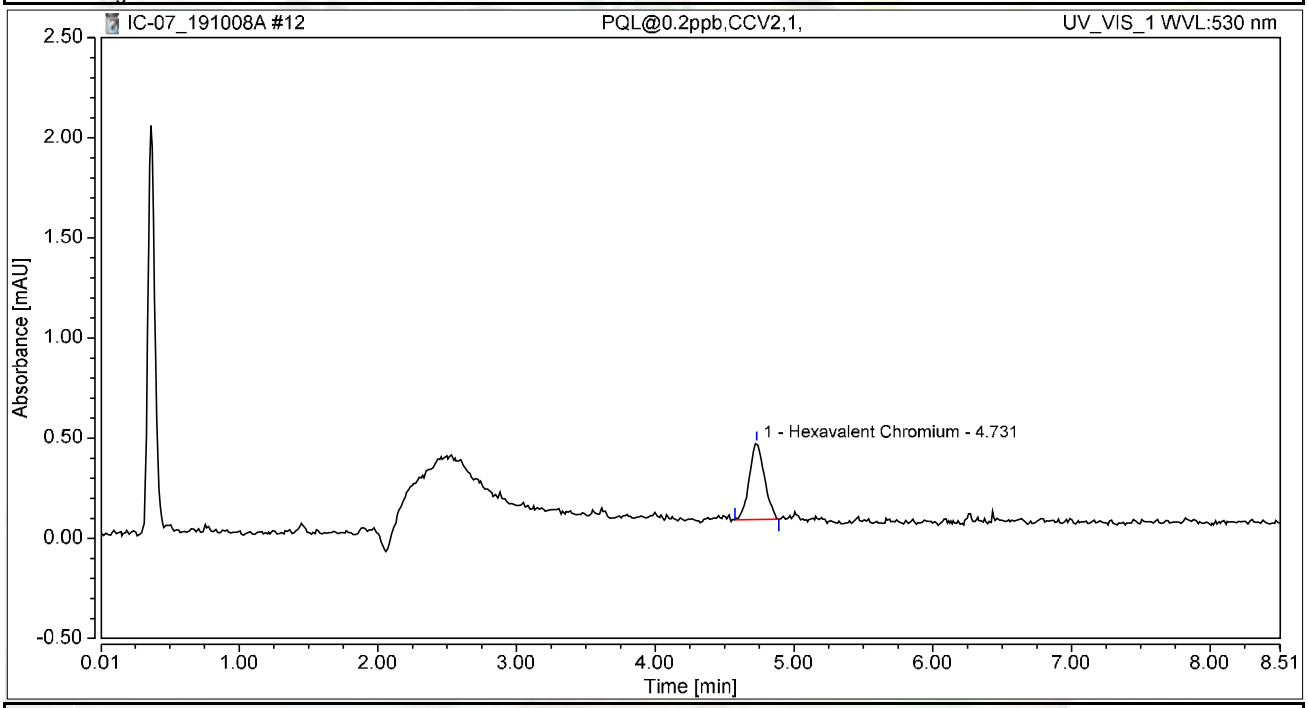
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.352	9.690	100.00	100.00	5.0245
Total:			**1.352**	**9.690**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 07:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

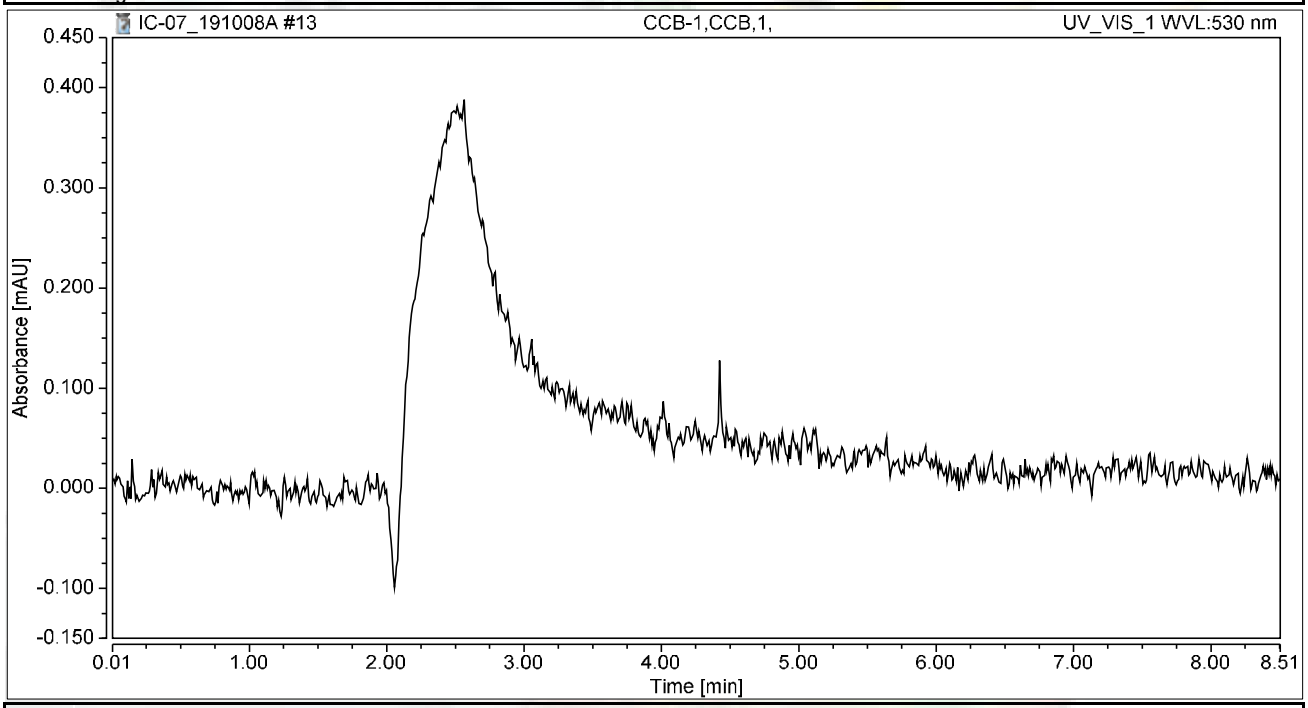
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.049	0.381	100.00	100.00	0.1809
Total:			**0.049**	**0.381**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

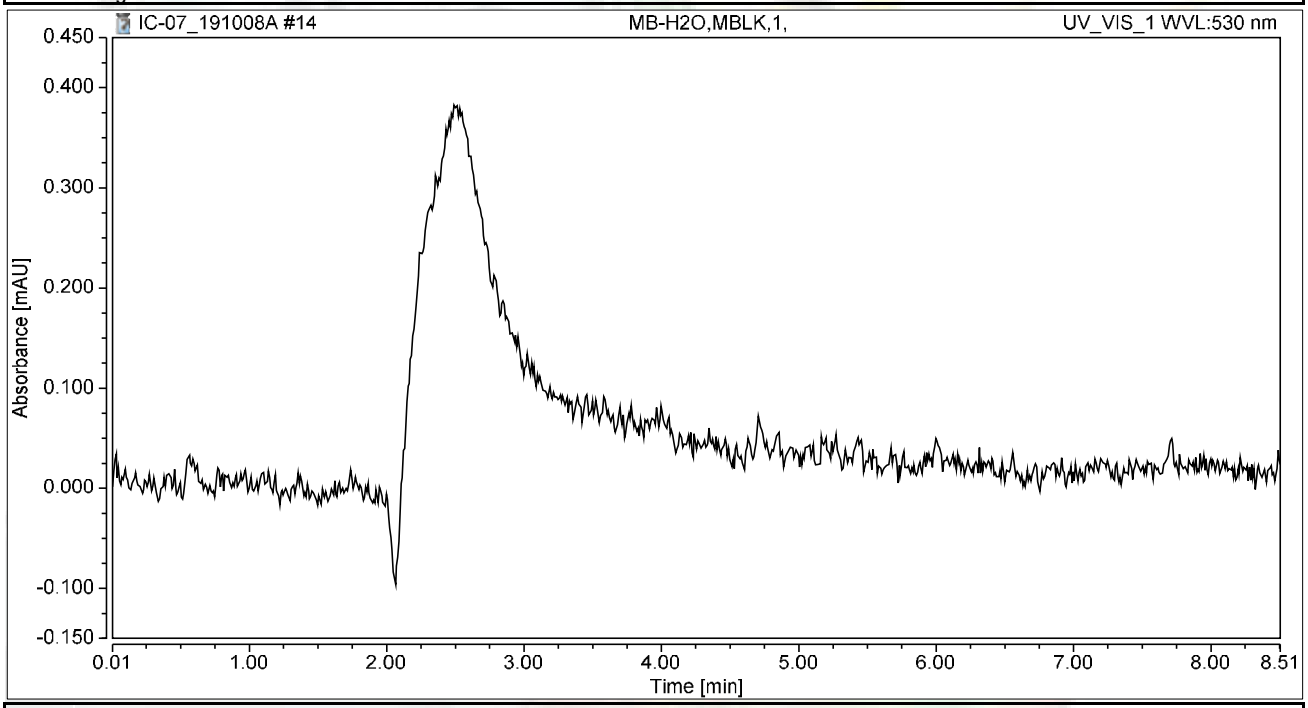
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

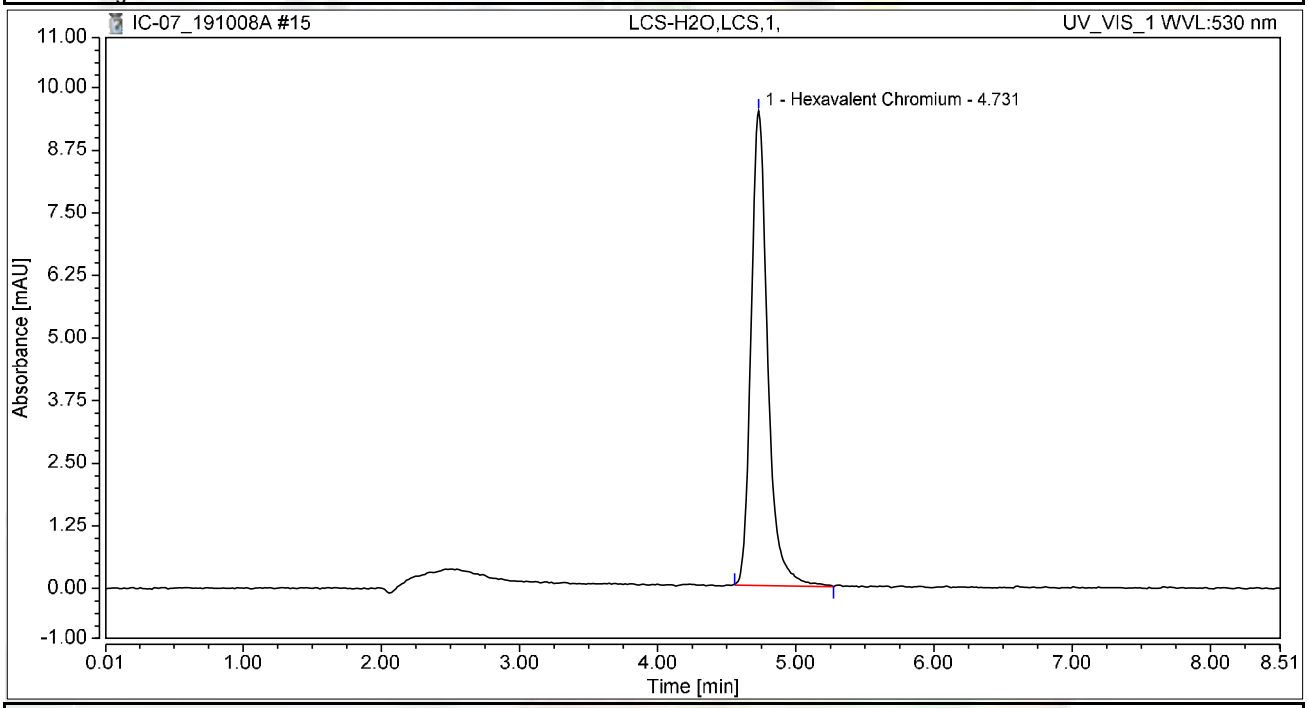
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

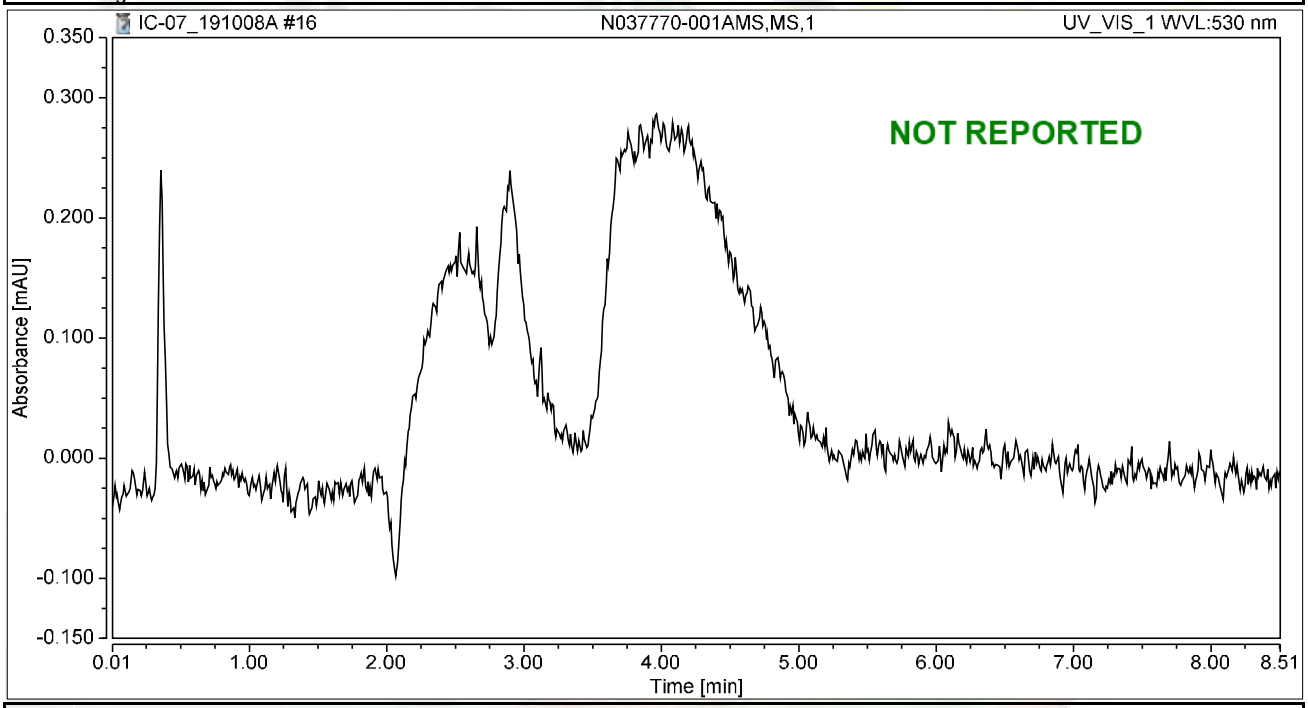
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.321	9.475	100.00	100.00	4.9074
Total:			**1.321**	**9.475**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

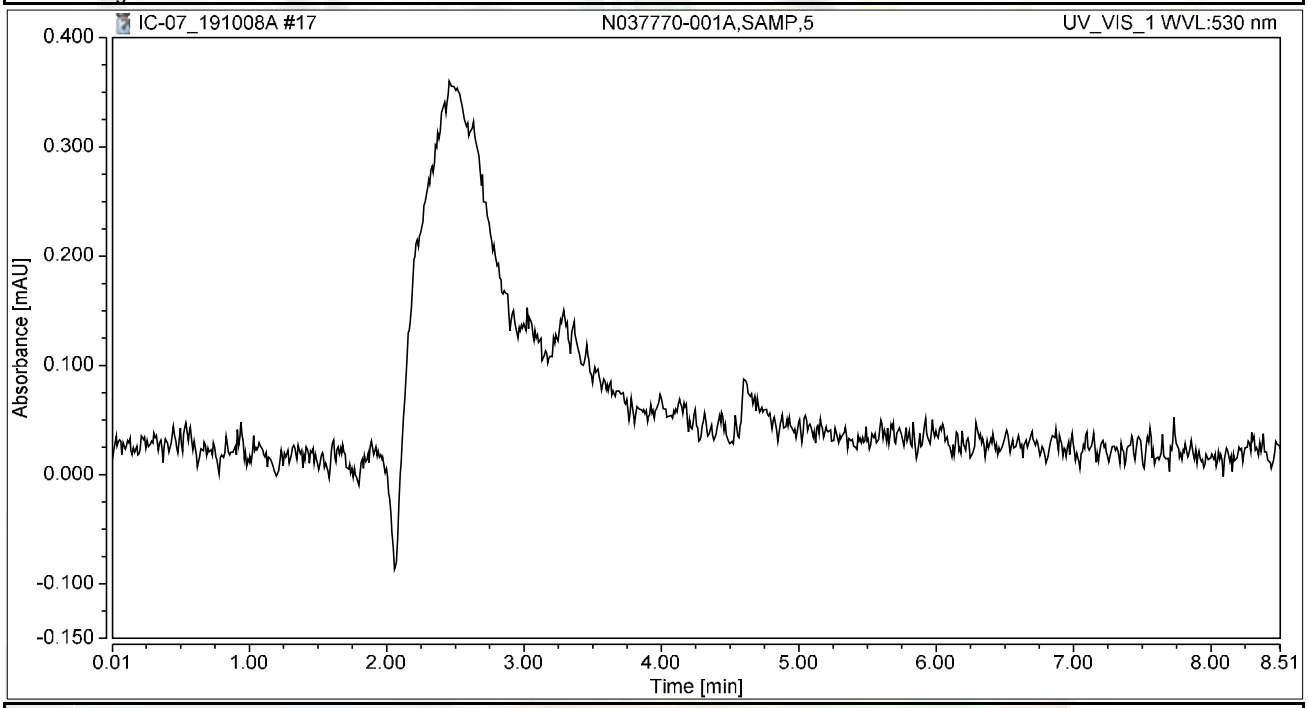
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

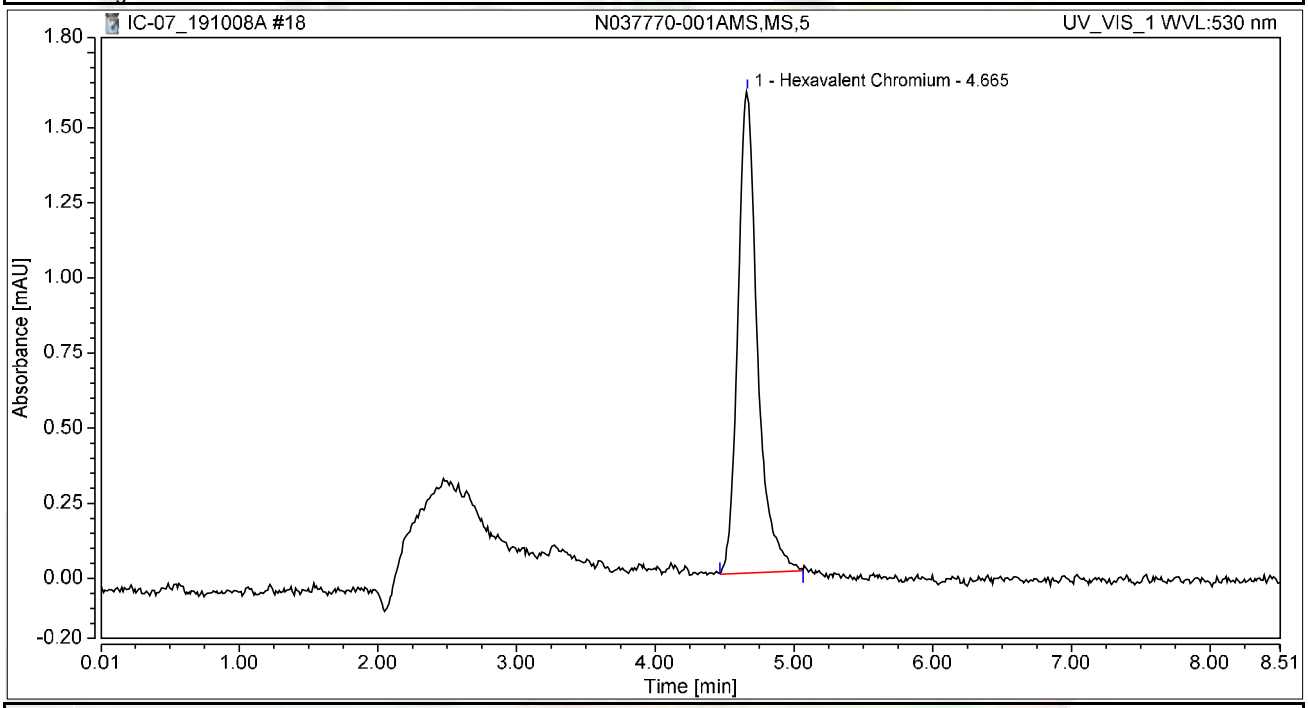
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

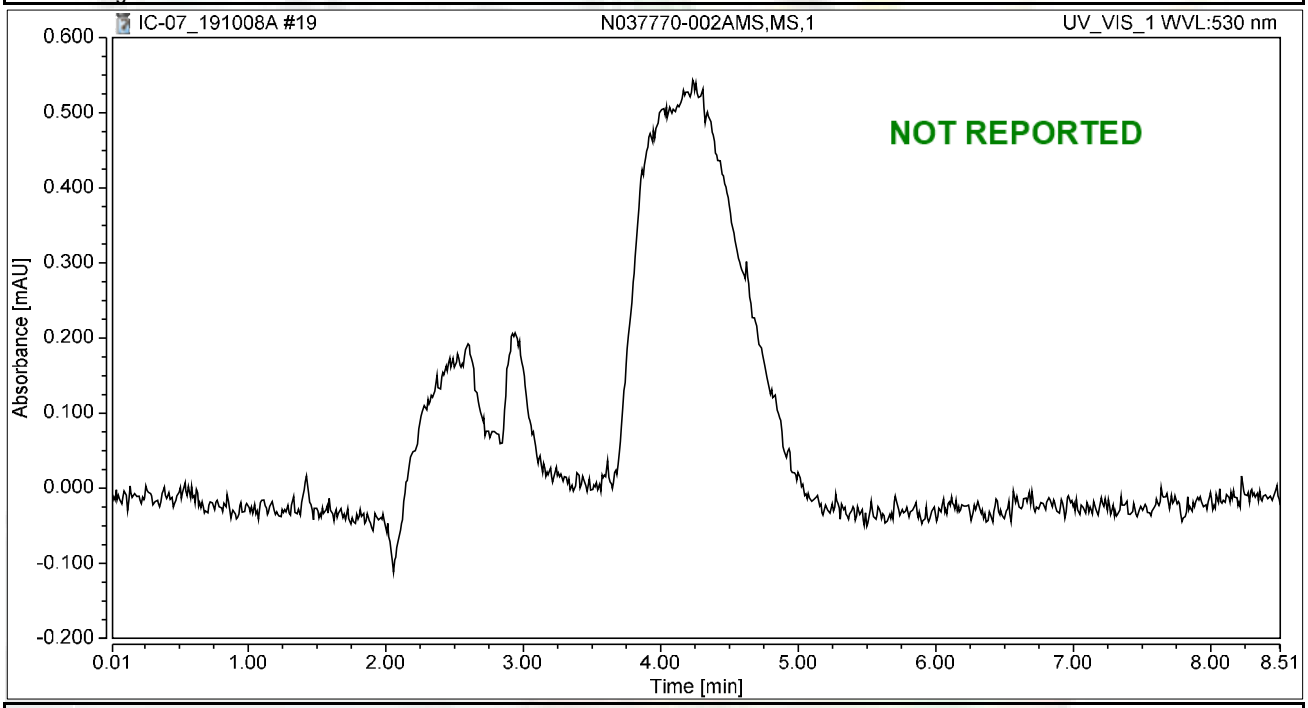
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.263	1.603	100.00	100.00	0.9762
Total:			**0.263**	**1.603**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

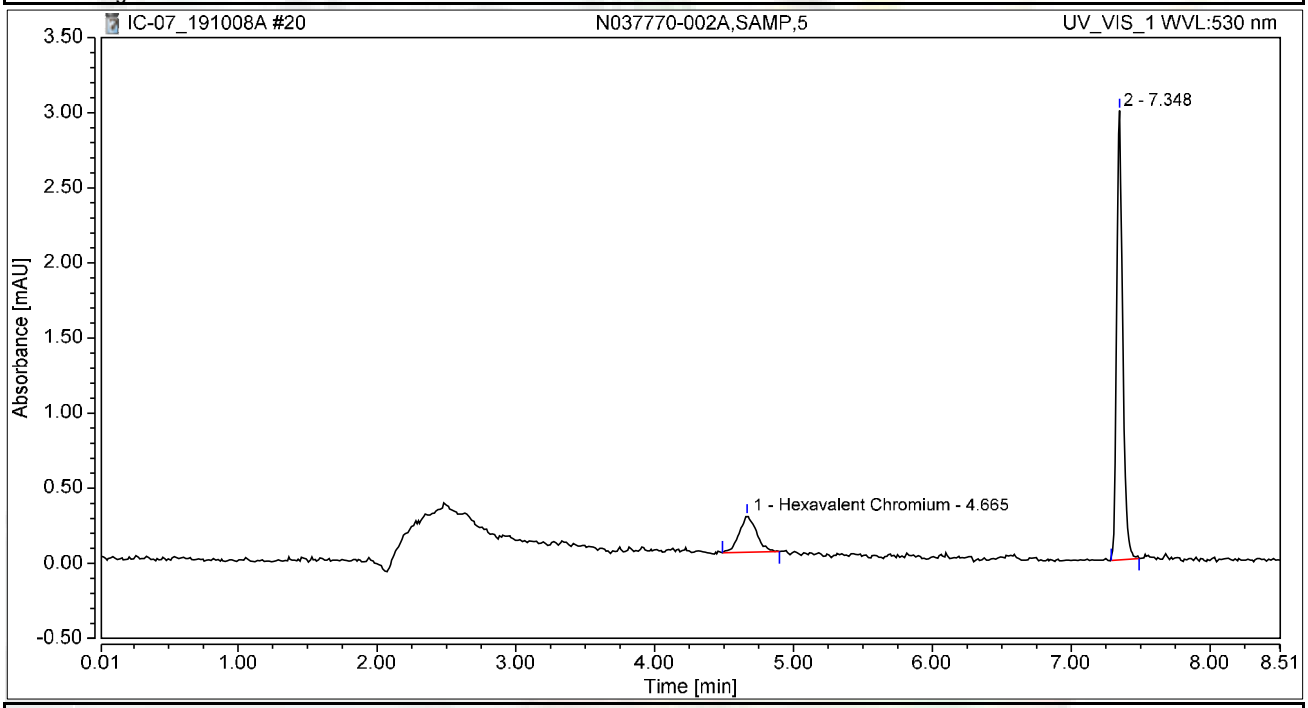
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-002A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

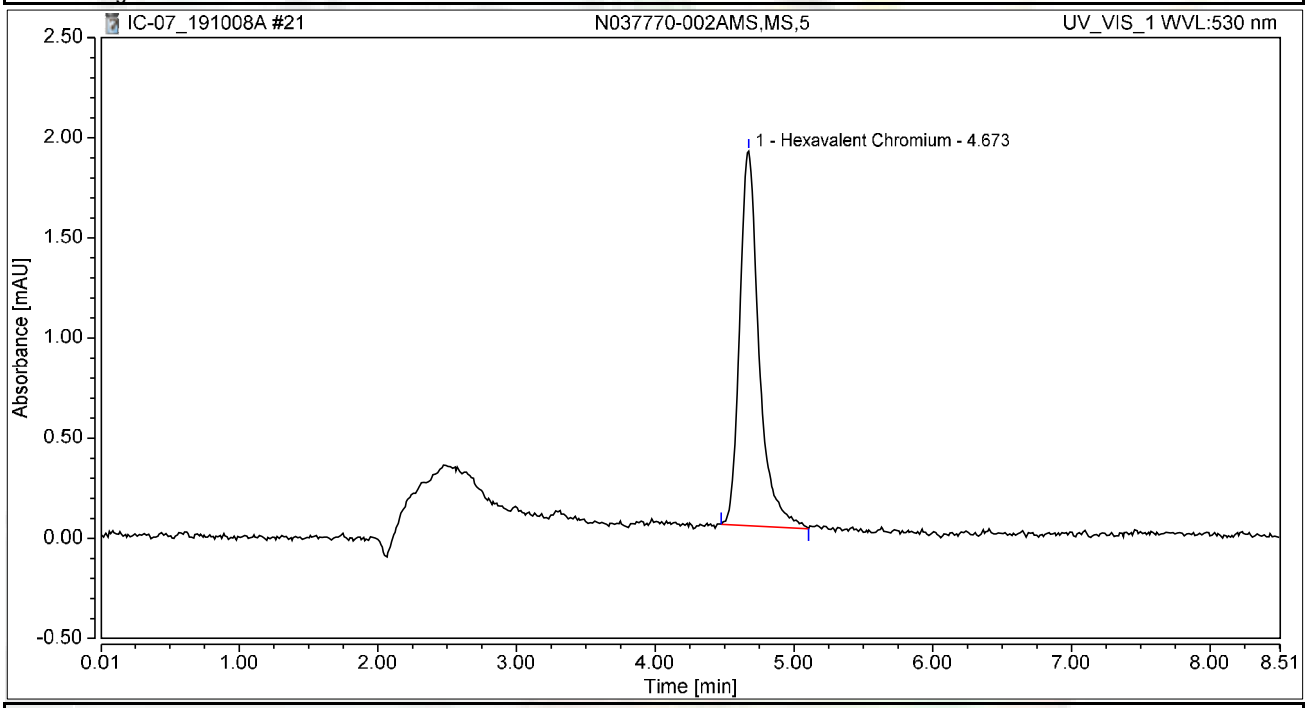
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.035	0.241	18.52	7.45	0.1295
2		7.348	0.153	2.990	81.48	92.55	n.a.
Total:			**0.188**	**3.231**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

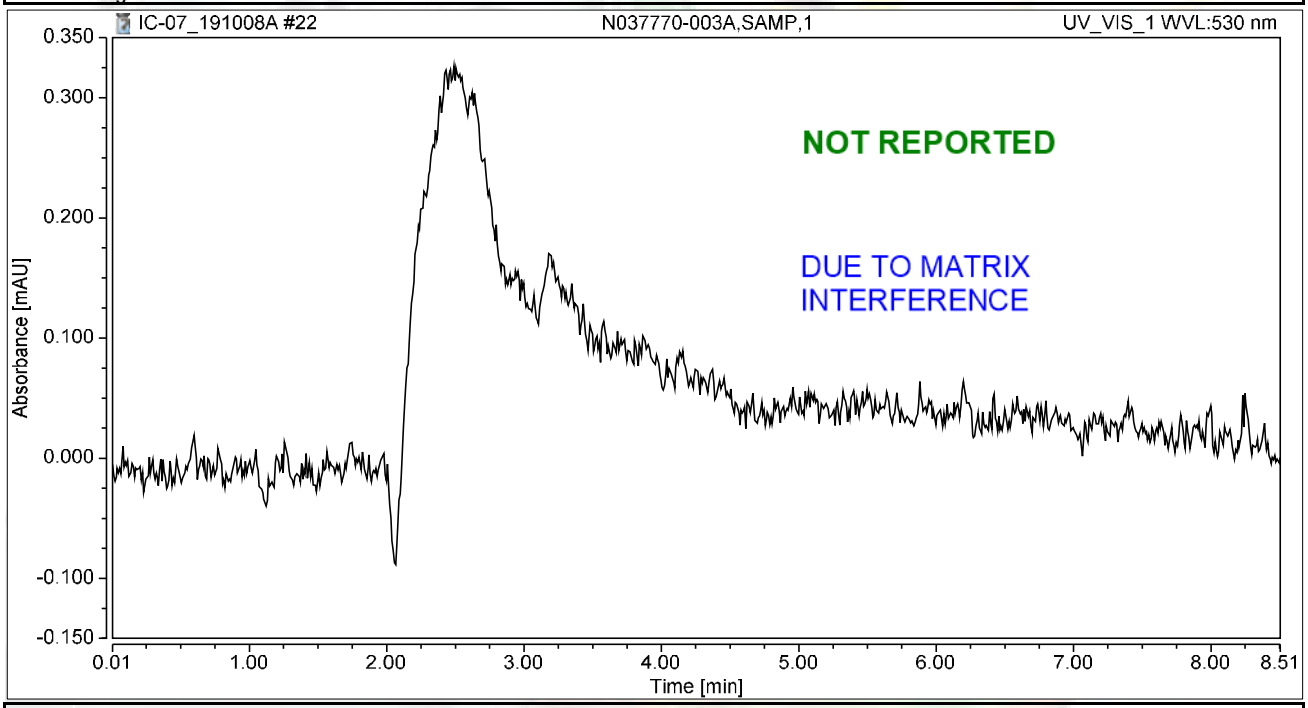
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.303	1.870	100.00	100.00	1.1245
Total:			**0.303**	**1.870**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

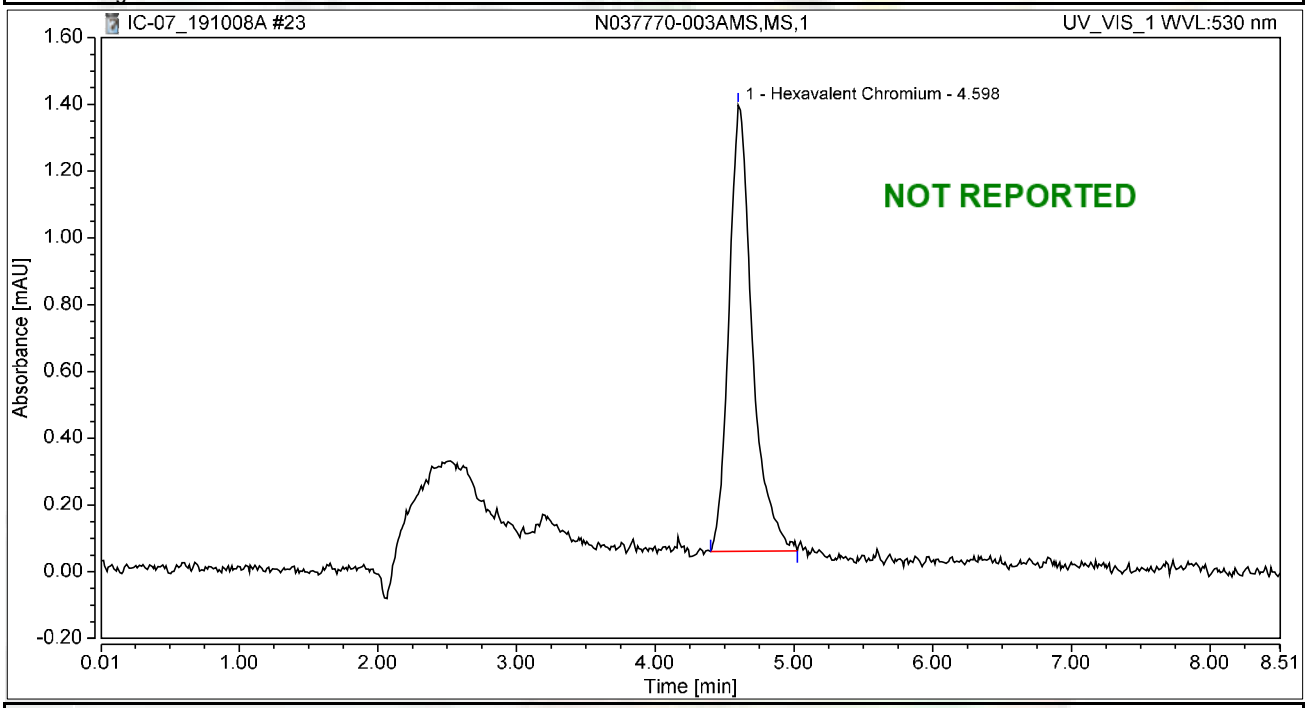
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

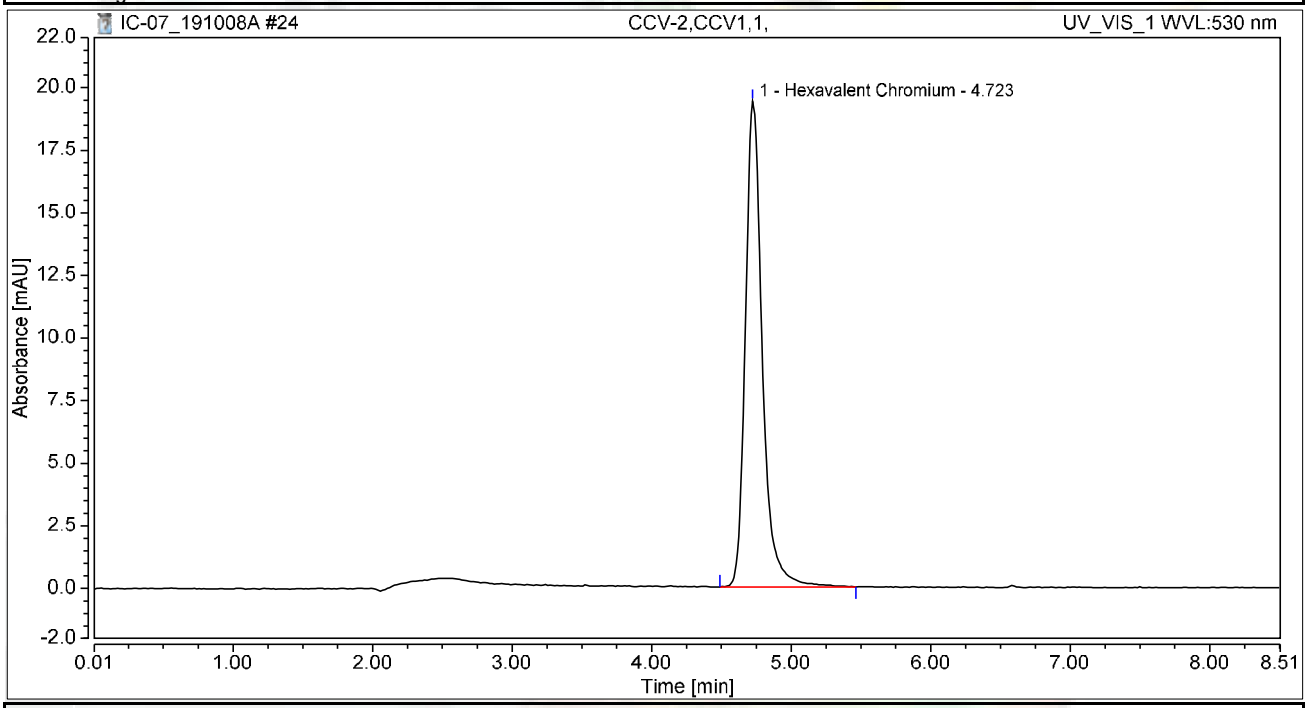
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.260	1.337	100.00	100.00	0.9678
Total:			**0.260**	**1.337**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

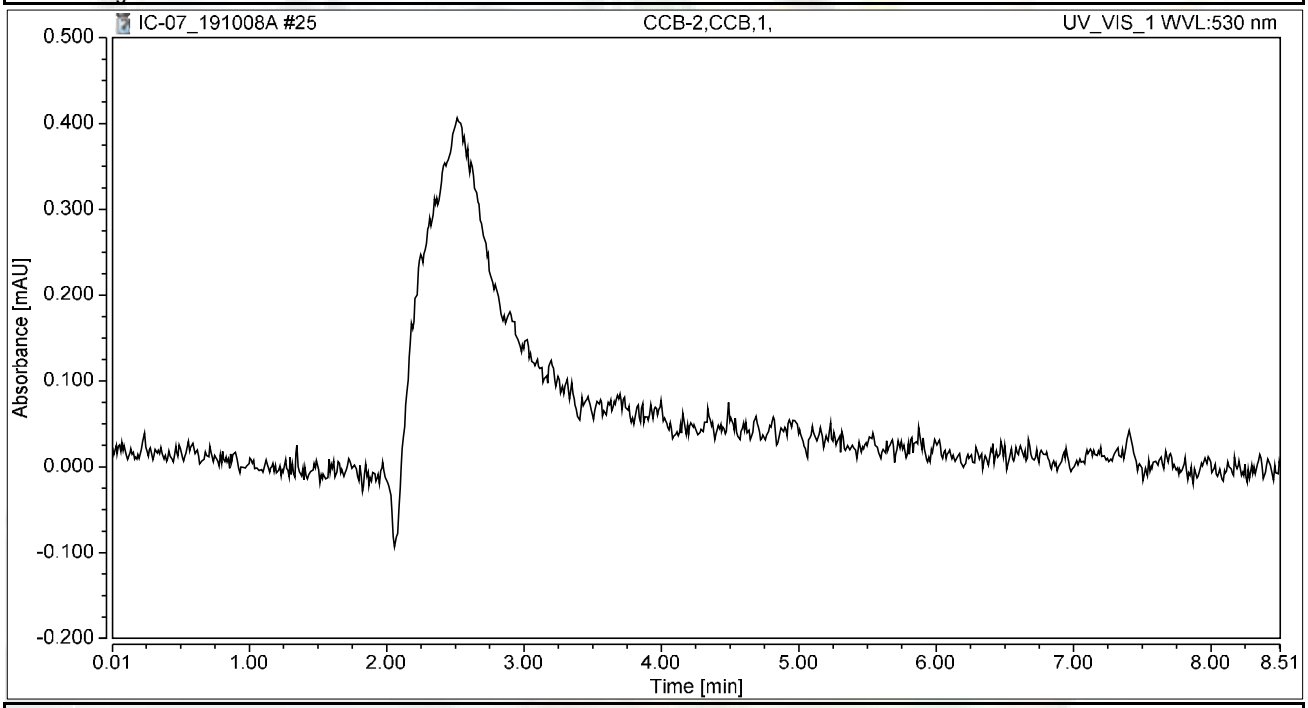
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.730	19.400	100.00	100.00	10.1436
Total:			**2.730**	**19.400**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

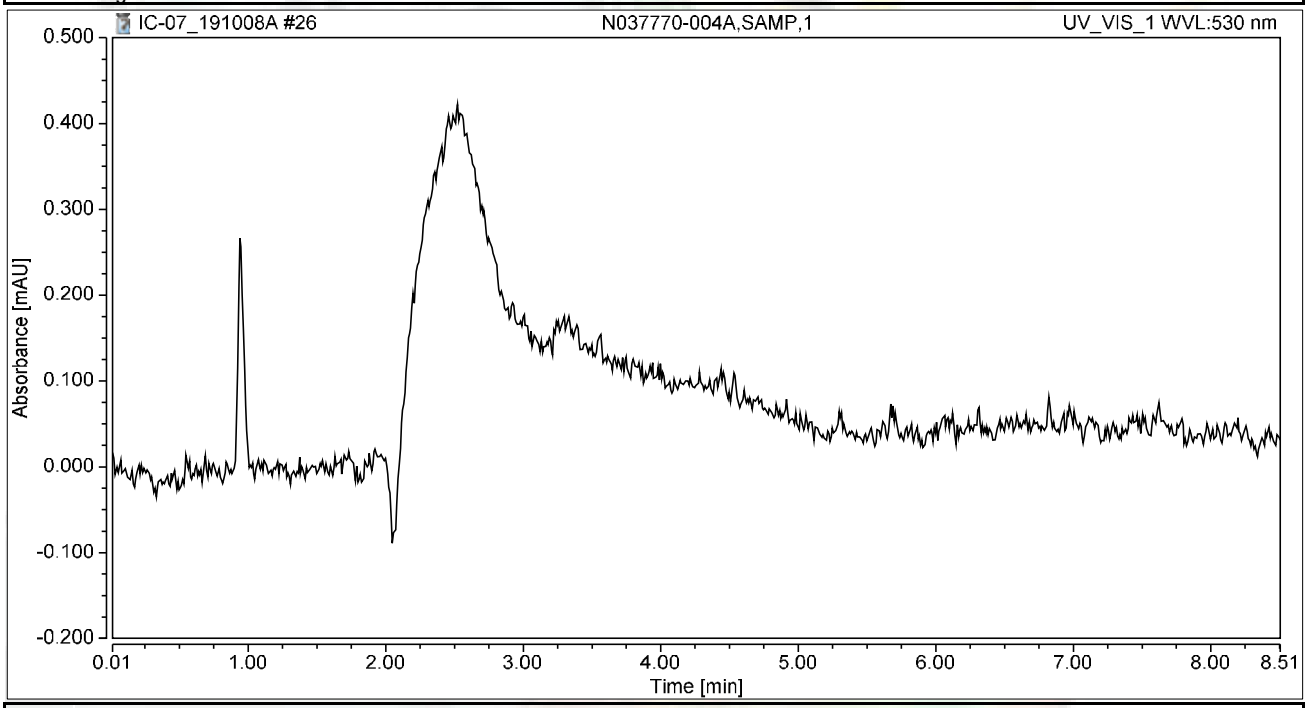
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

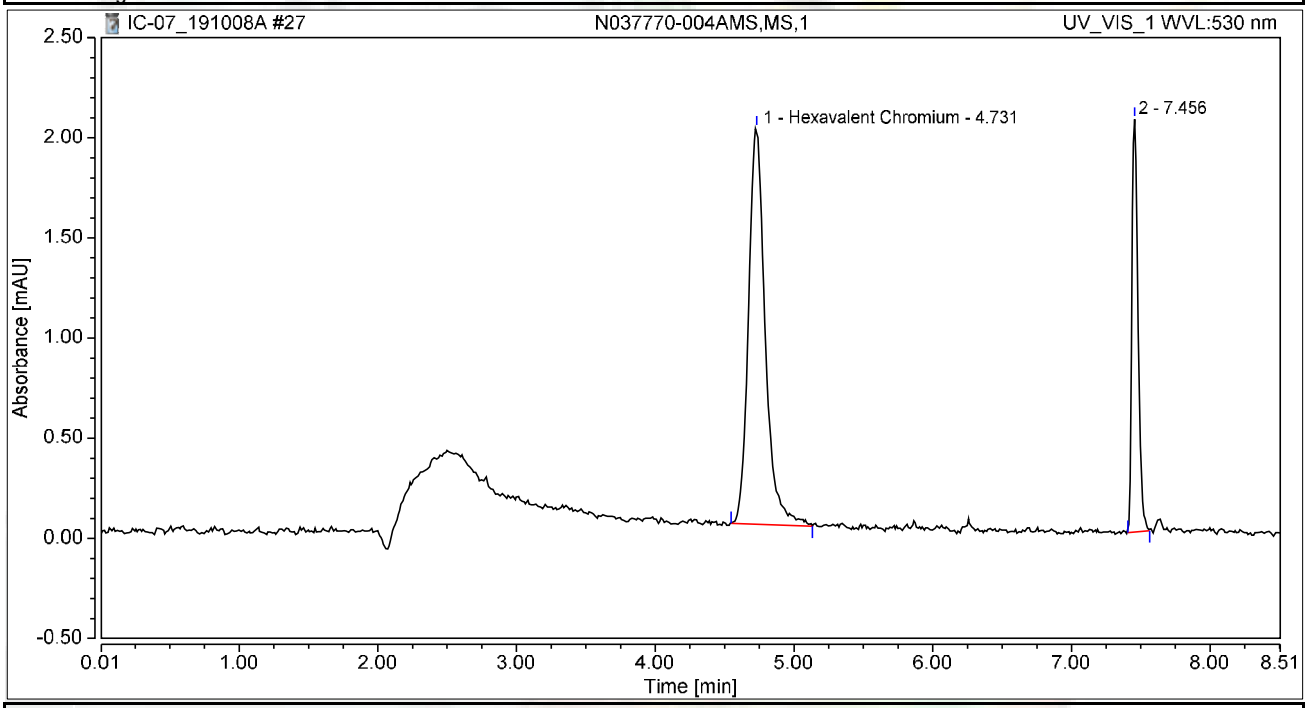
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

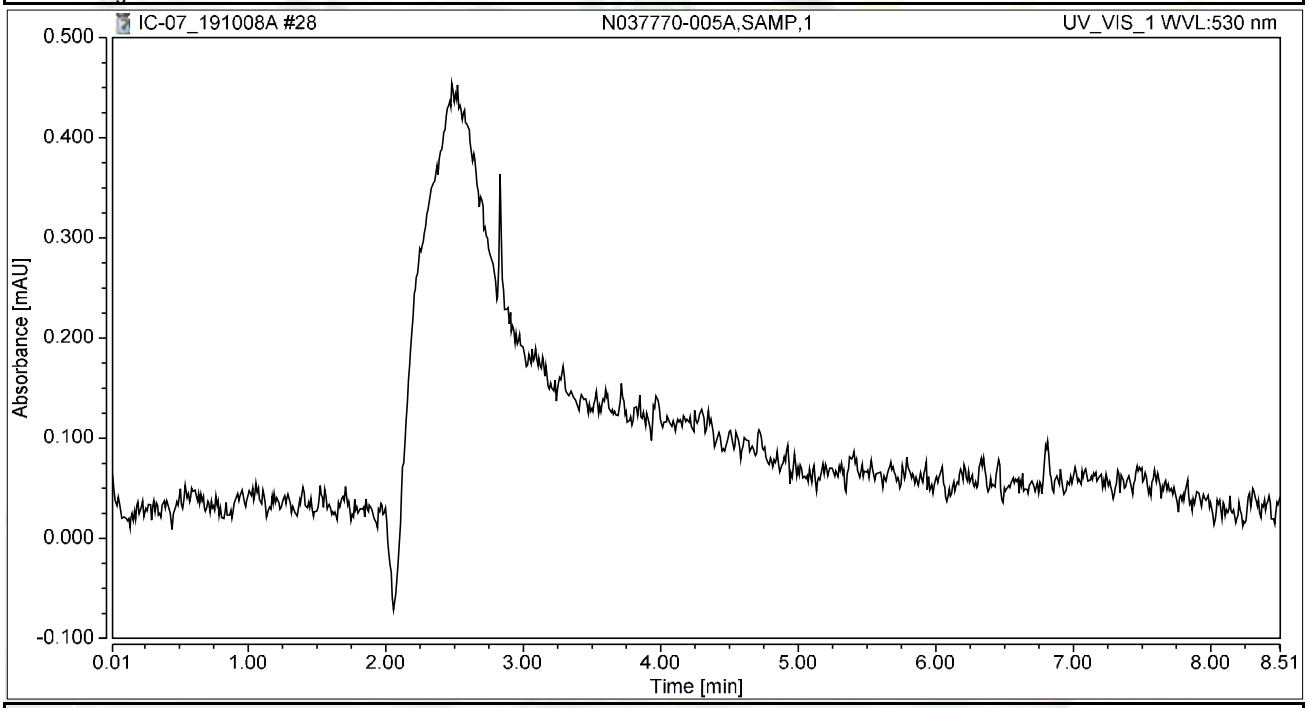
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.278	1.978	72.28	48.99	1.0316
2		7.456	0.106	2.060	27.72	51.01	n.a.
Total:			**0.384**	**4.039**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-005A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

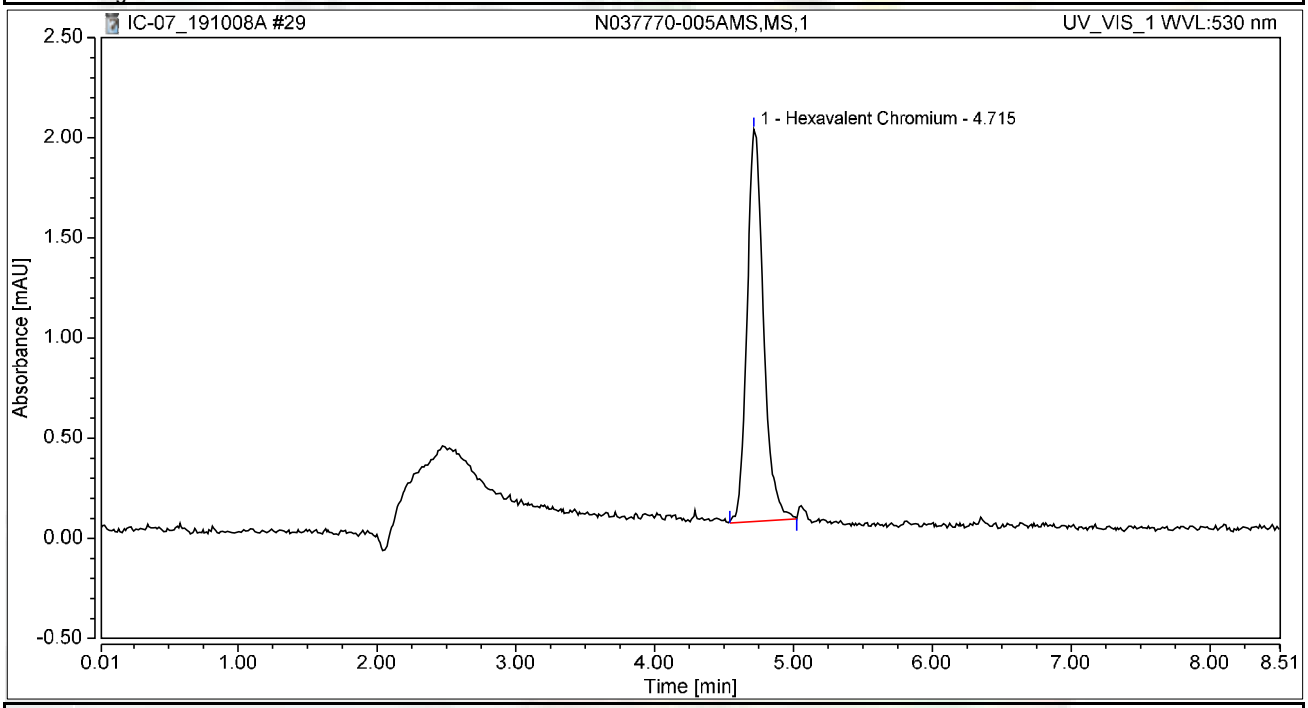
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

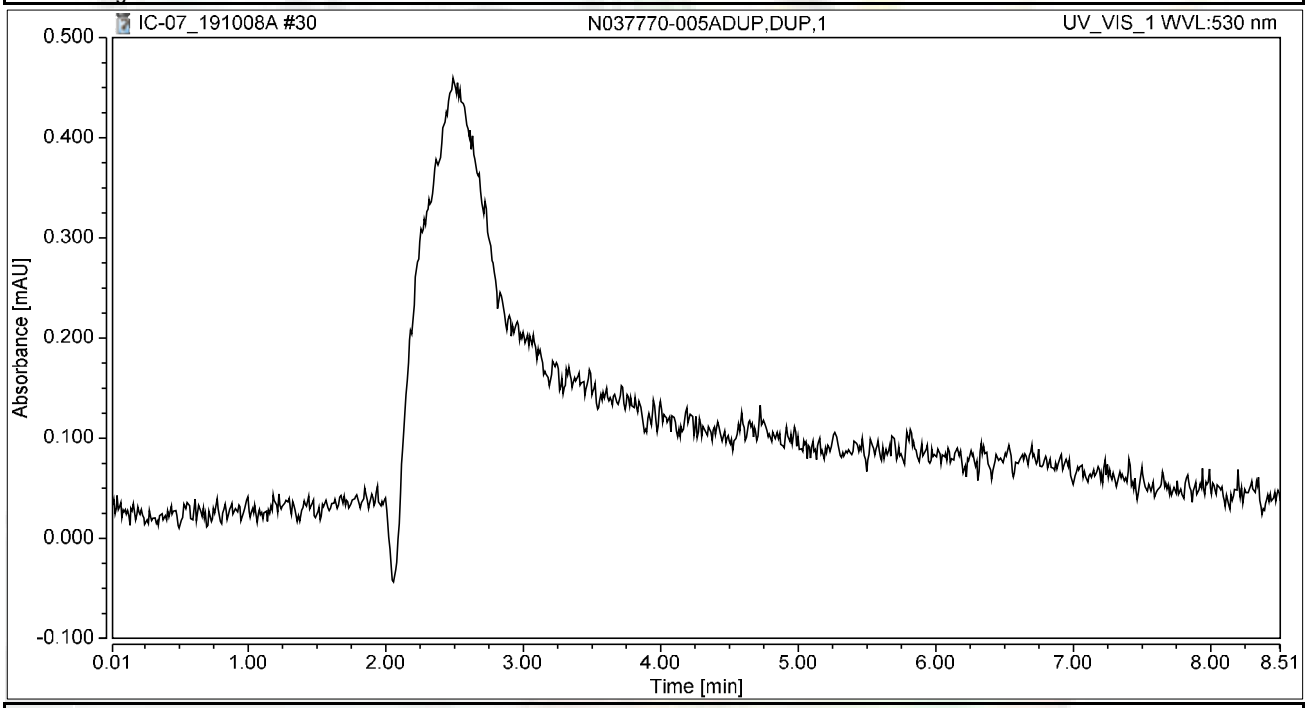
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.268	1.957	100.00	100.00	0.9974
Total:			**0.268**	**1.957**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-005ADUP,DUP,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

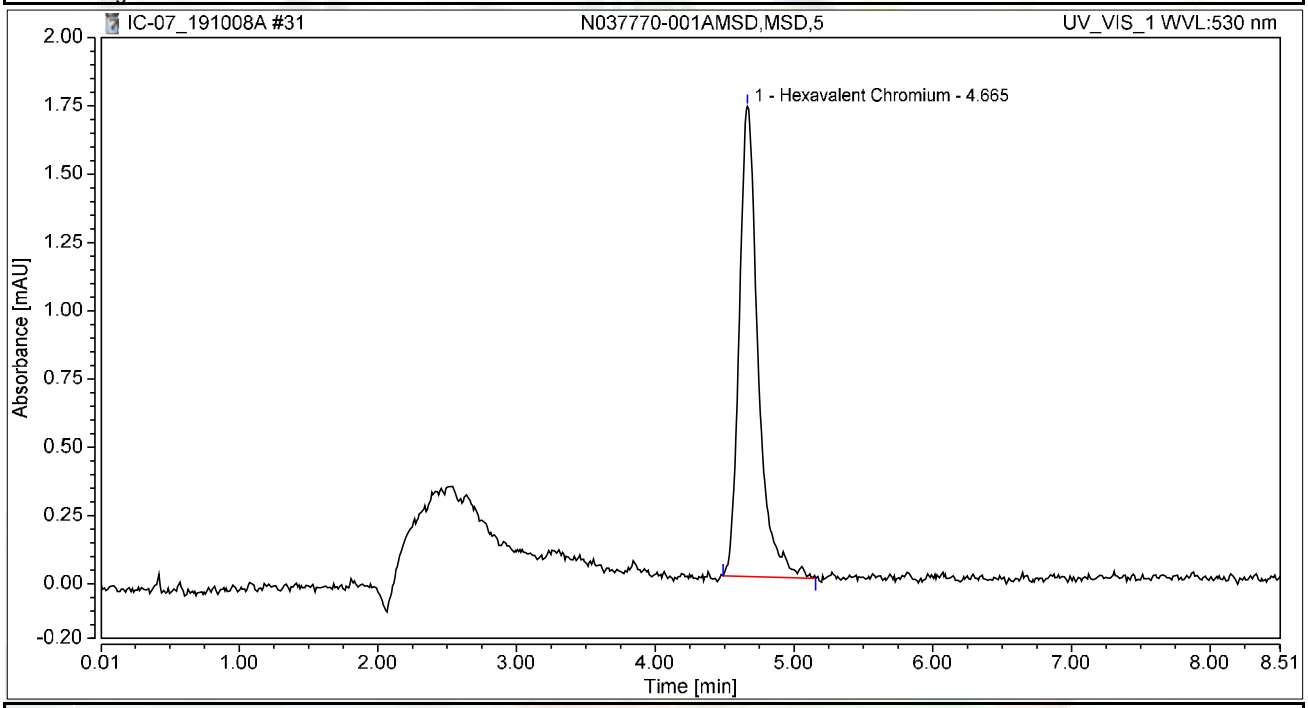
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001AMSD,MSD,5**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

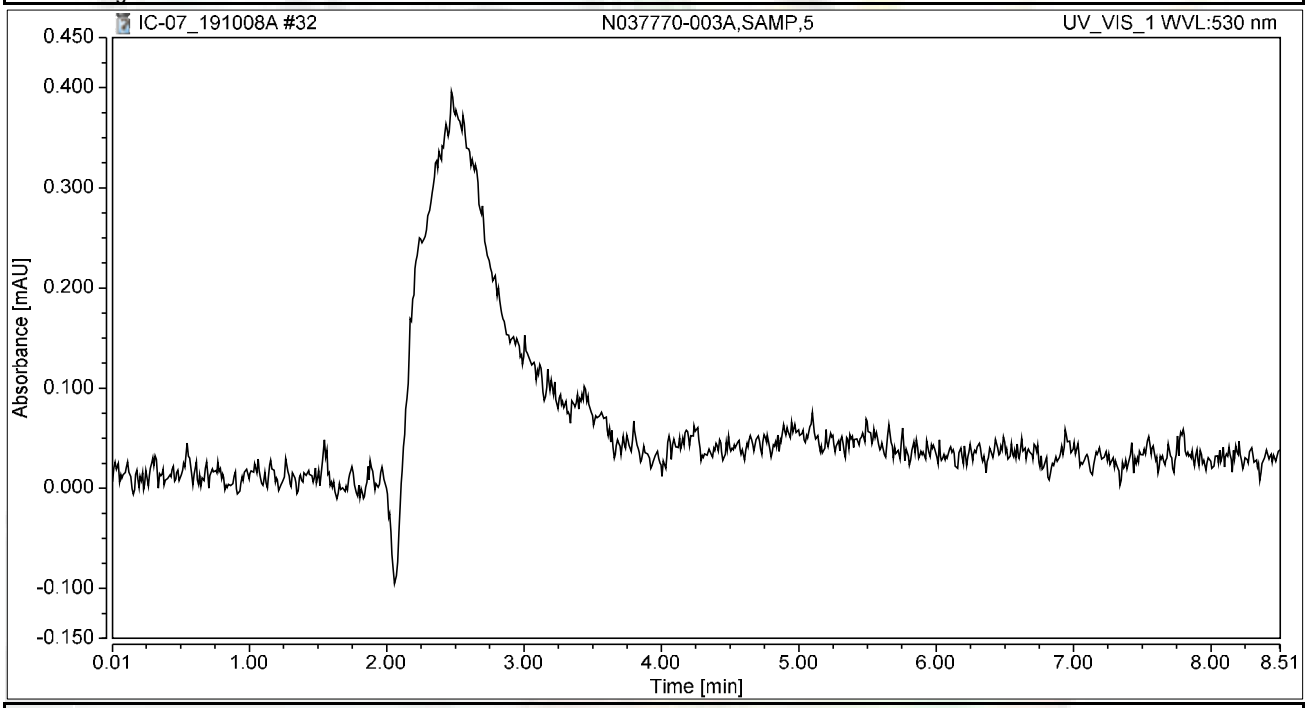
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.272	1.721	100.00	100.00	1.0090
Total:			**0.272**	**1.721**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

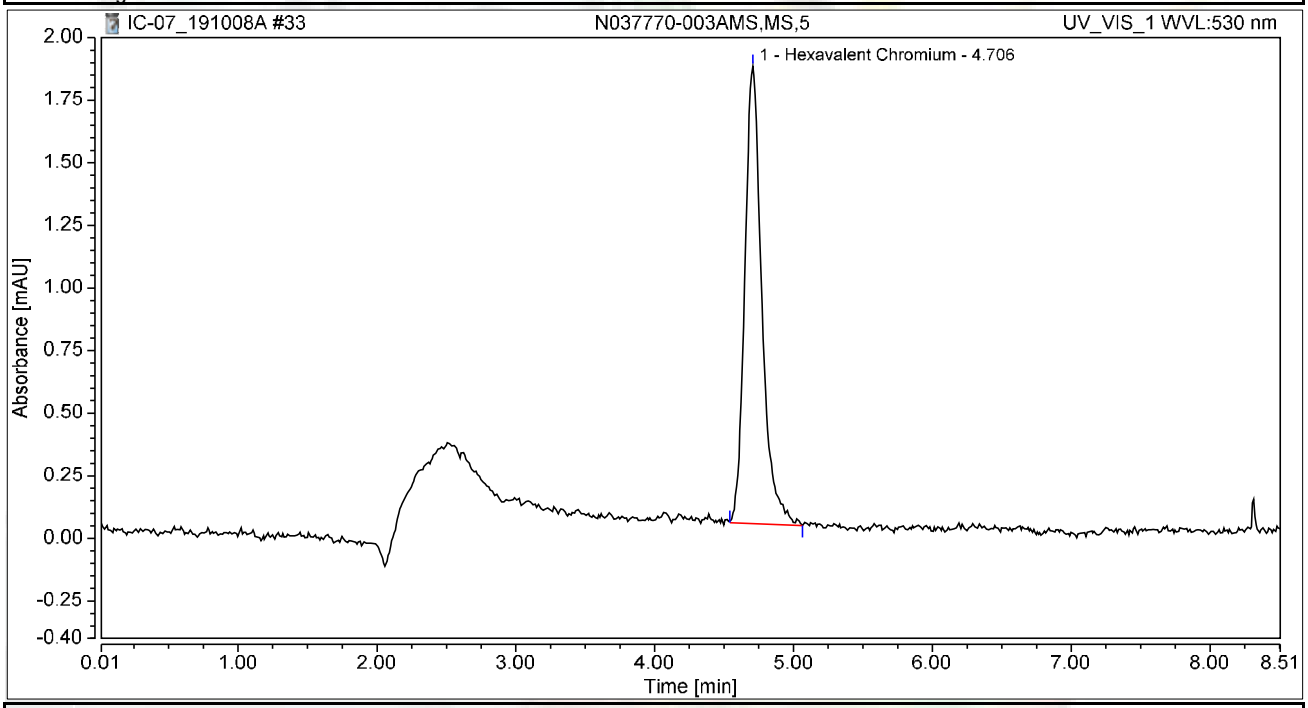
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

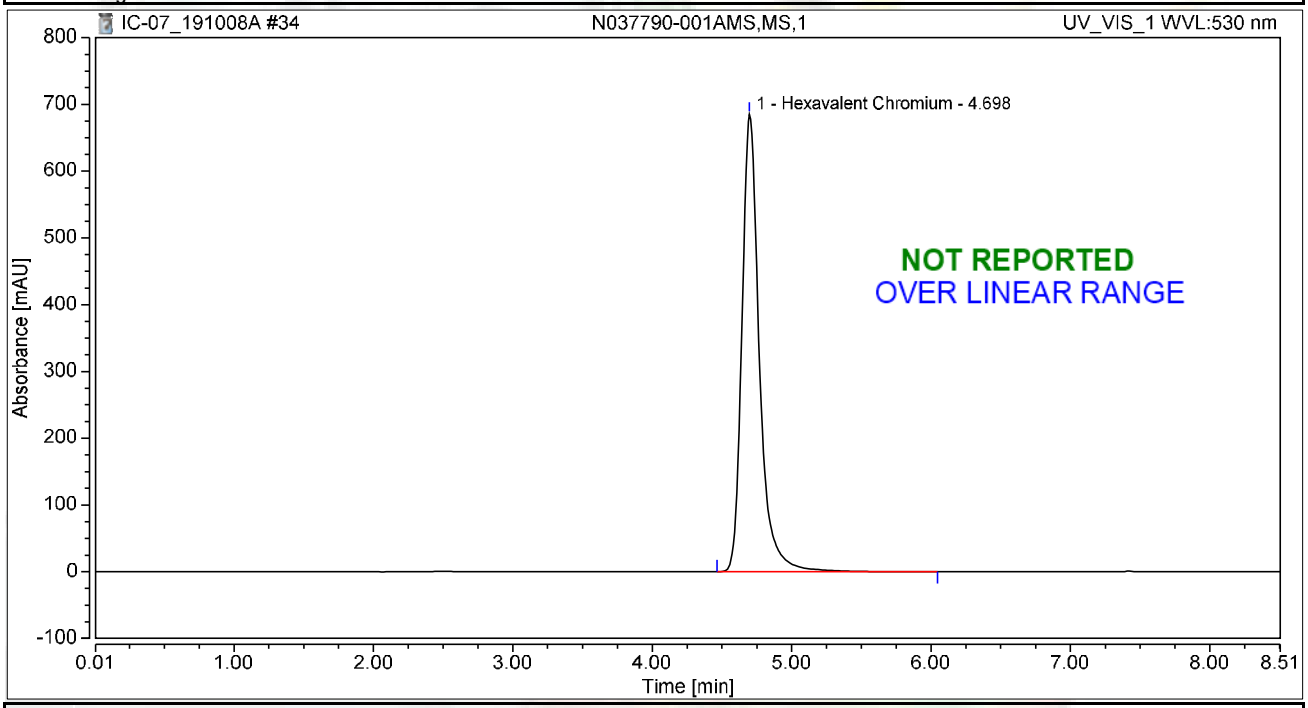
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.260	1.826	100.00	100.00	0.9660
Total:			**0.260**	**1.826**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

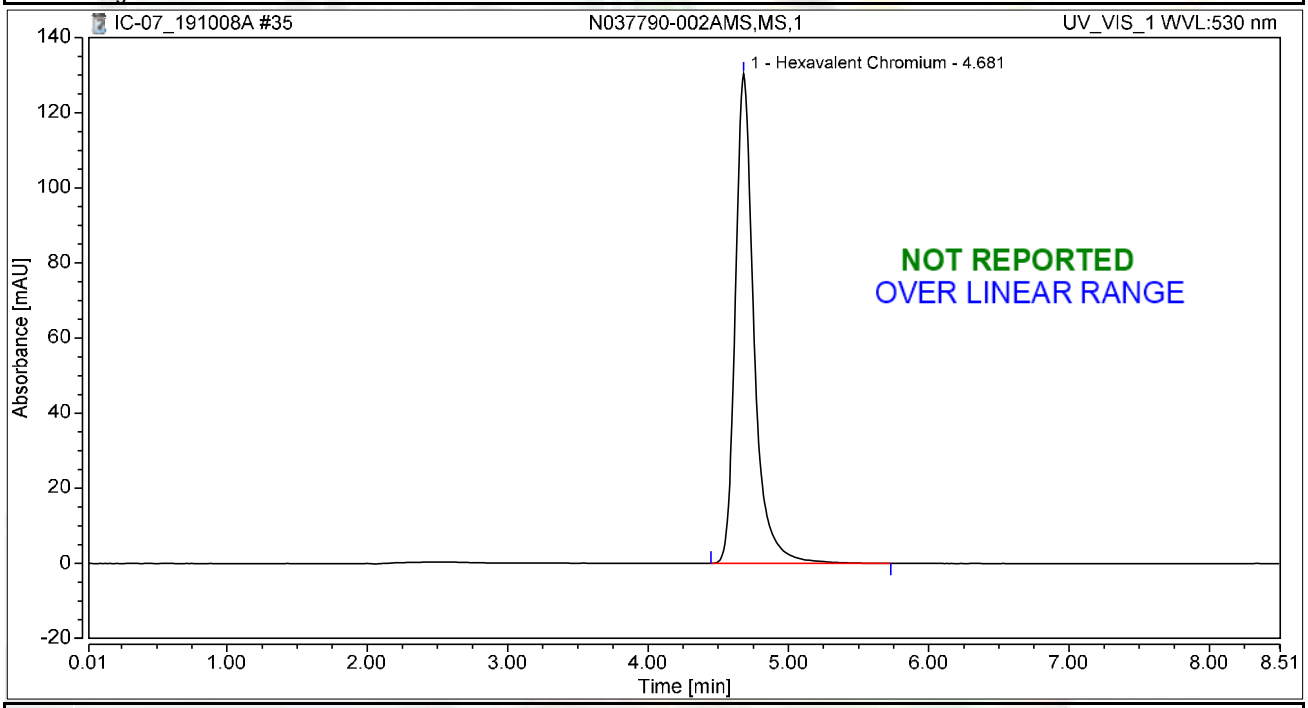
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	99.279	685.073	100.00	100.00	368.8350
Total:			**99.279**	**685.073**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

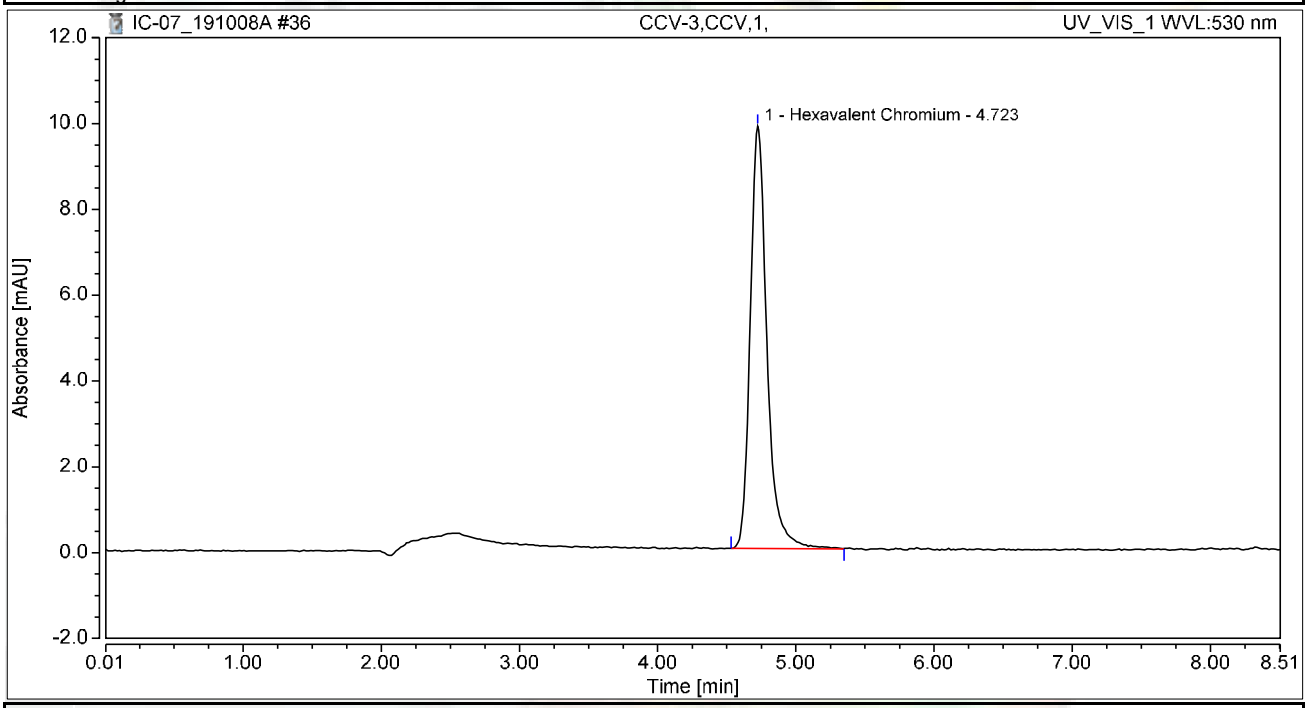
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	20.105	130.324	100.00	100.00	74.6919
Total:			**20.105**	**130.324**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

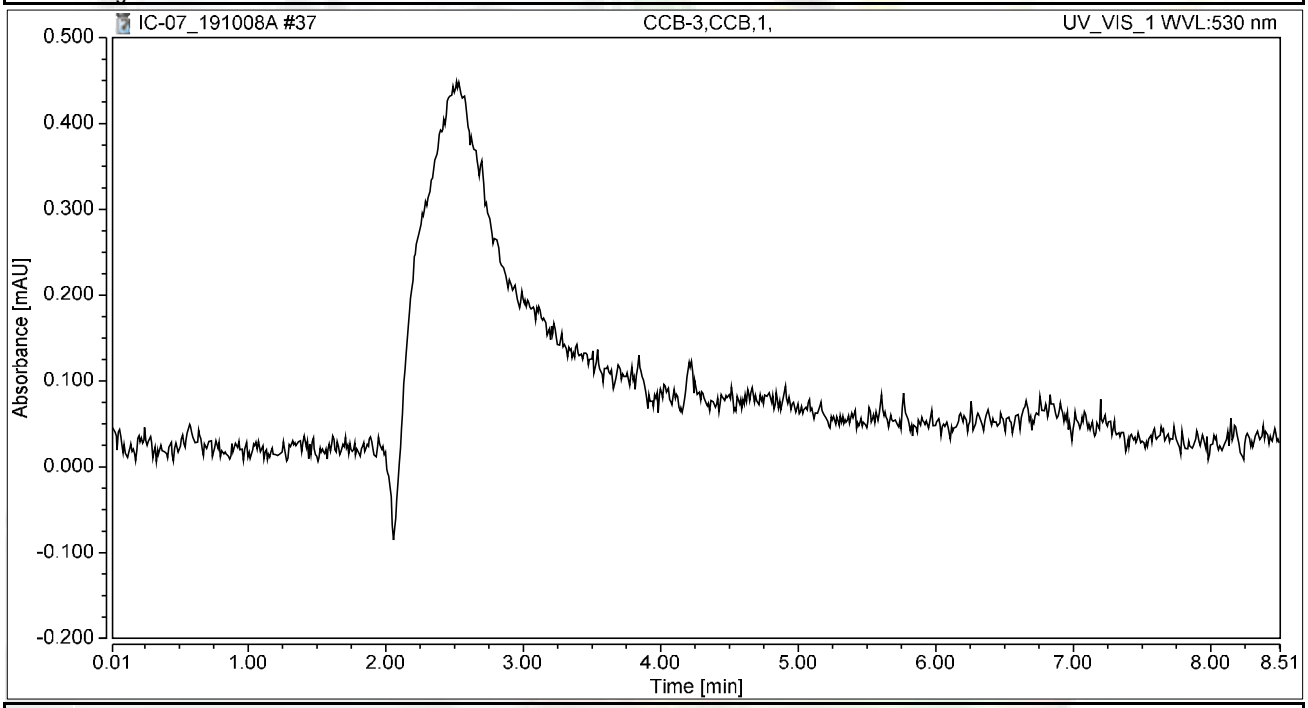
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.379	9.841	100.00	100.00	5.1219
Total:			**1.379**	**9.841**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

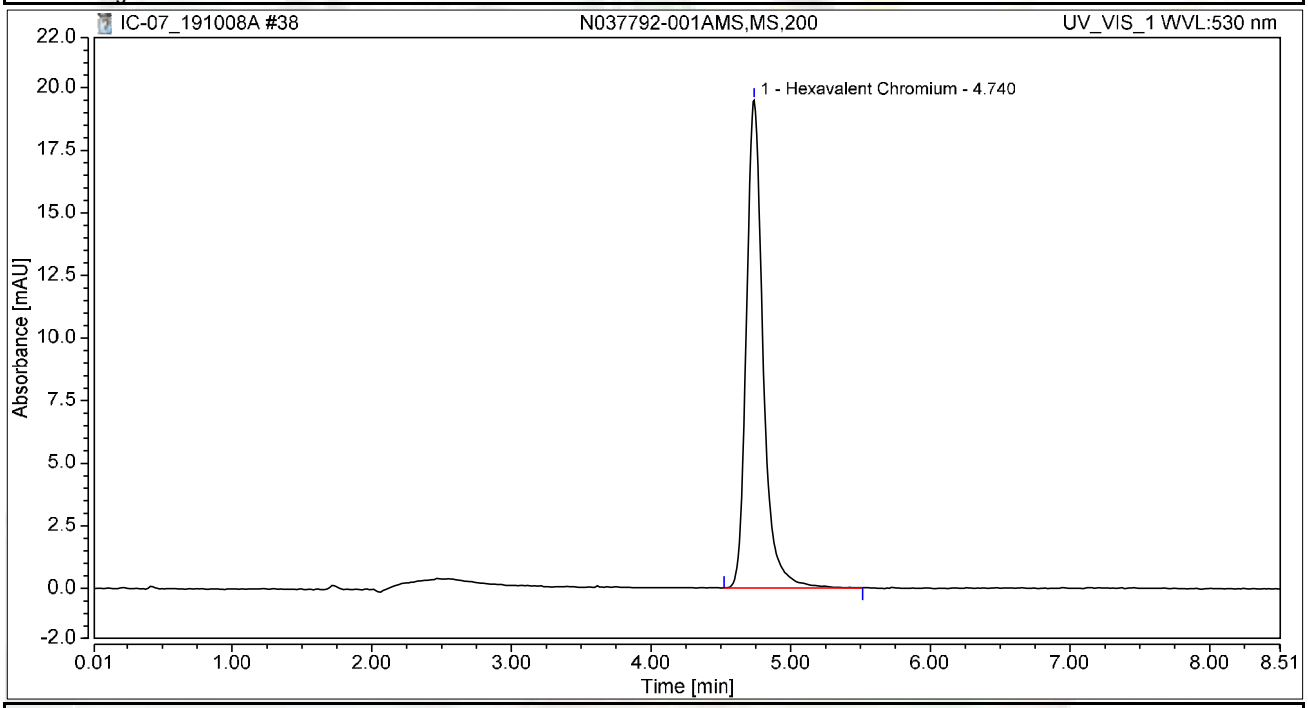
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037792-001AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

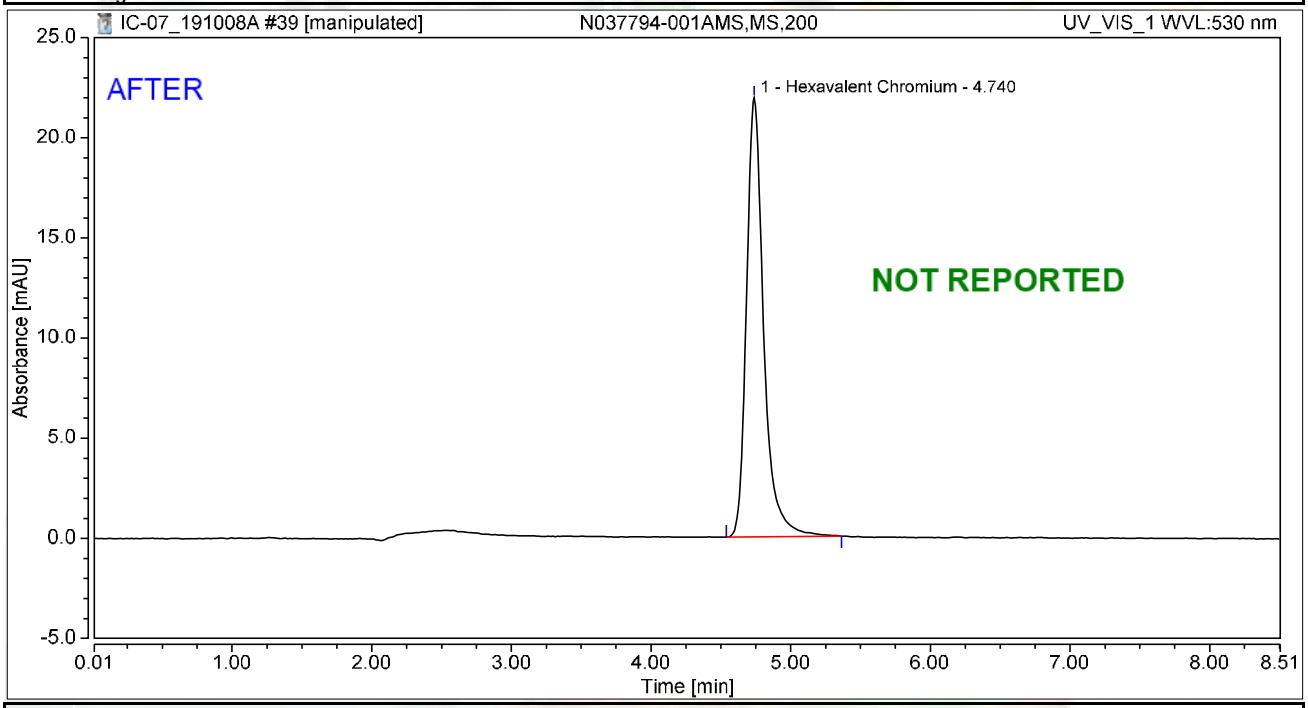
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.721	19.492	100.00	100.00	10.1080
Total:			**2.721**	**19.492**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

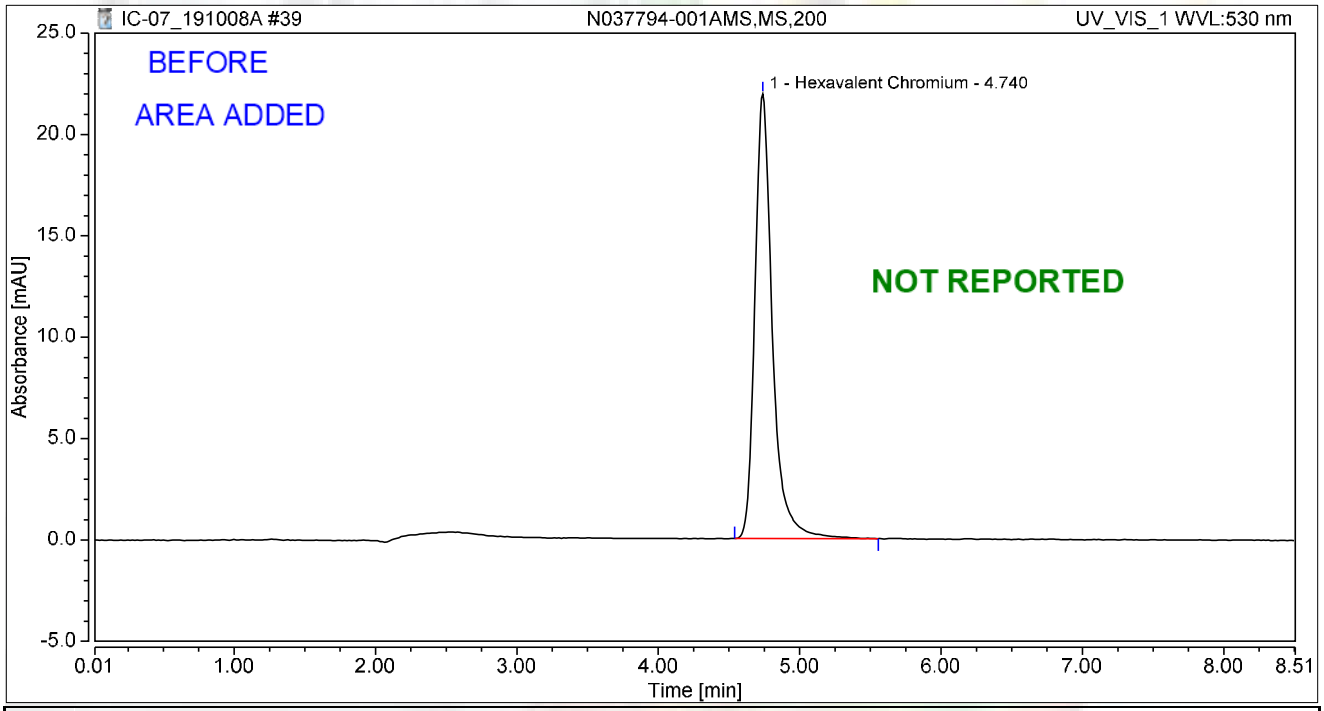
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.133	21.917	100.00	100.00	11.6398
Total:			**3.133**	**21.917**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

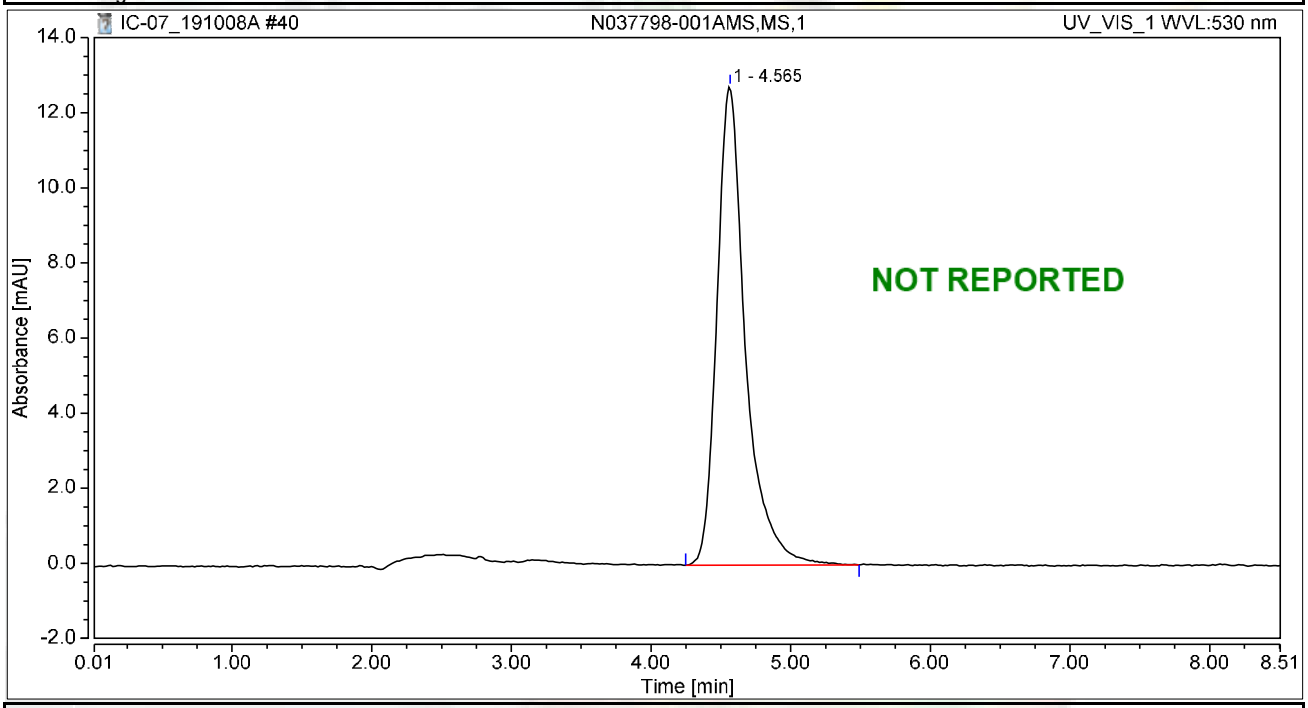
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.162	21.930	100.00	100.00	11.7473
Total:			**3.162**	**21.930**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

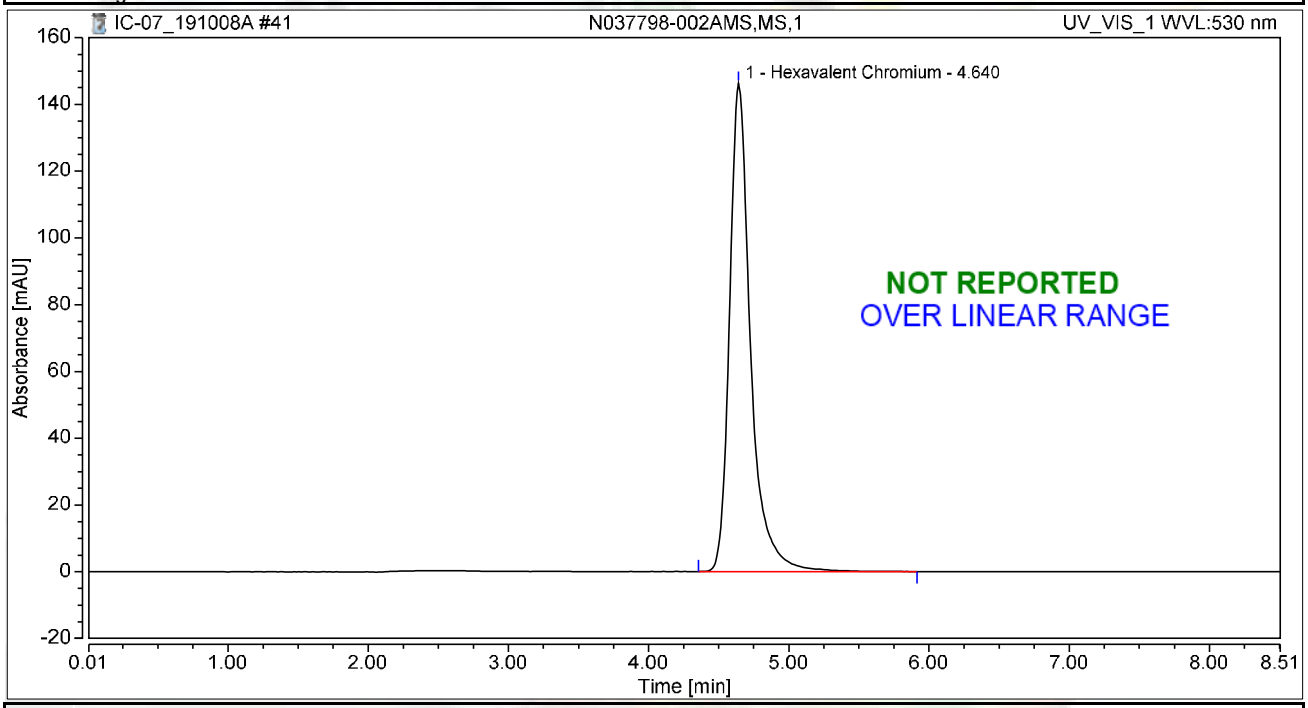
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.565	3.020	12.746	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**3.020**	**12.746**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

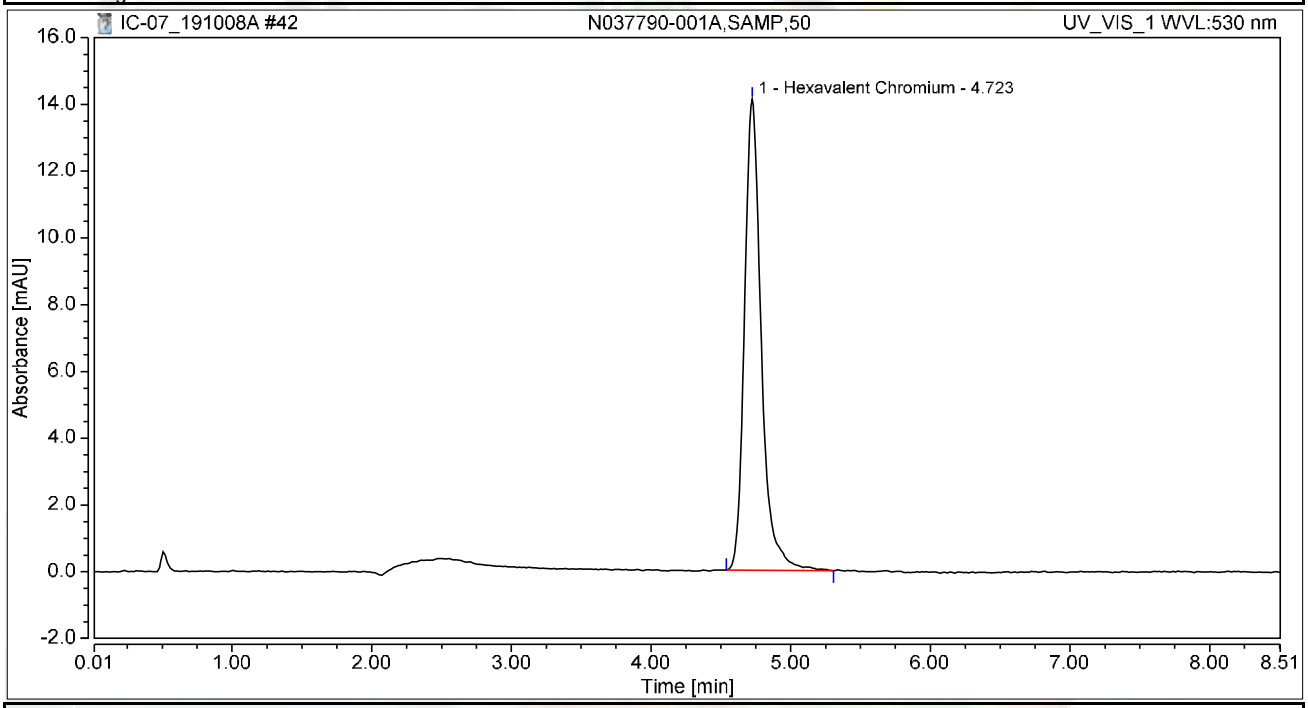
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.640	25.389	146.265	100.00	100.00	94.3246
Total:			**25.389**	**146.265**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-001A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

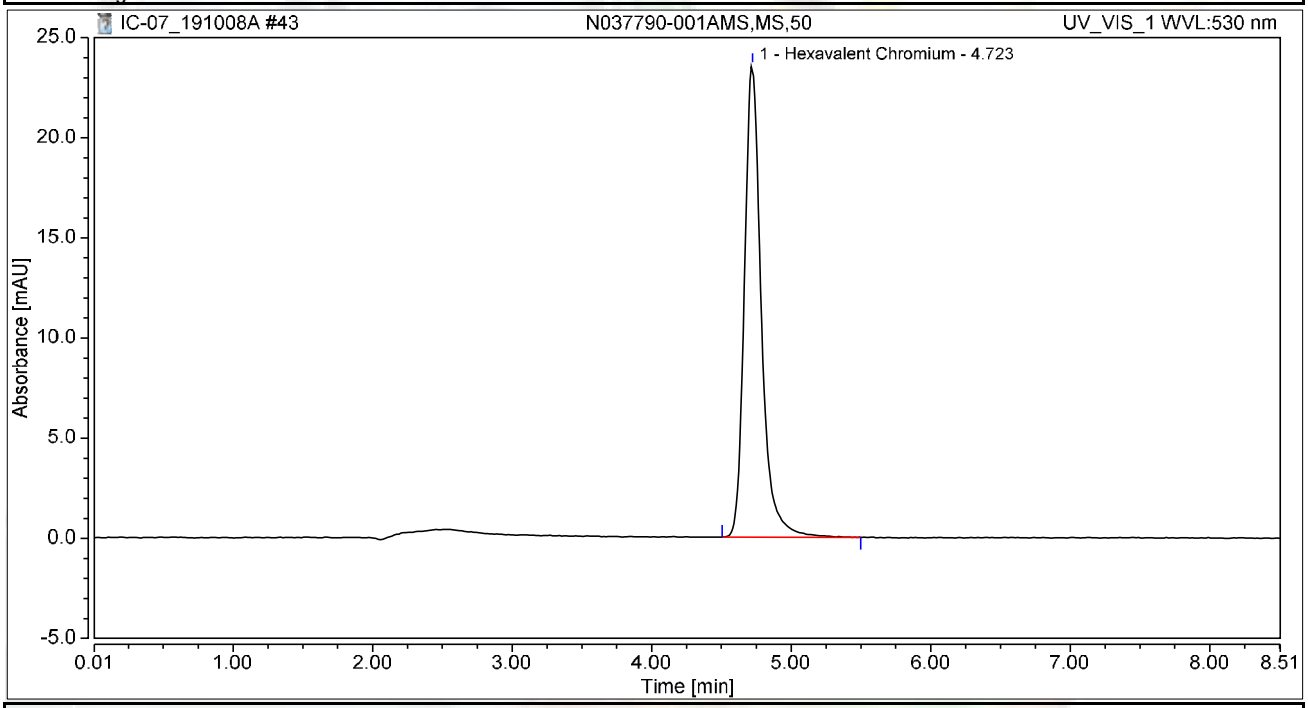
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.973	14.118	100.00	100.00	7.3284
Total:			**1.973**	**14.118**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-001AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

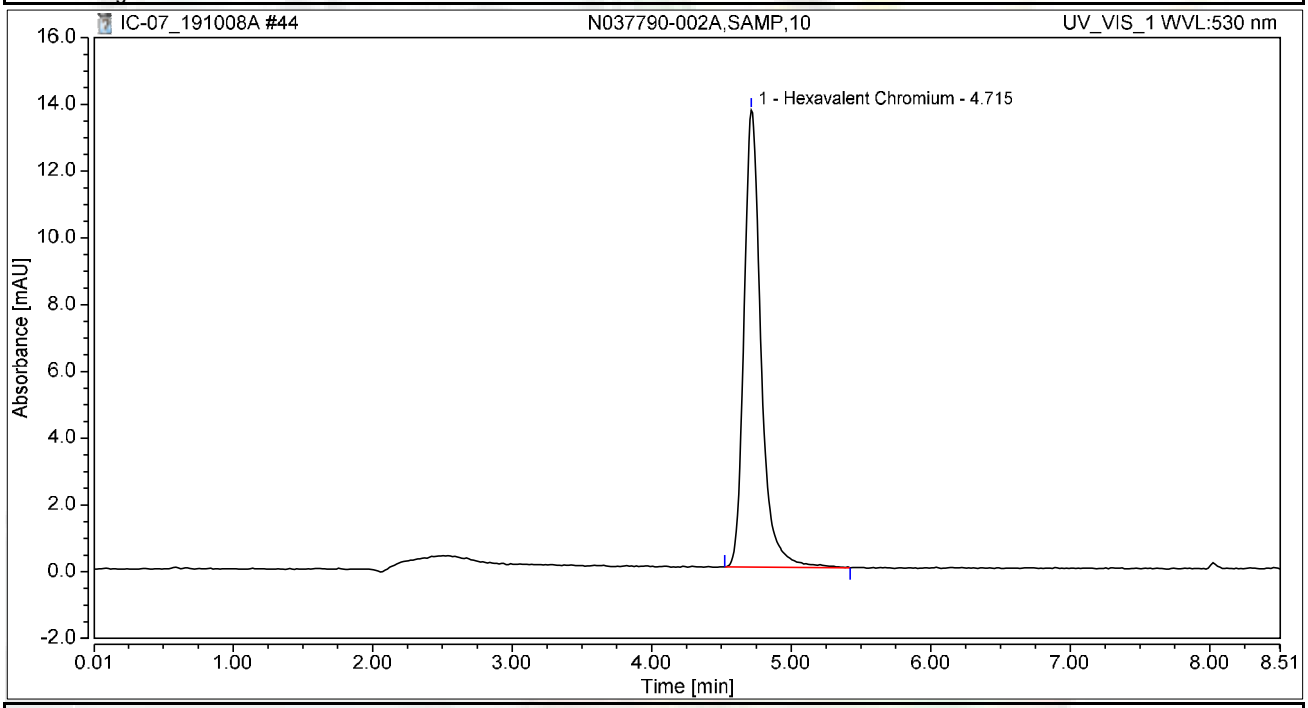
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	3.308	23.560	100.00	100.00	12.2912
Total:			**3.308**	**23.560**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

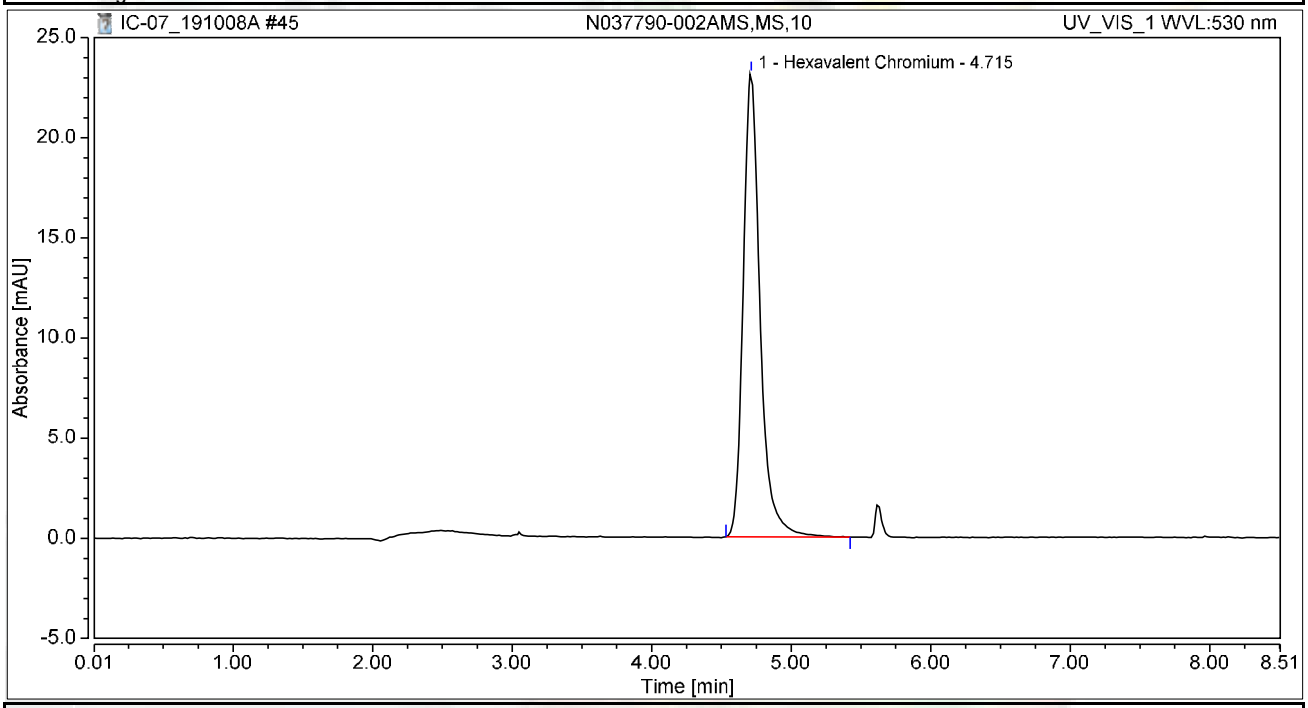
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.935	13.694	100.00	100.00	7.1882
Total:			**1.935**	**13.694**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-002AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

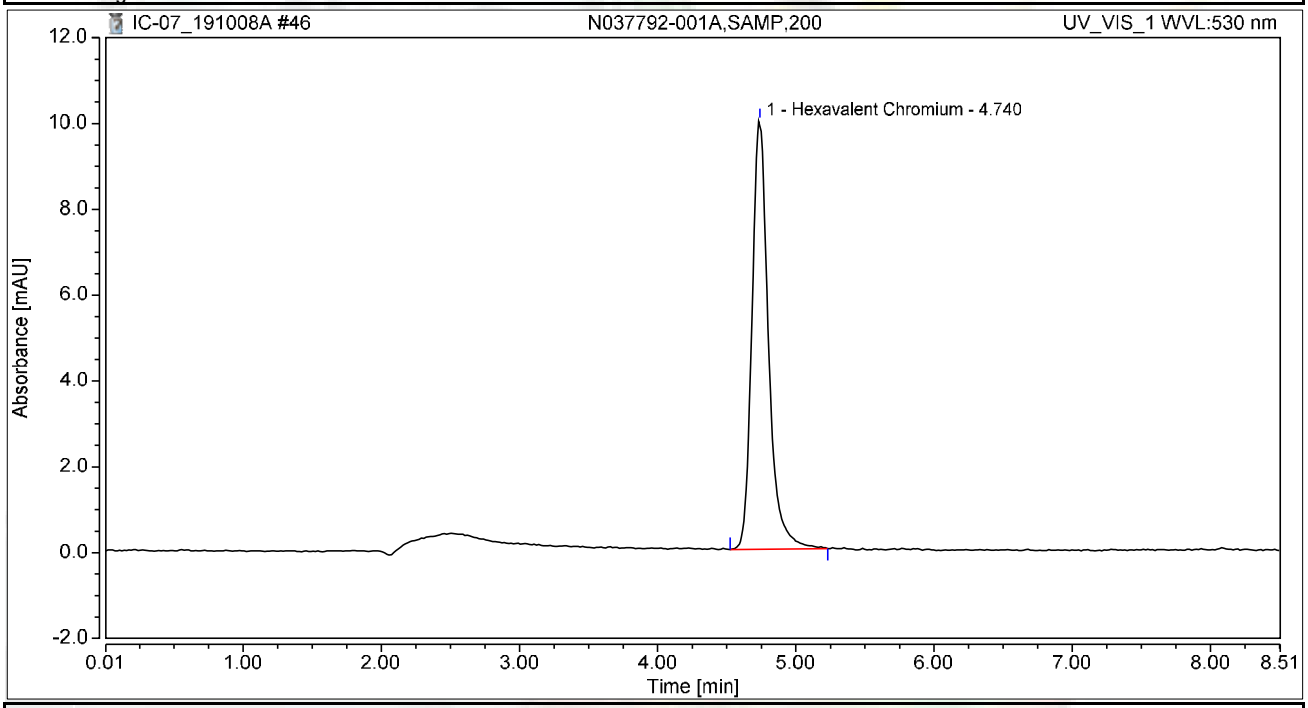
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	3.254	23.134	100.00	100.00	12.0878
Total:			**3.254**	**23.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037792-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

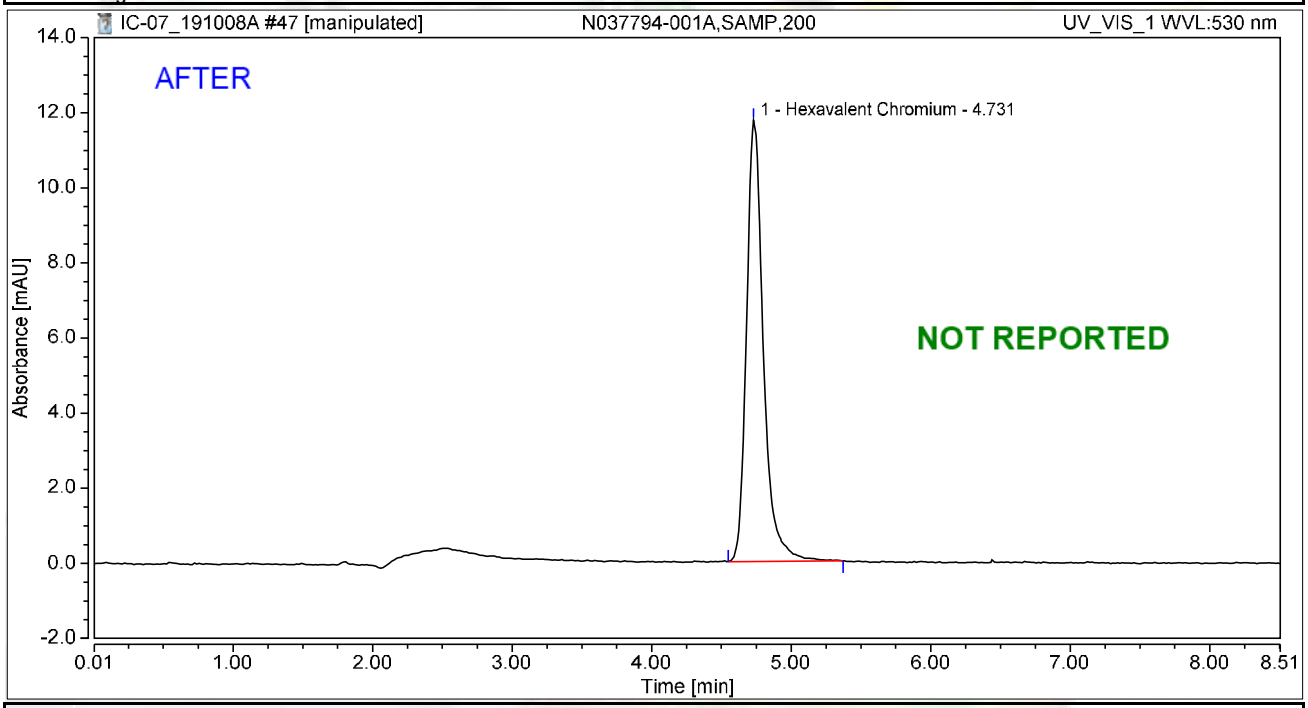
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.387	9.988	100.00	100.00	5.1520
Total:			**1.387**	**9.988**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

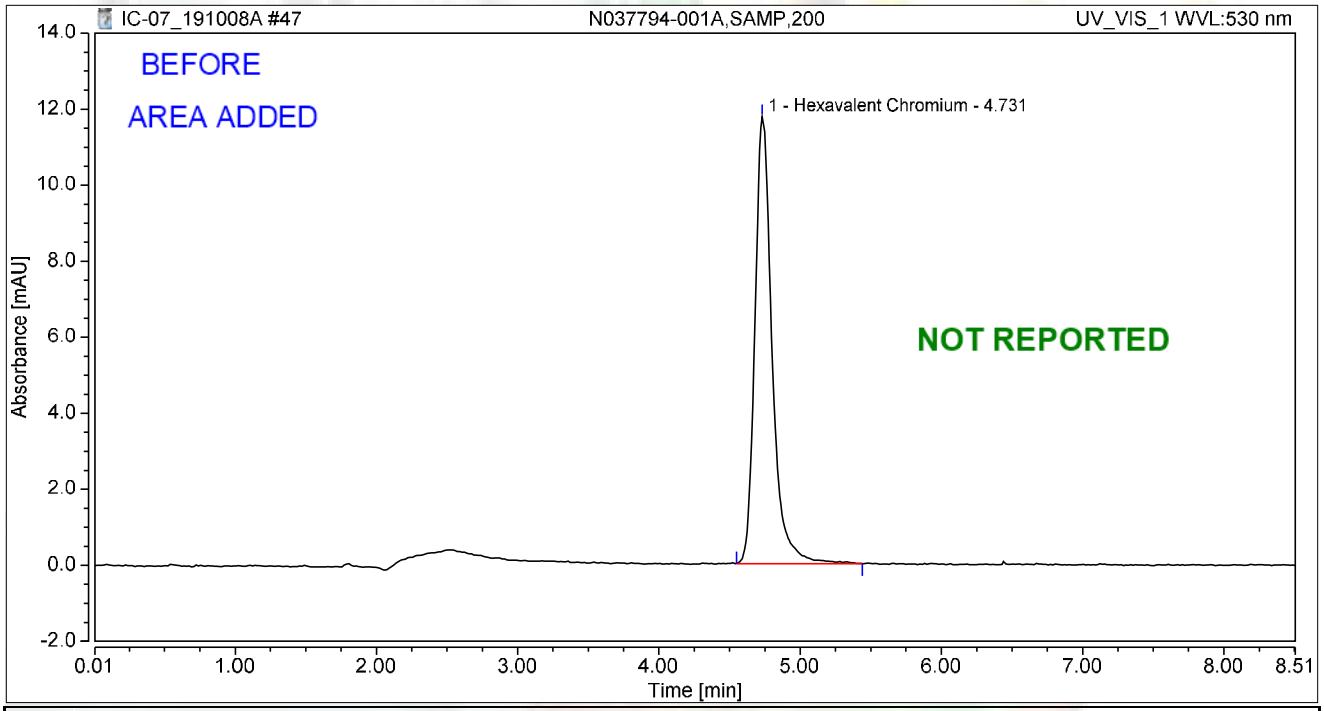
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.650	11.749	100.00	100.00	6.1298
Total:			**1.650**	**11.749**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

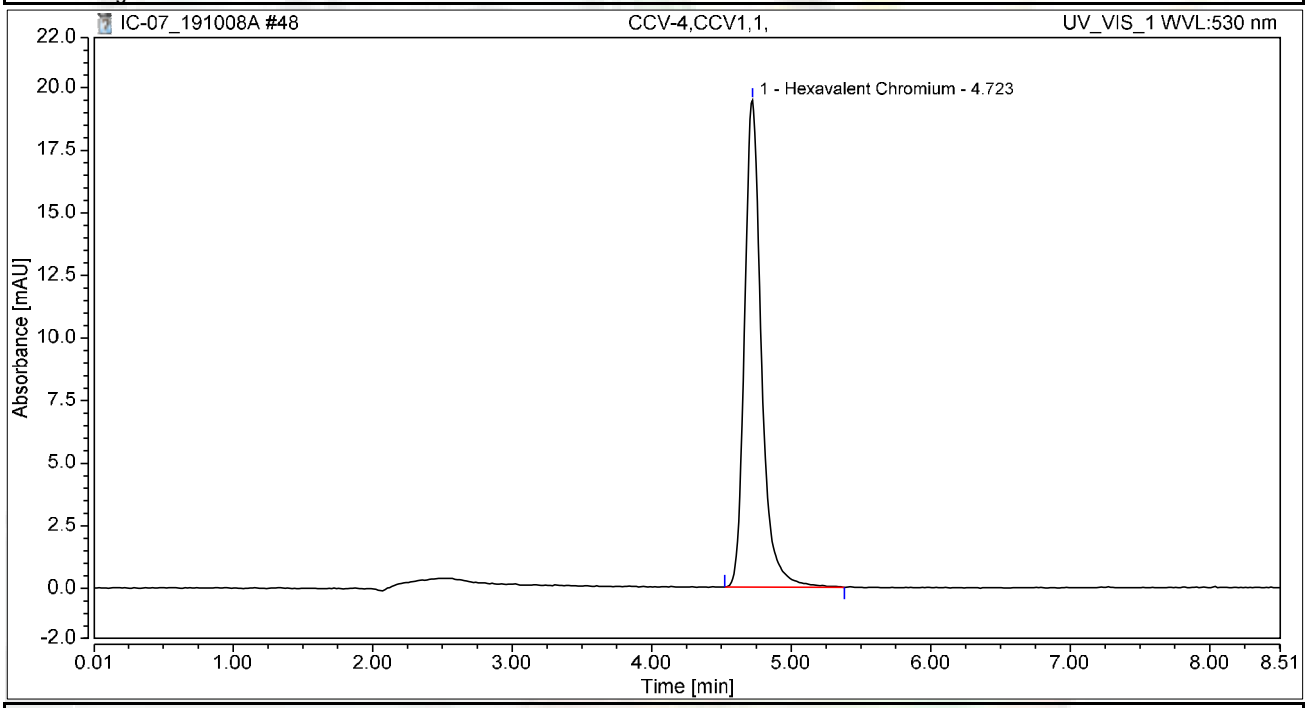
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.660	11.754	100.00	100.00	6.1682
Total:			**1.660**	**11.754**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

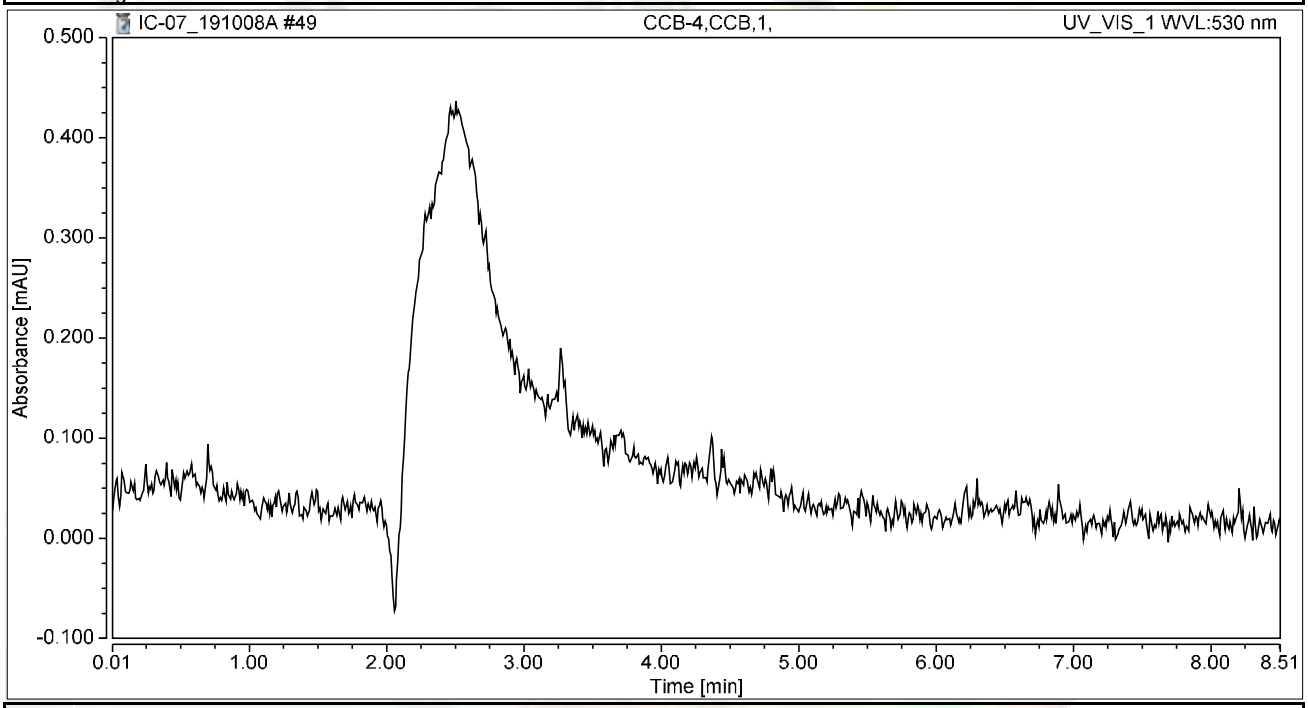
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.712	19.443	100.00	100.00	10.0758
Total:			**2.712**	**19.443**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

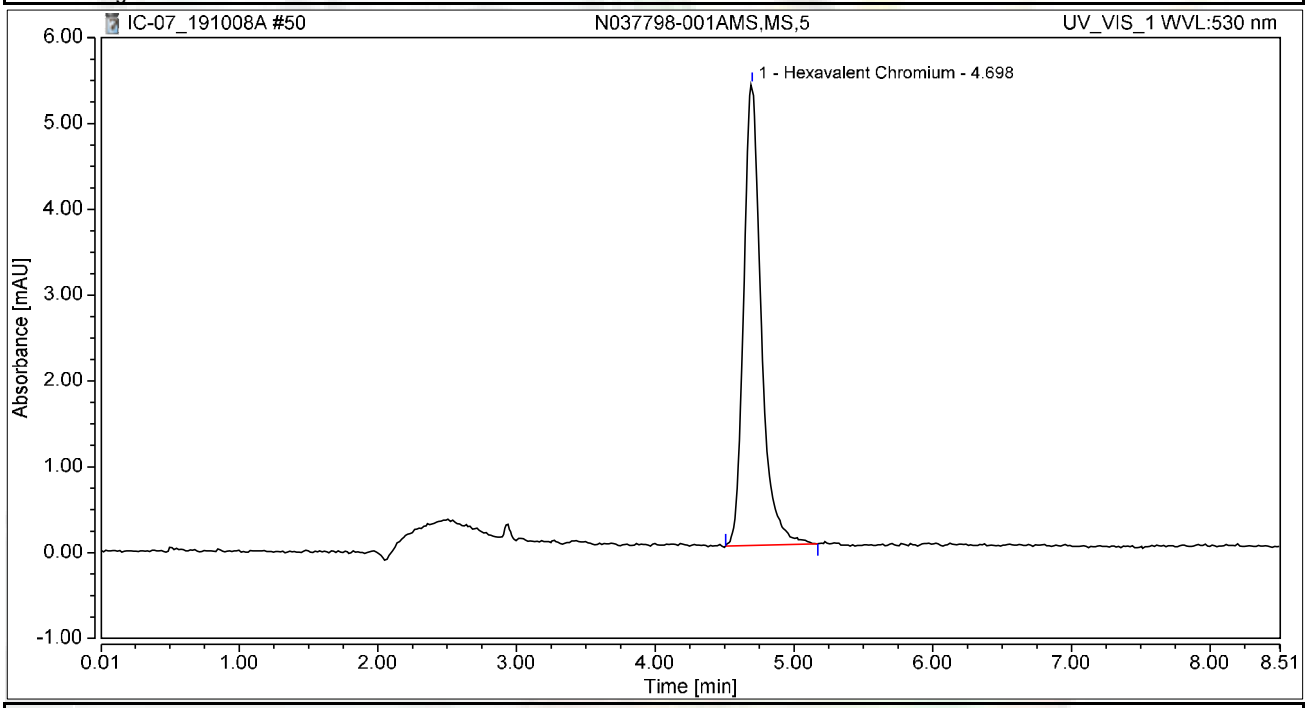
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

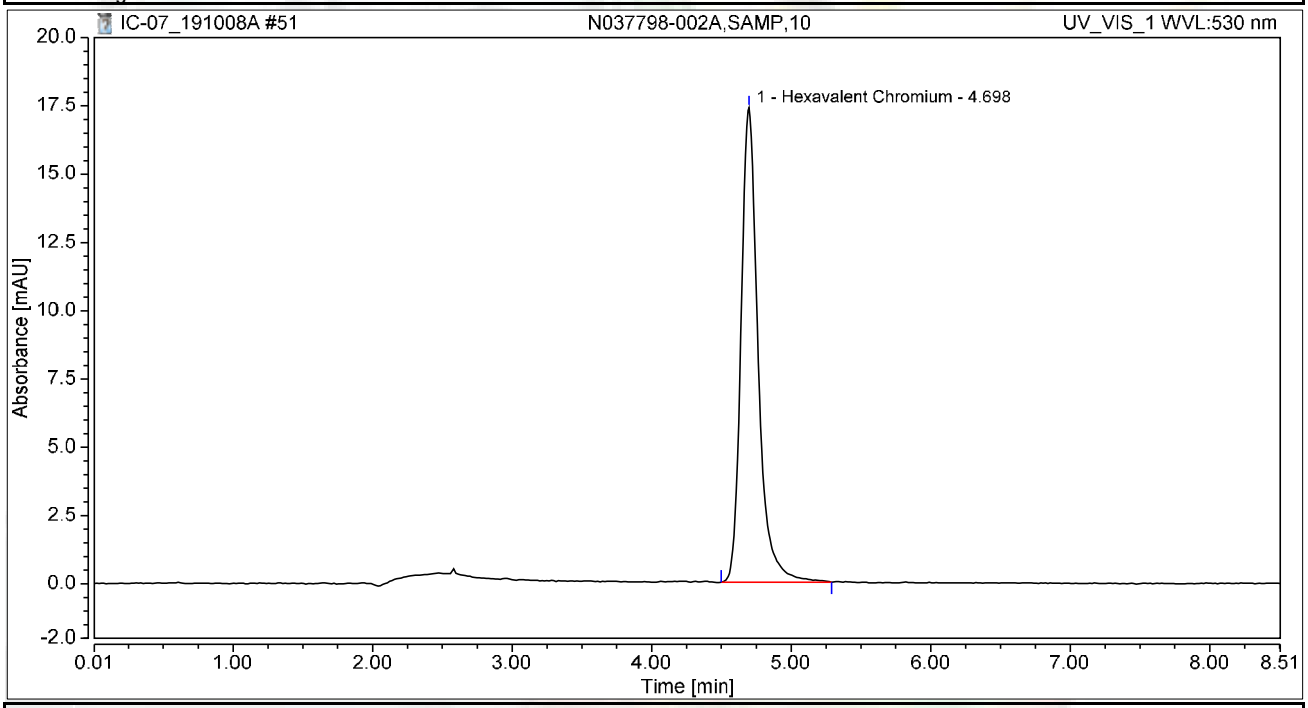
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.789	5.369	100.00	100.00	2.9331
Total:			**0.789**	**5.369**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

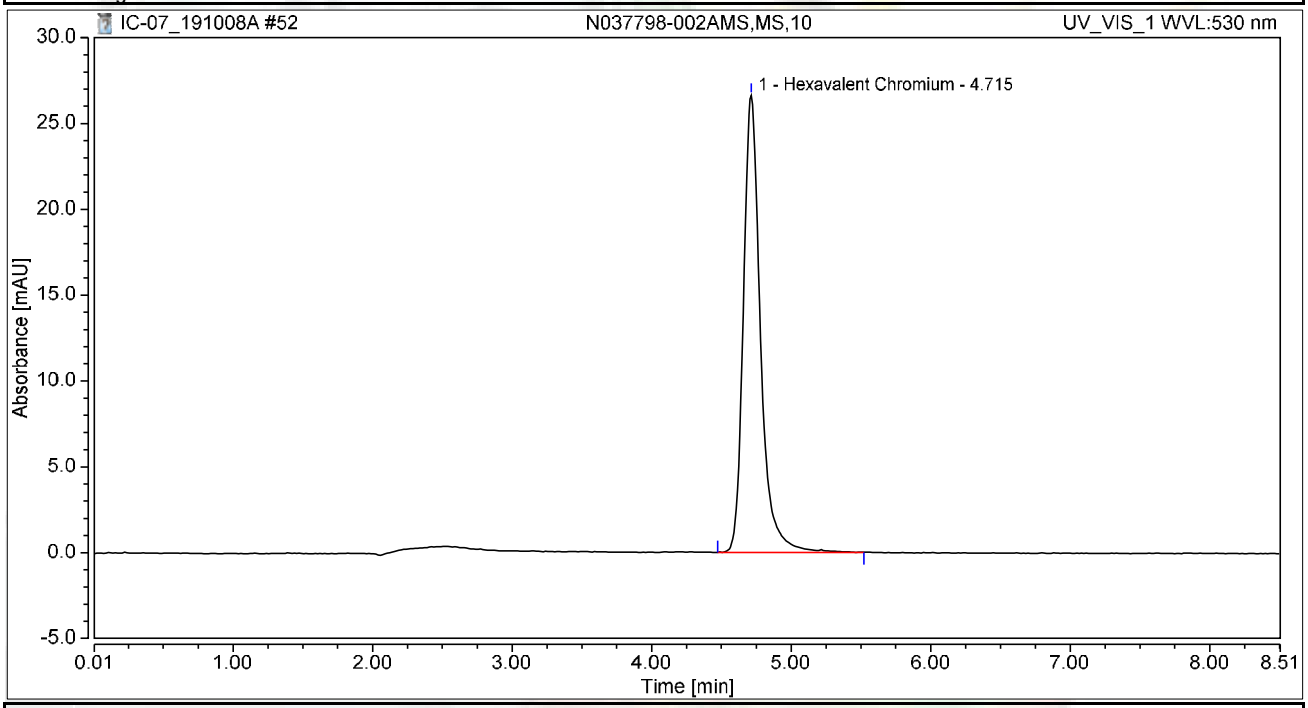
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.467	17.371	100.00	100.00	9.1645
Total:			**2.467**	**17.371**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-002AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

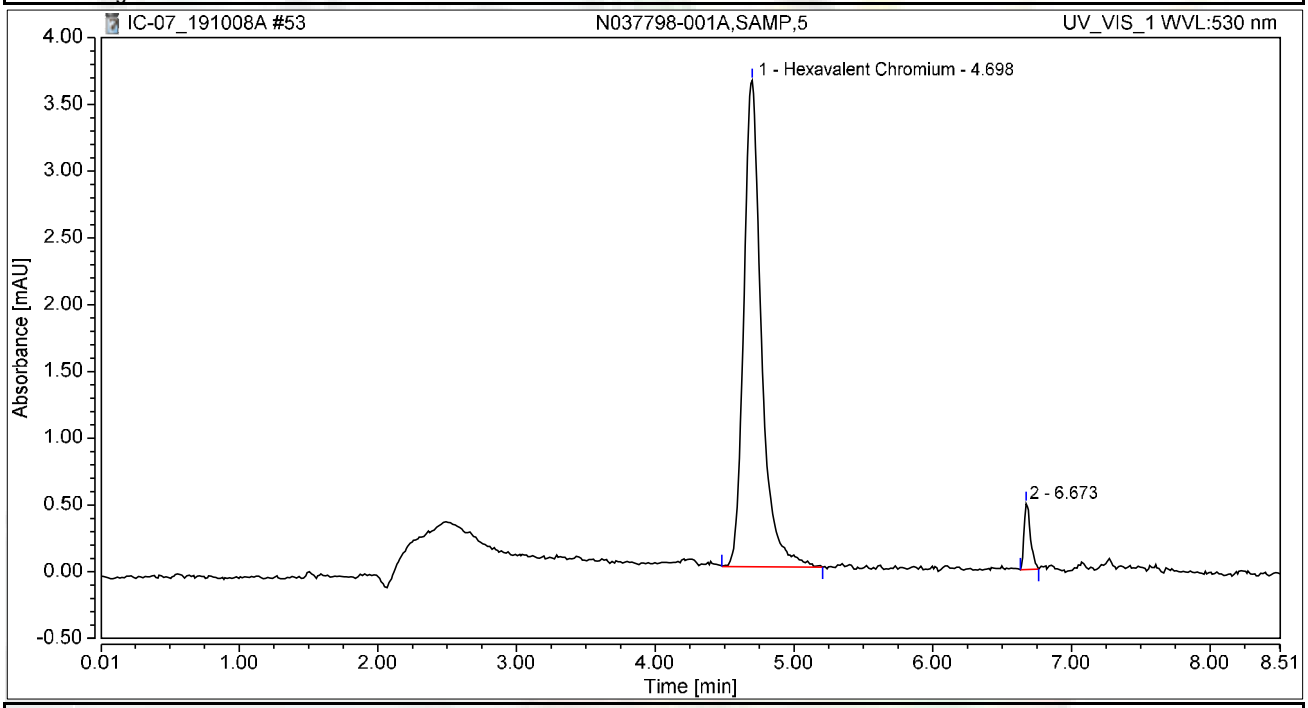
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	3.791	26.621	100.00	100.00	14.0858
Total:			**3.791**	**26.621**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

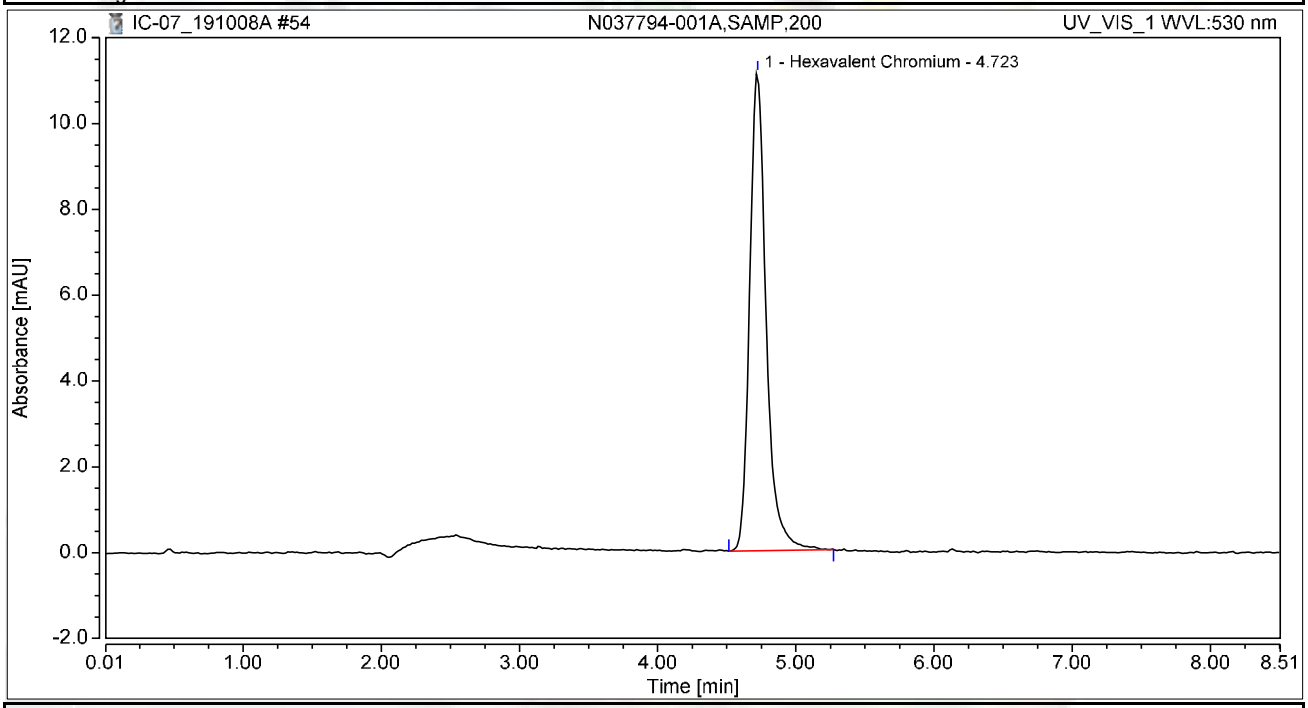
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.538	3.642	95.31	88.09	1.9971
2		6.673	0.026	0.492	4.69	11.91	n.a.
Total:			**0.564**	**4.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

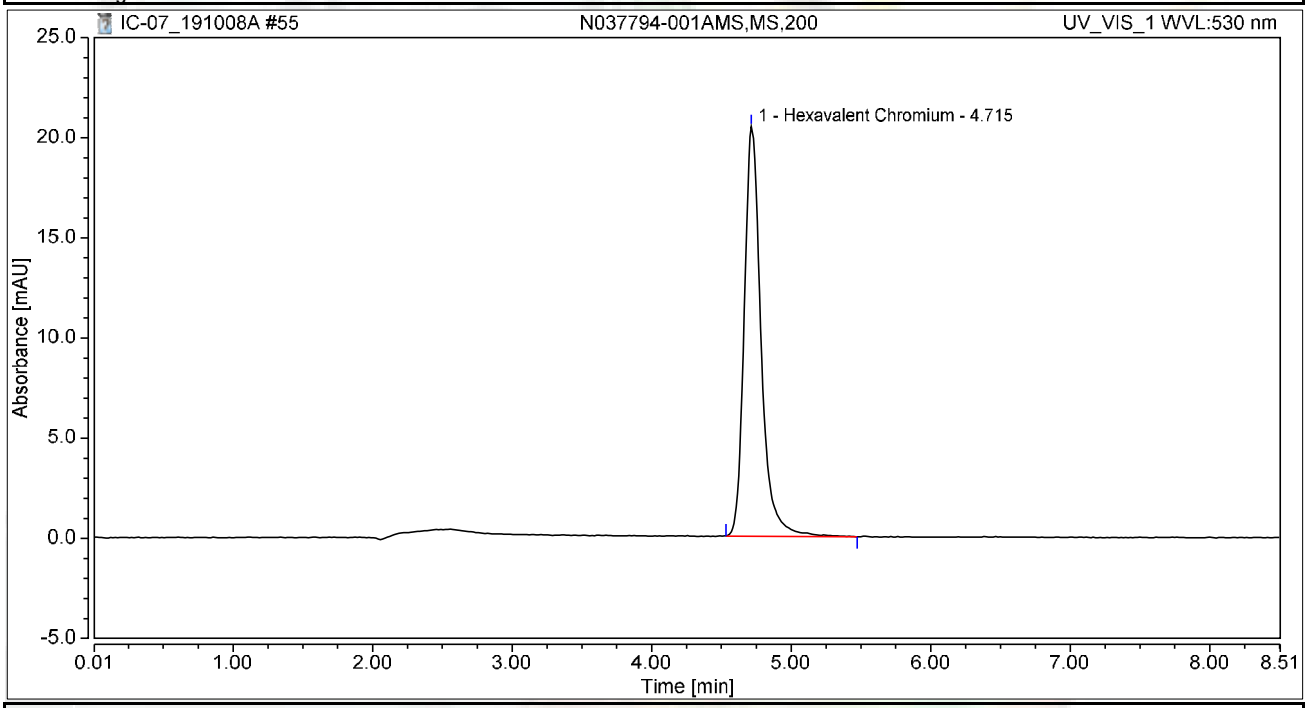
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.546	11.135	100.00	100.00	5.7448
Total:			**1.546**	**11.135**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

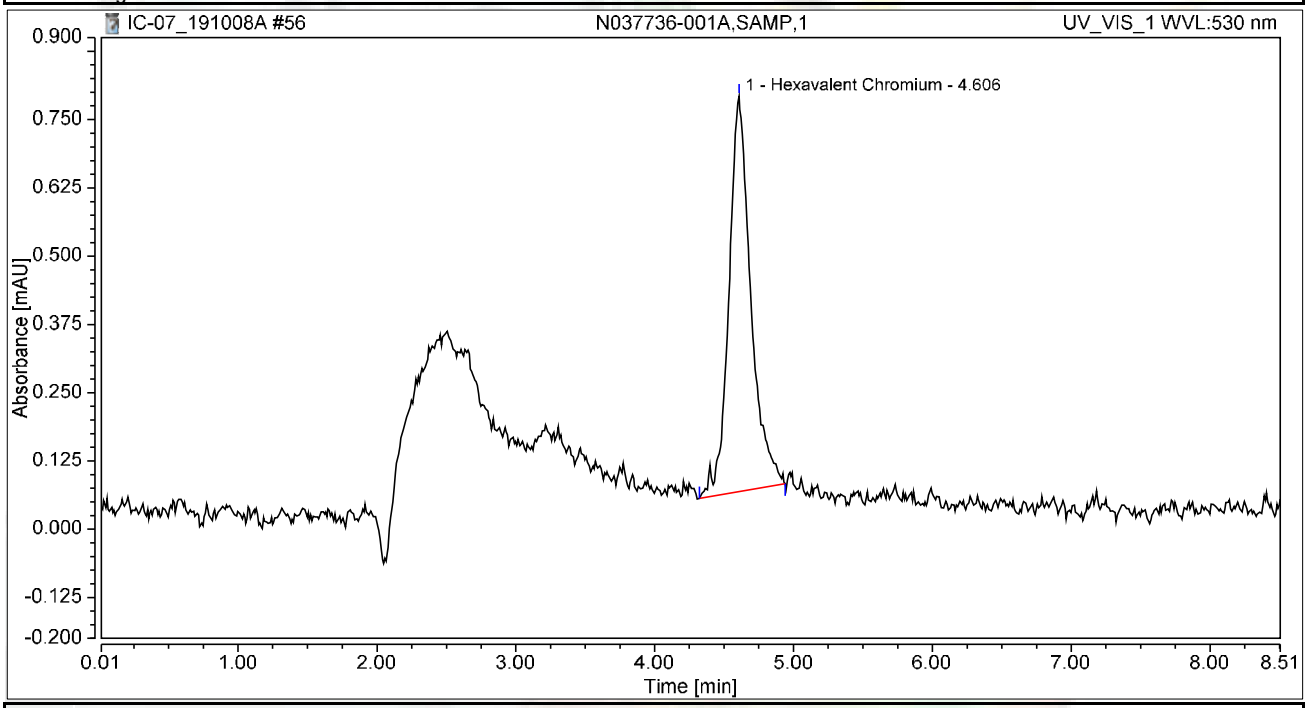
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.861	20.455	100.00	100.00	10.6307
Total:			**2.861**	**20.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

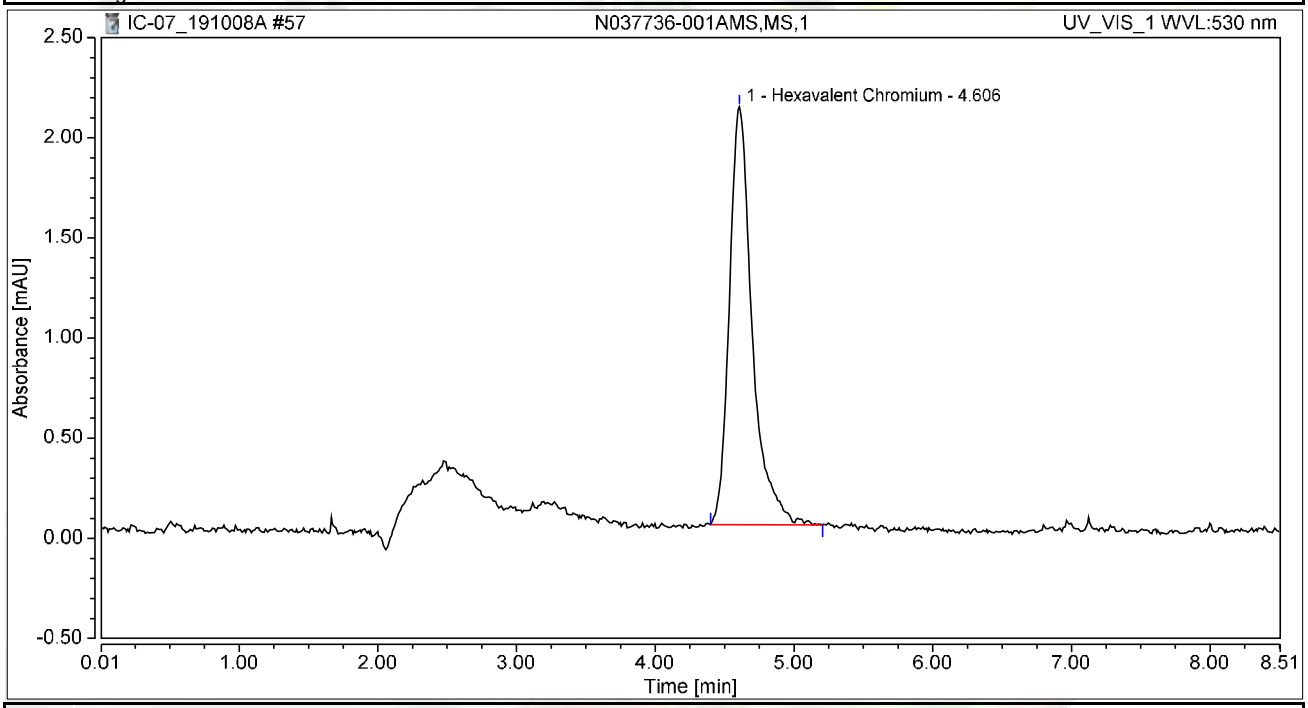
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.132	0.724	100.00	100.00	0.4905
Total:			**0.132**	**0.724**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

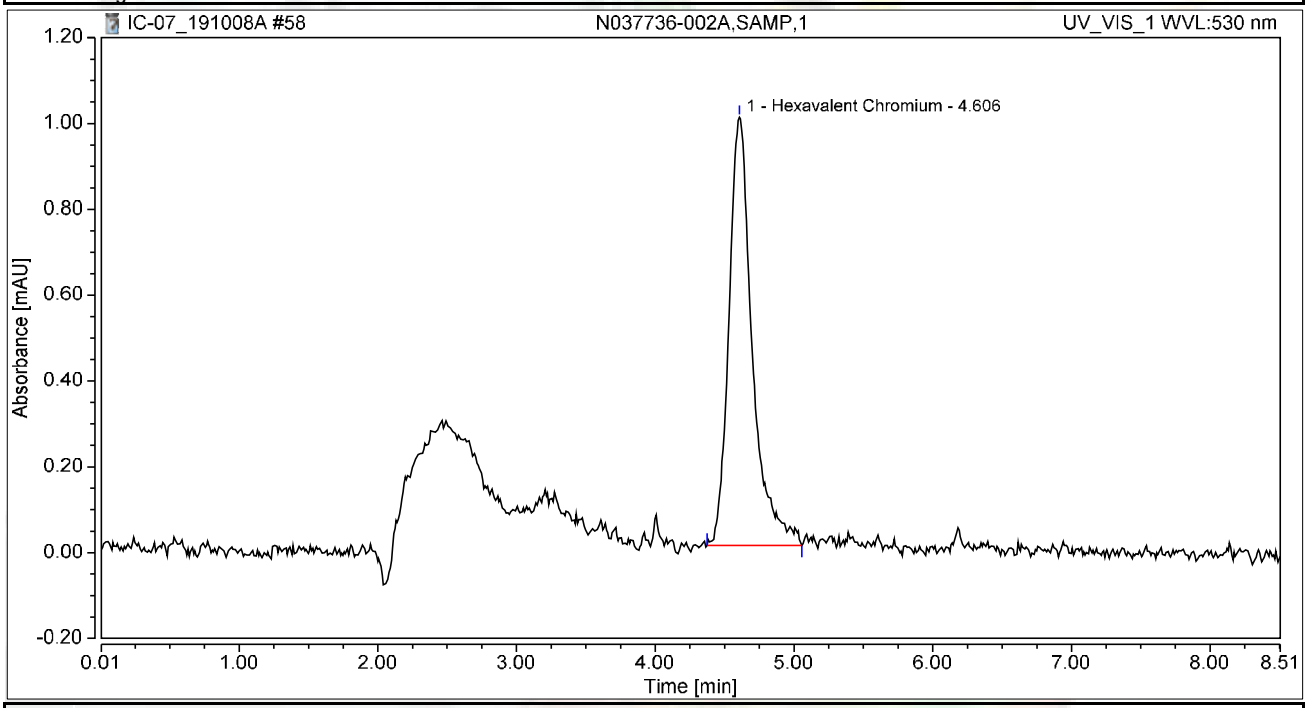
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.399	2.087	100.00	100.00	1.4818
Total:			**0.399**	**2.087**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

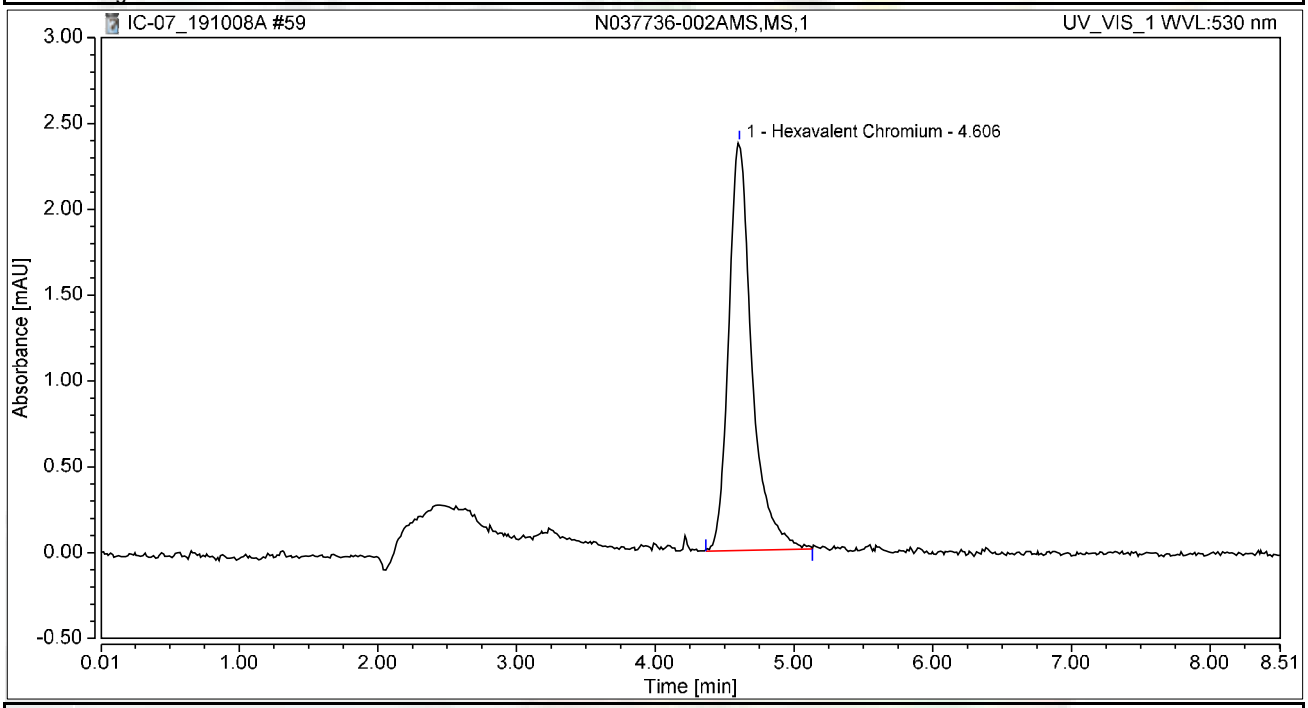
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.195	0.997	100.00	100.00	0.7247
Total:			**0.195**	**0.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

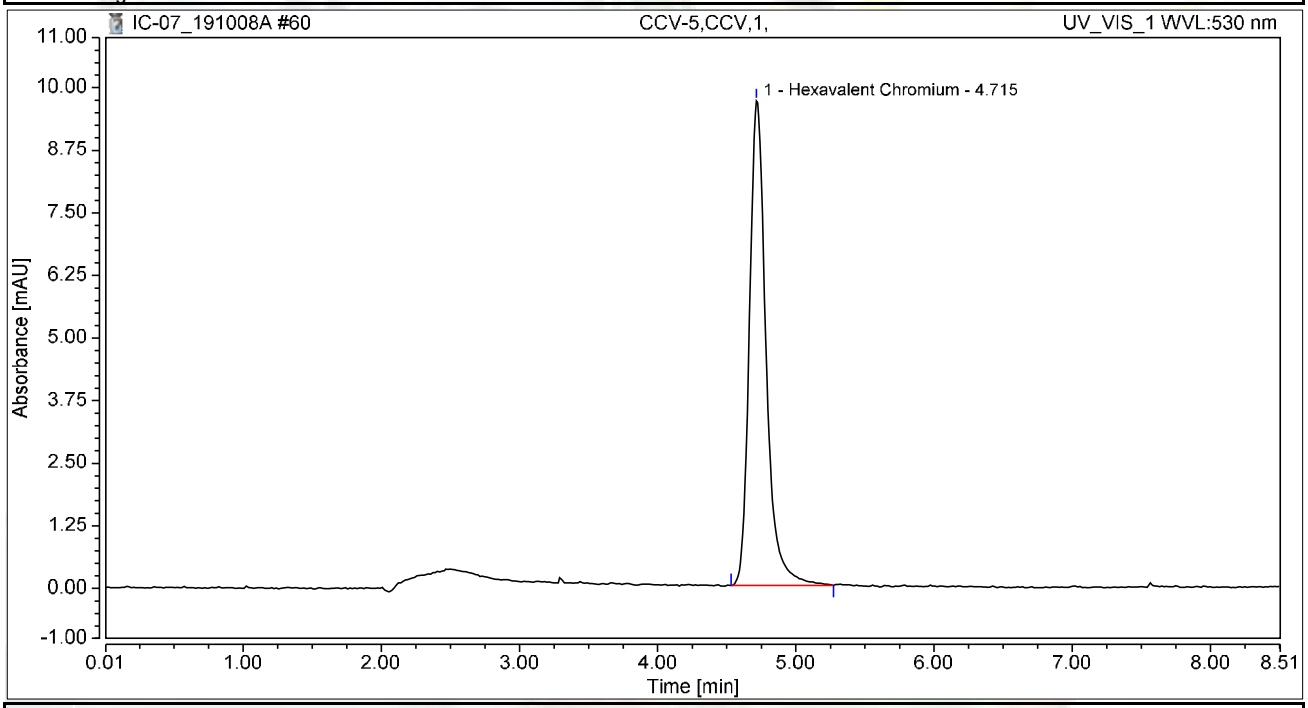
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.461	2.377	100.00	100.00	1.7134
Total:			**0.461**	**2.377**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

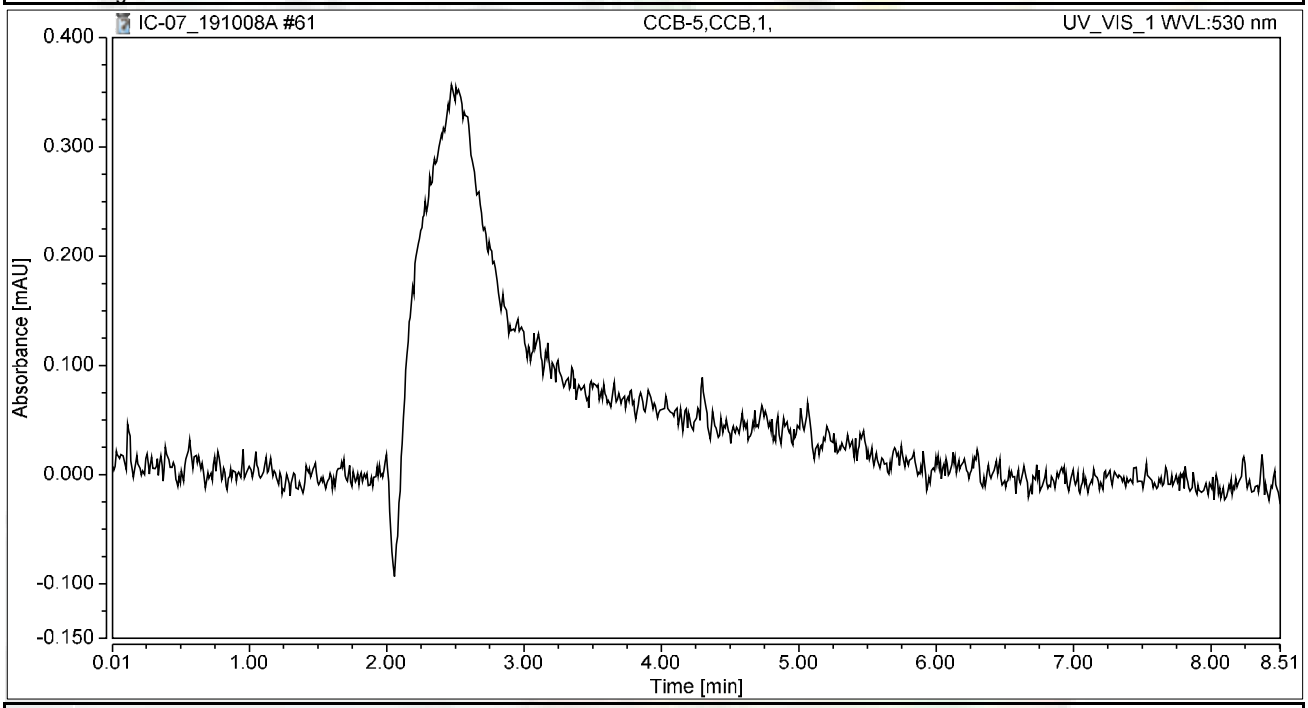
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.355	9.678	100.00	100.00	5.0328
Total:			**1.355**	**9.678**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

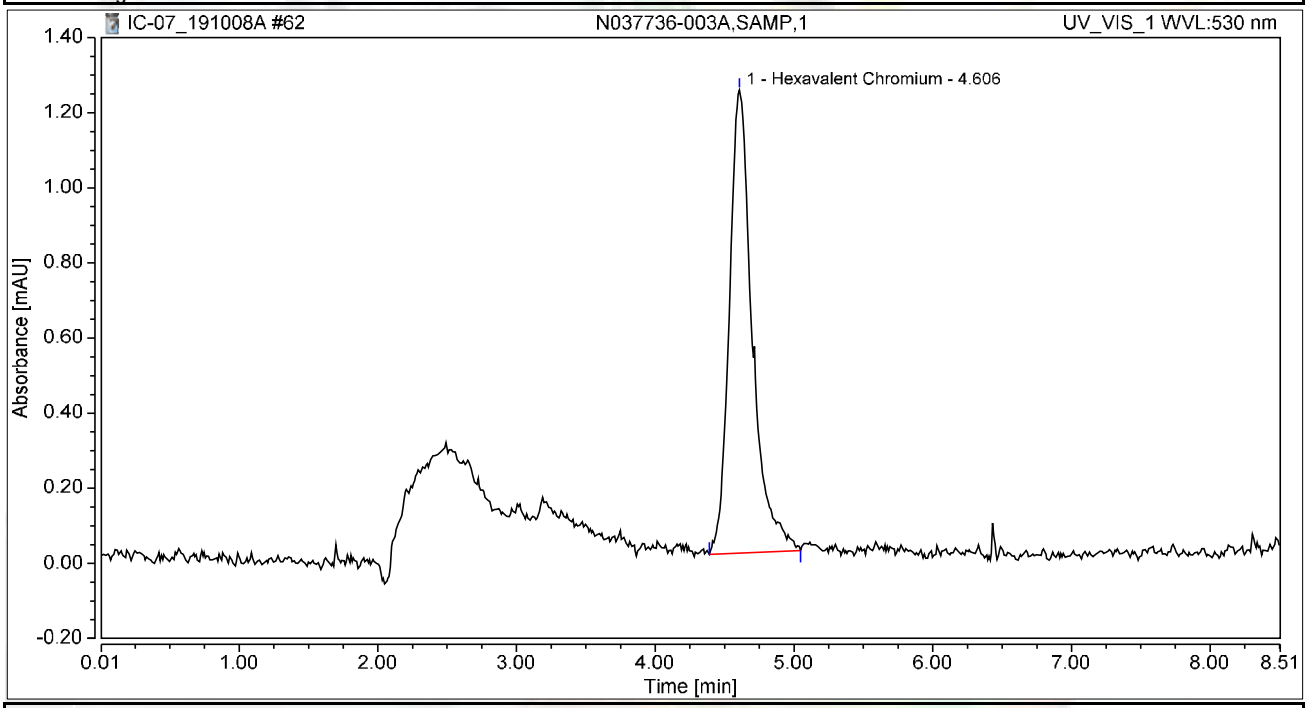
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

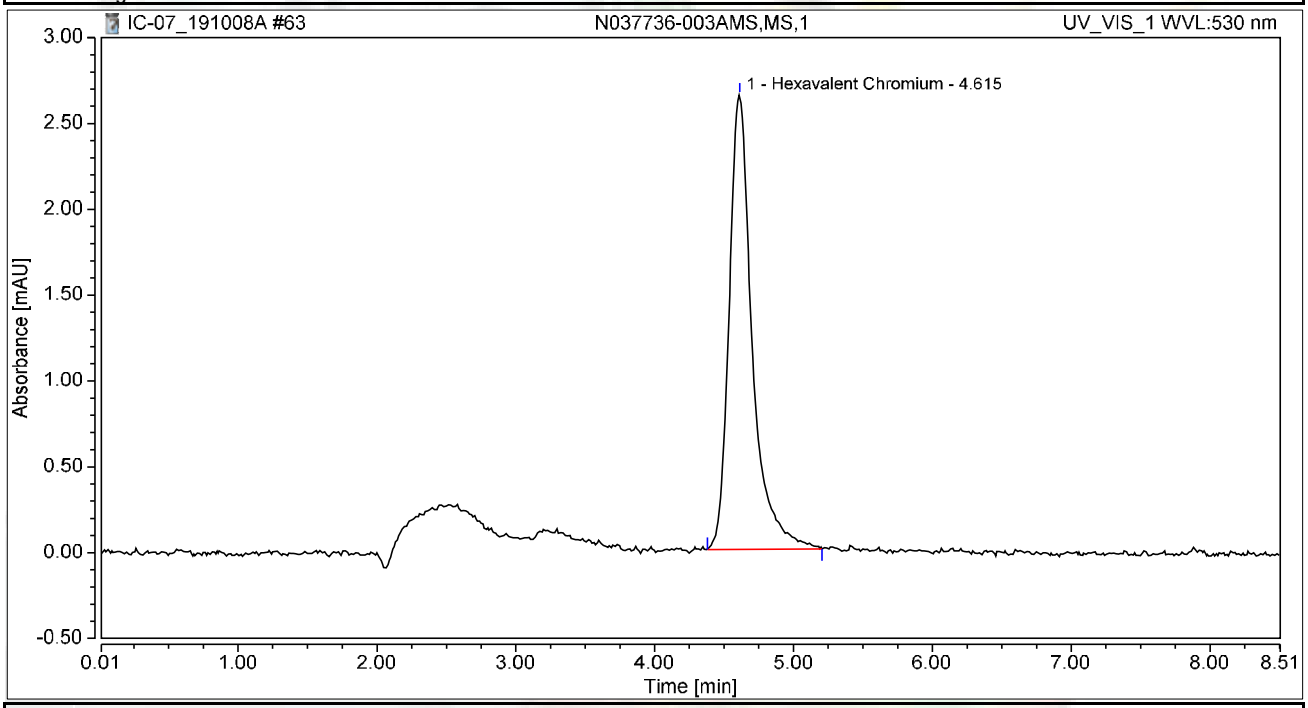
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.238	1.233	100.00	100.00	0.8827
Total:			**0.238**	**1.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

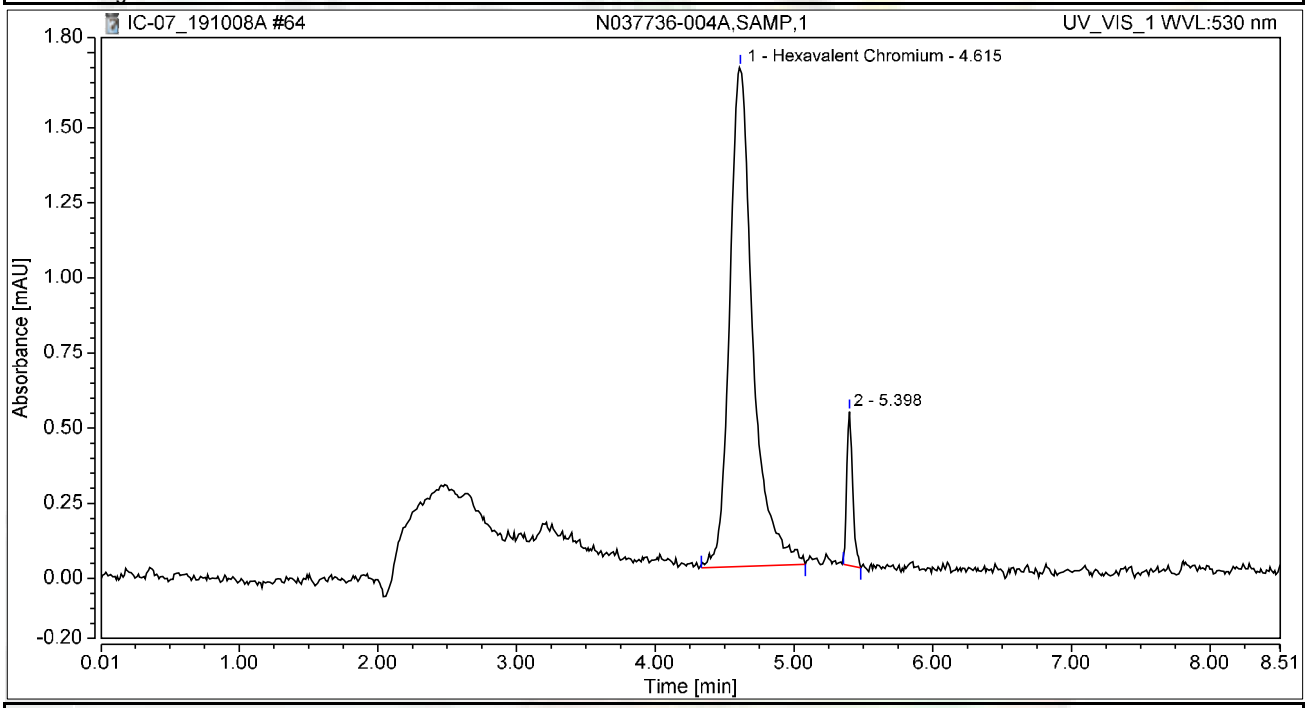
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.615	0.509	2.647	100.00	100.00	1.8916
Total:			**0.509**	**2.647**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

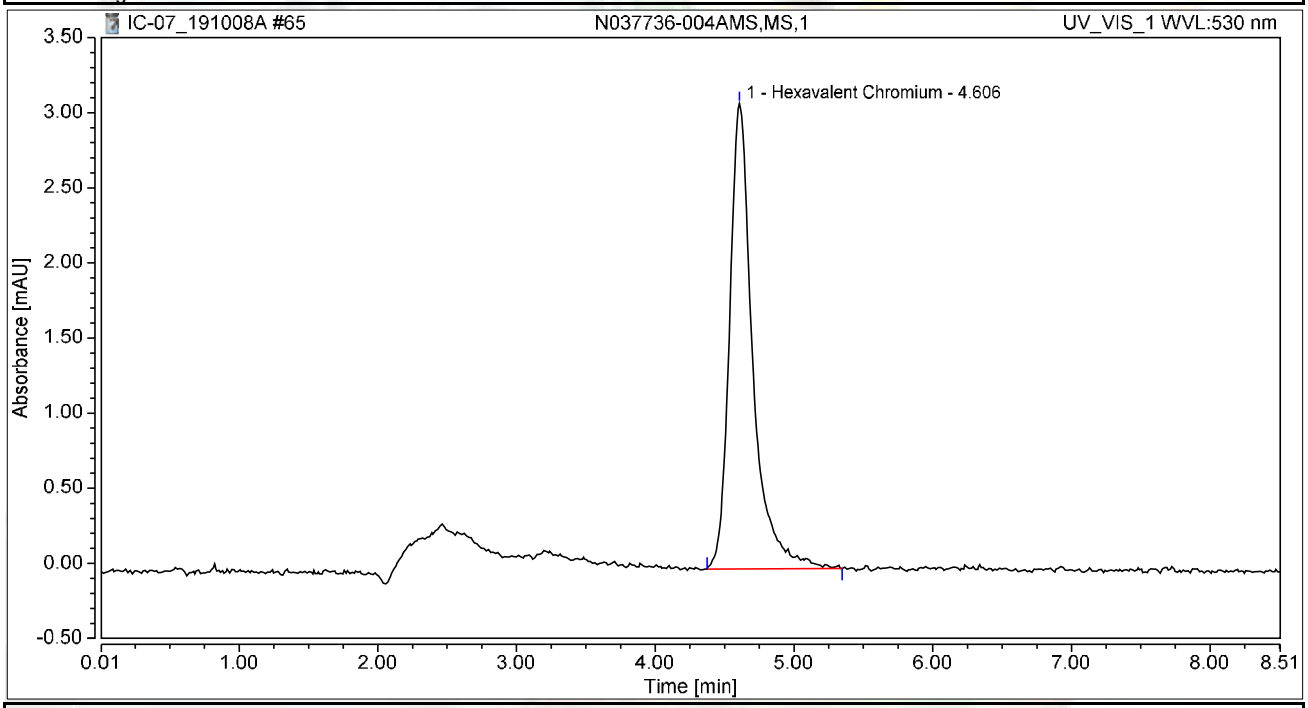
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.615	0.323	1.663	92.70	76.44	1.1987
2		5.398	0.025	0.512	7.30	23.56	n.a.
Total:			**0.348**	**2.175**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

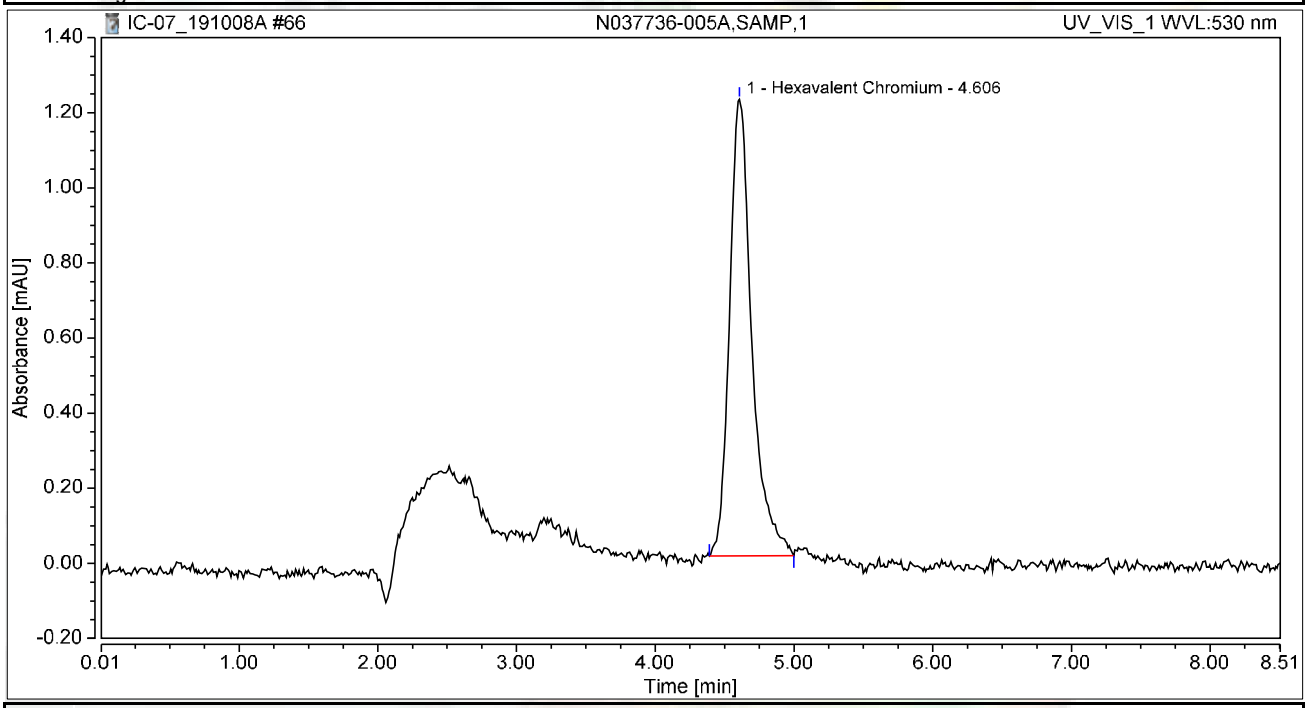
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.602	3.099	100.00	100.00	2.2352
Total:			**0.602**	**3.099**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

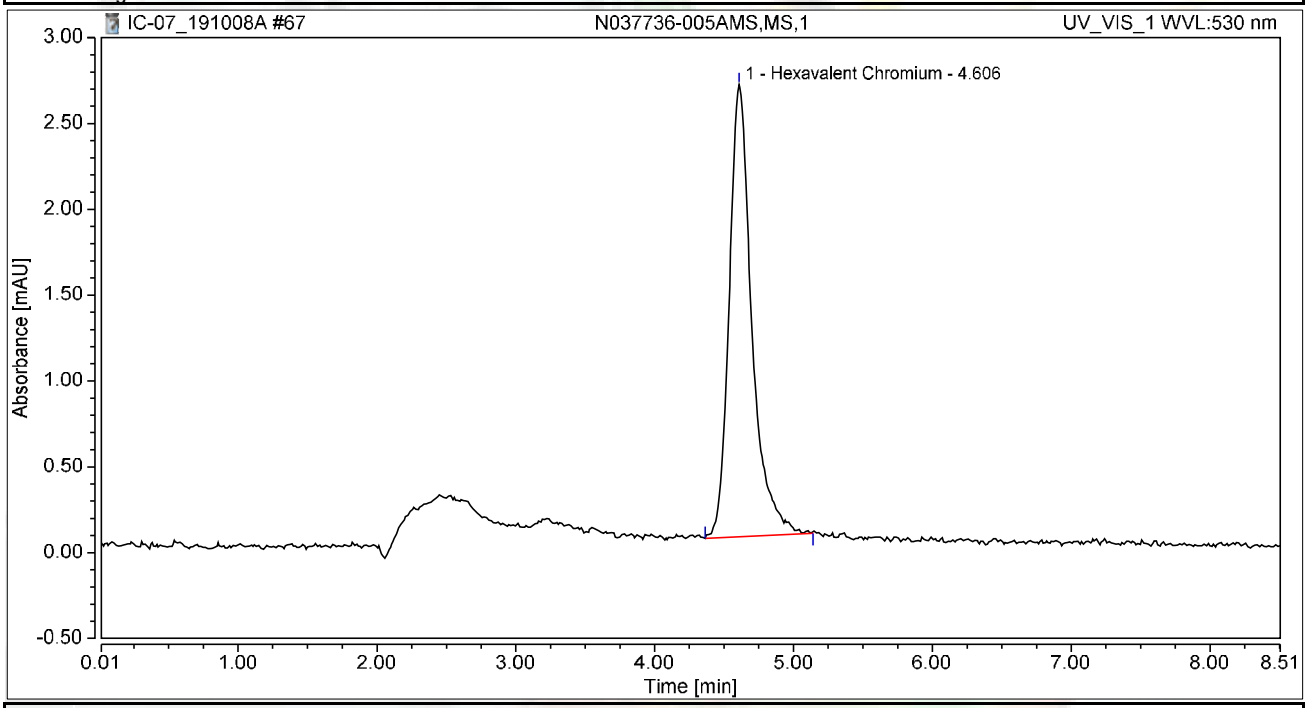
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.227	1.216	100.00	100.00	0.8416
Total:			**0.227**	**1.216**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

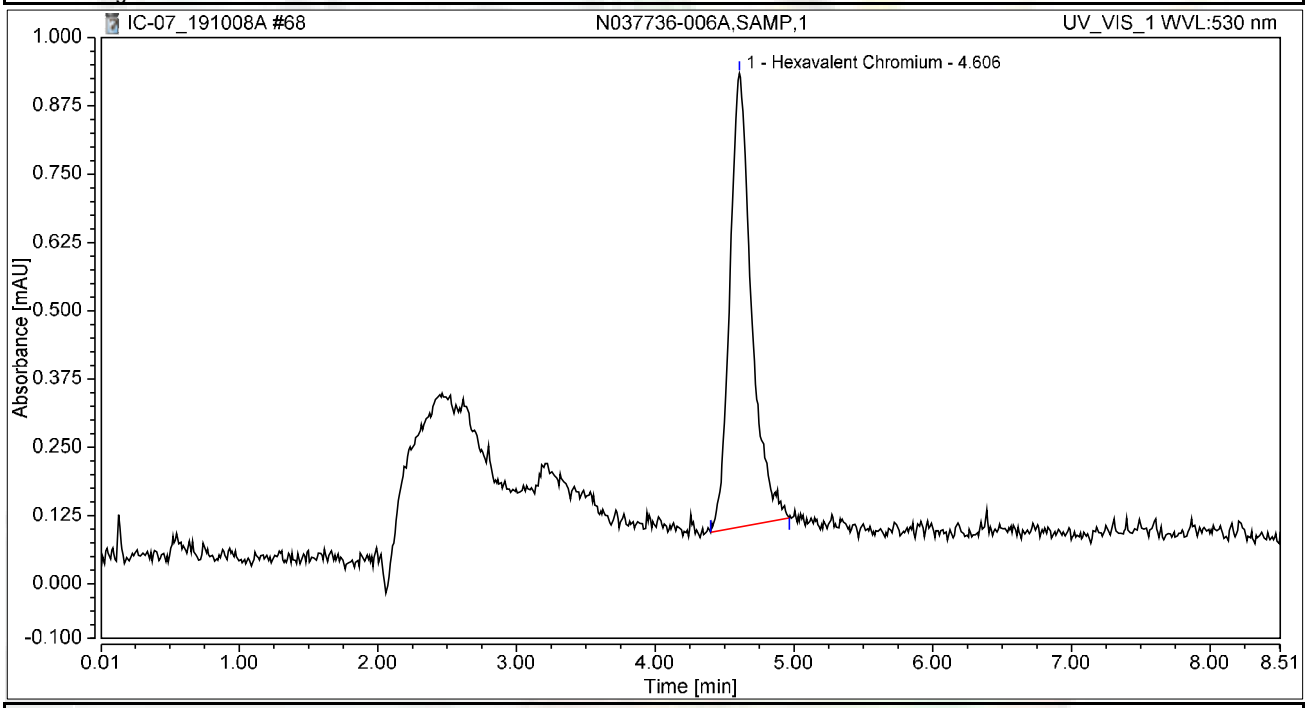
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.497	2.635	100.00	100.00	1.8469
Total:			**0.497**	**2.635**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

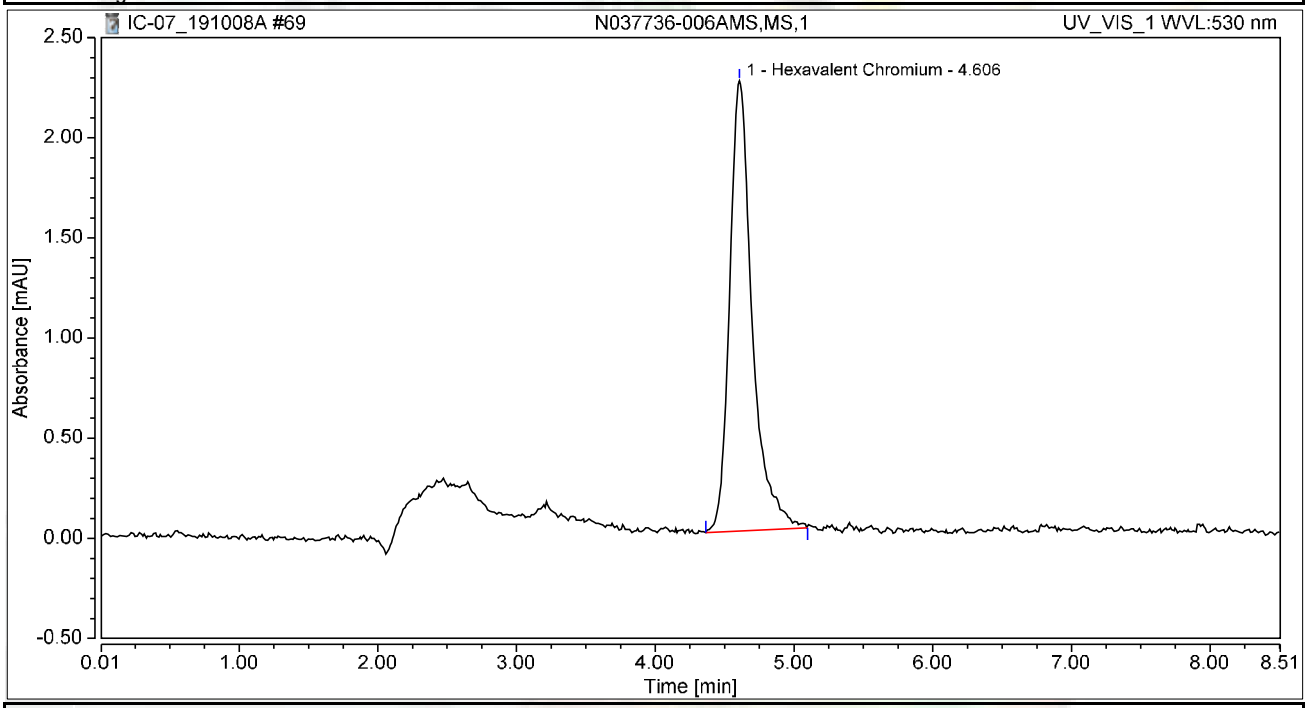
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.150	0.830	100.00	100.00	0.5591
Total:			**0.150**	**0.830**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

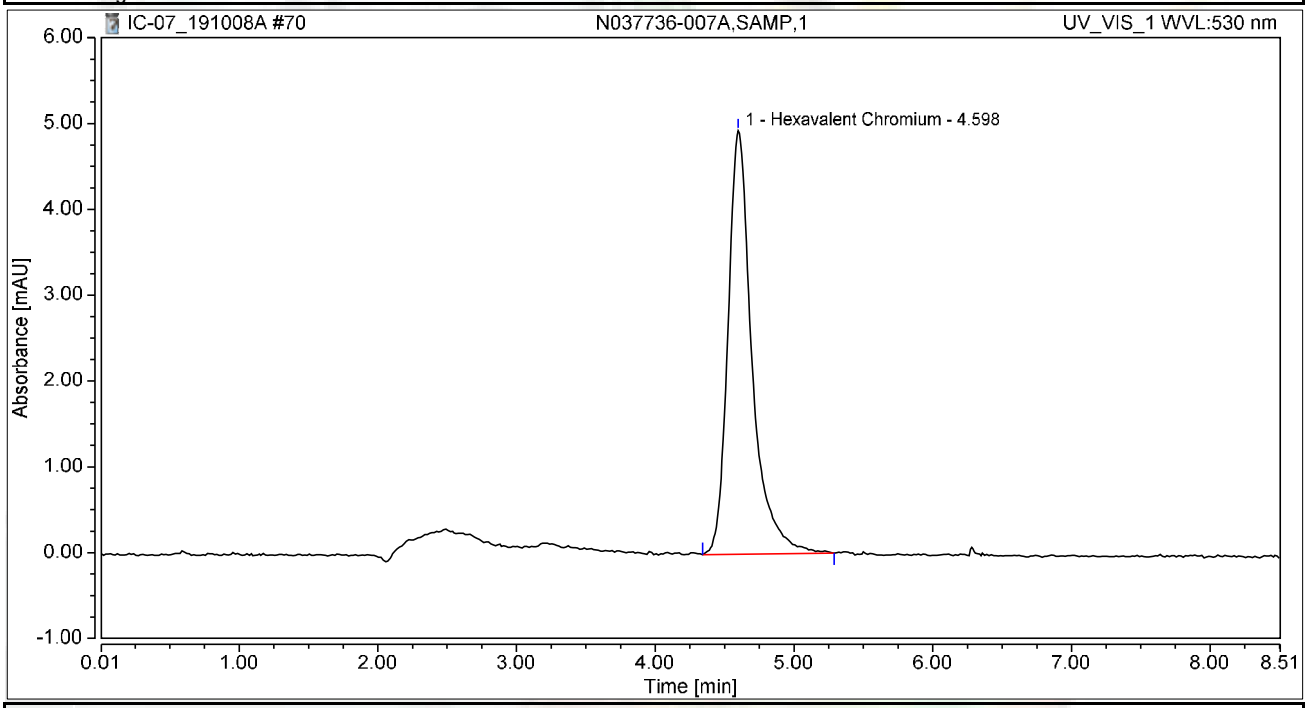
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.425	2.248	100.00	100.00	1.5776
Total:			**0.425**	**2.248**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

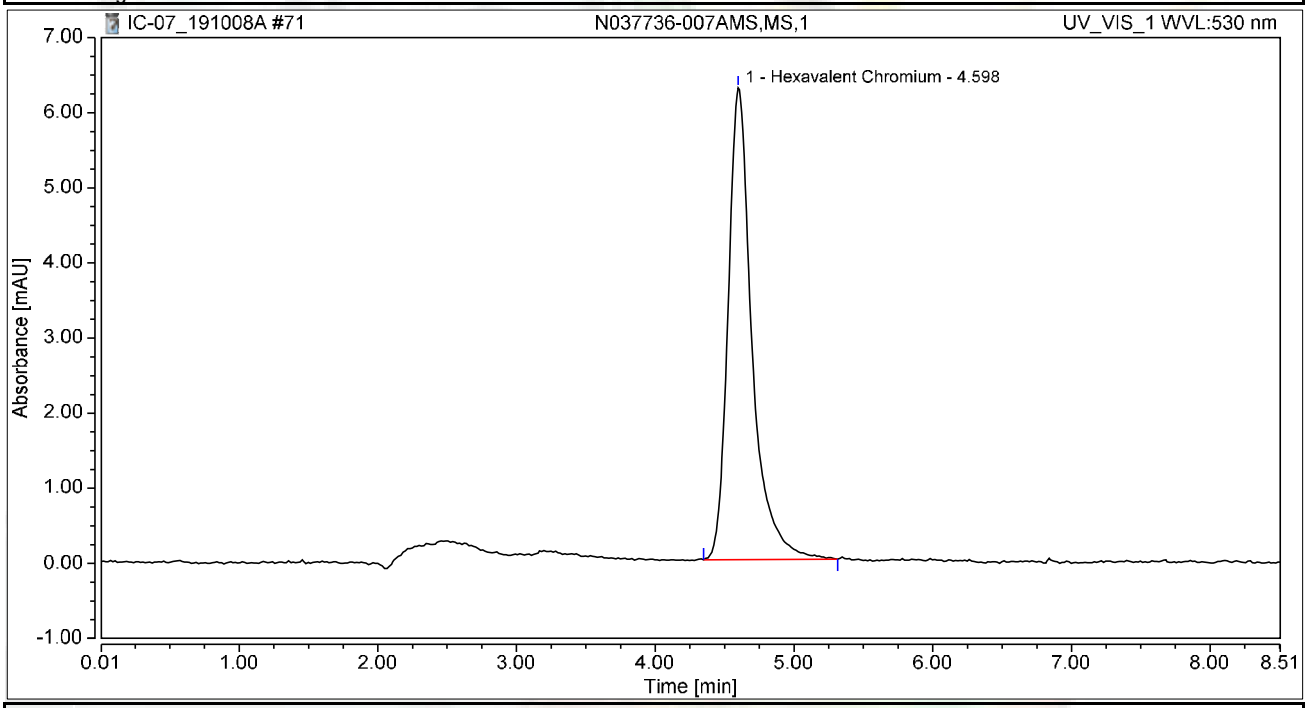
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.992	4.934	100.00	100.00	3.6850
Total:			**0.992**	**4.934**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

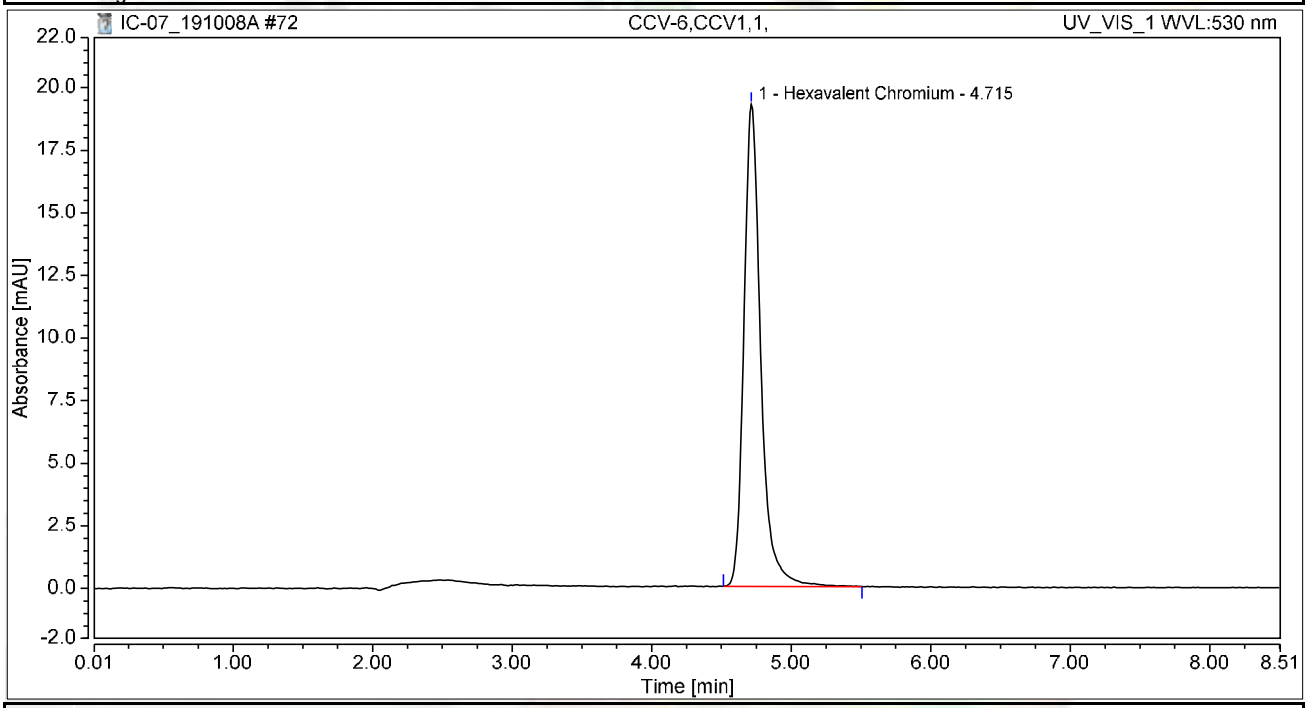
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	1.257	6.279	100.00	100.00	4.6693
Total:			**1.257**	**6.279**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

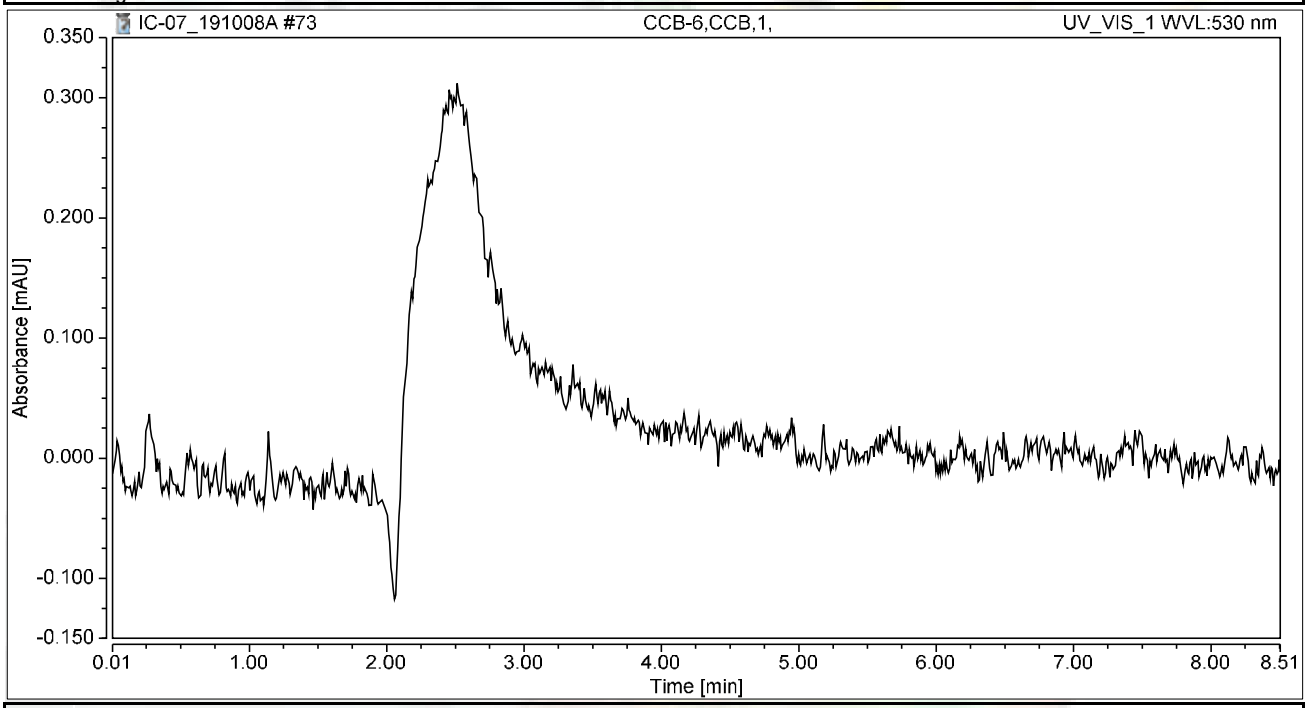
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.701	19.256	100.00	100.00	10.0331
Total:			**2.701**	**19.256**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

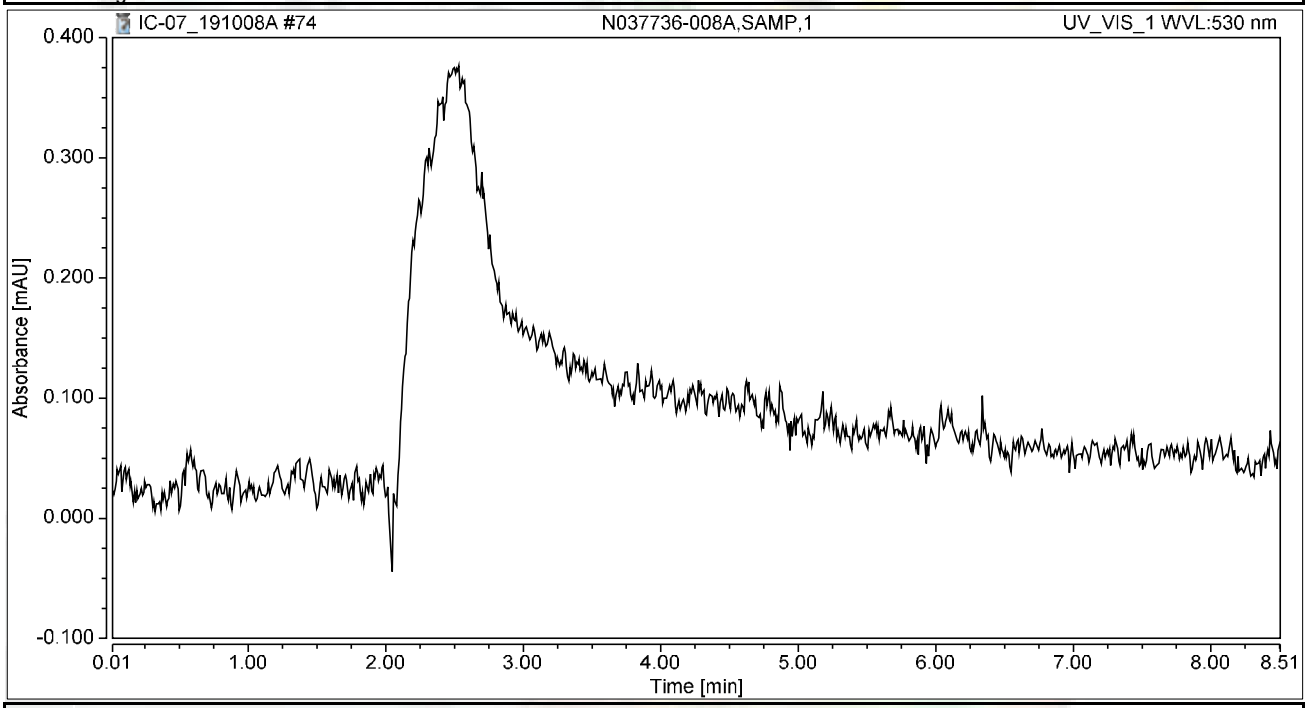
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-008A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

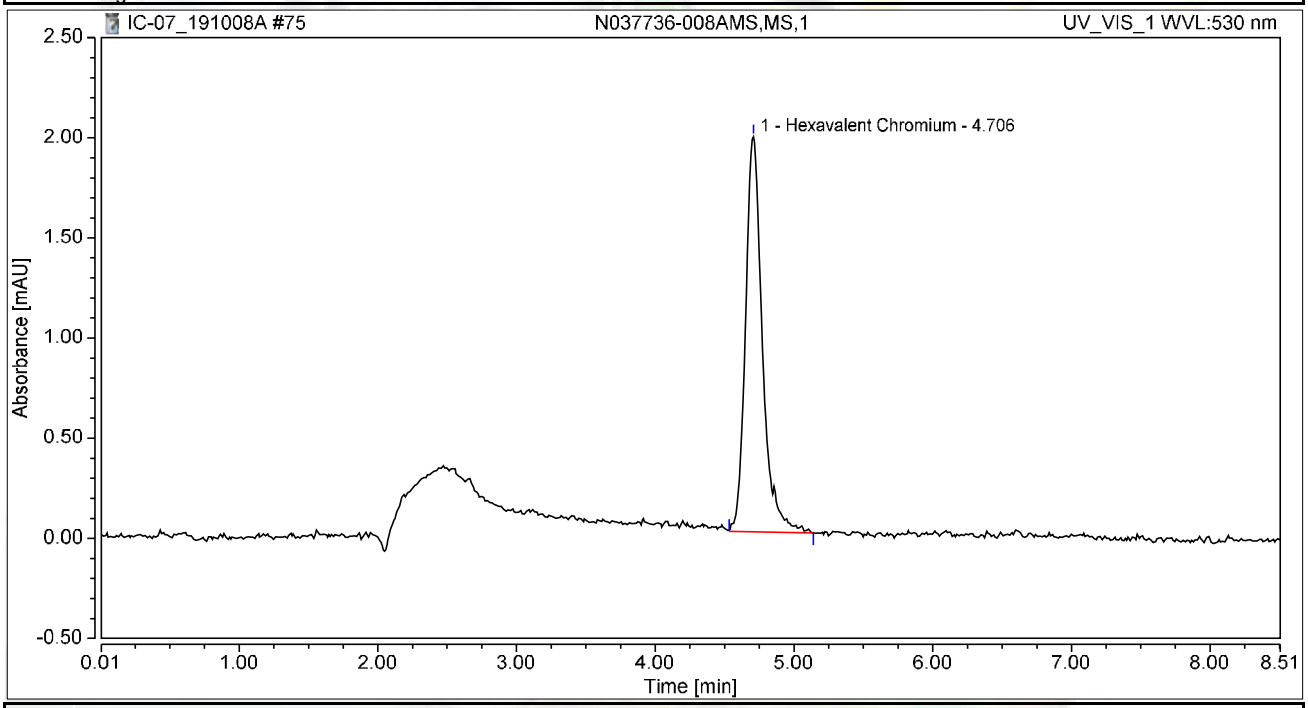
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

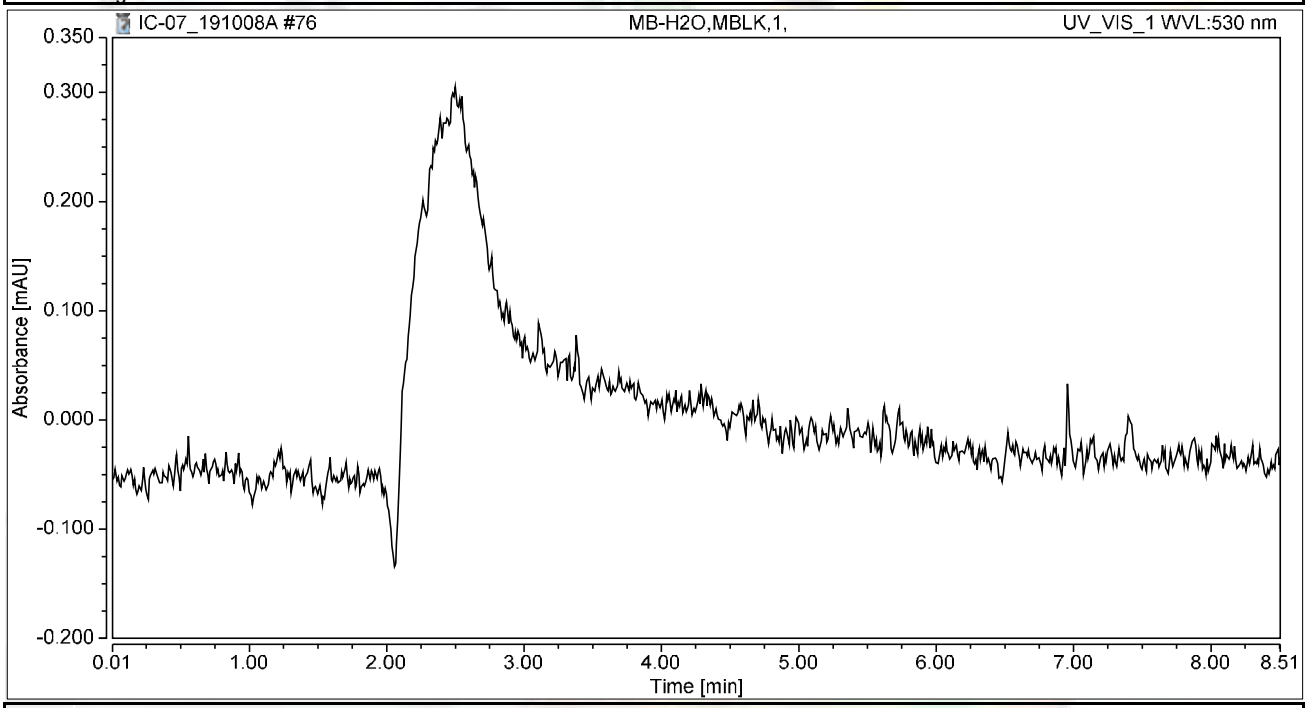
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.279	1.973	100.00	100.00	1.0354
Total:			**0.279**	**1.973**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

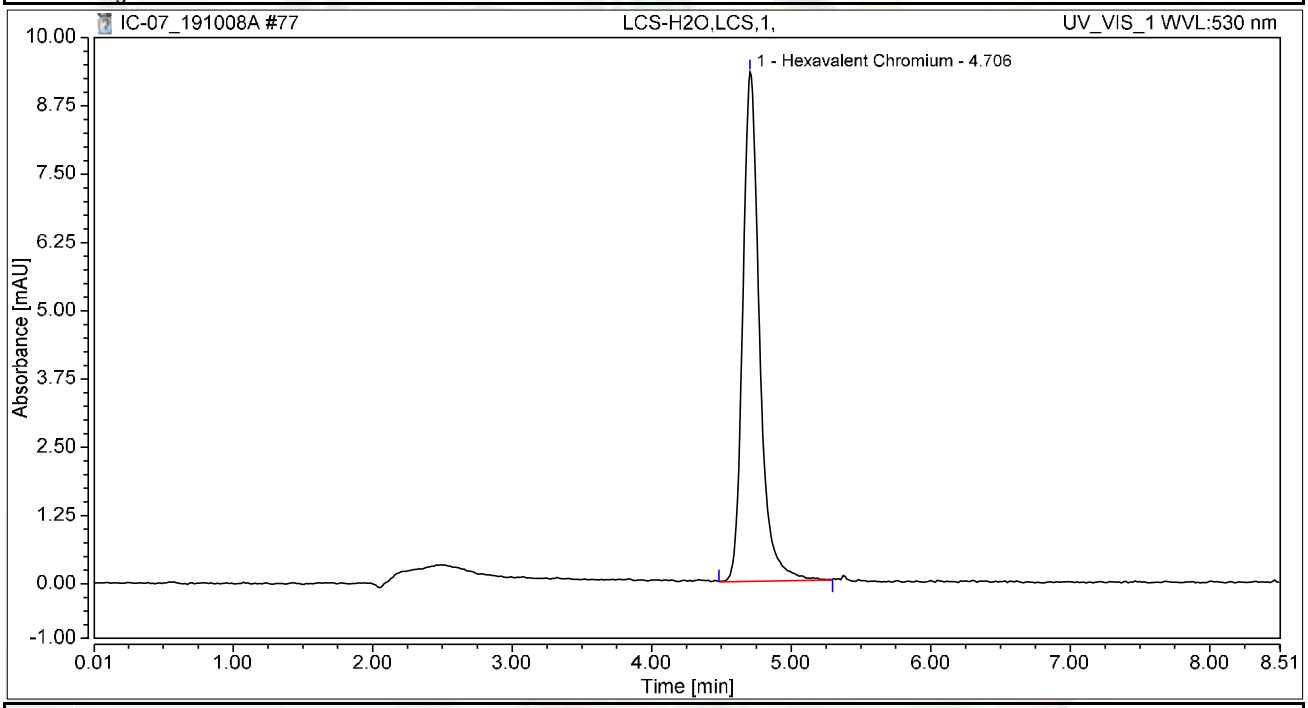
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

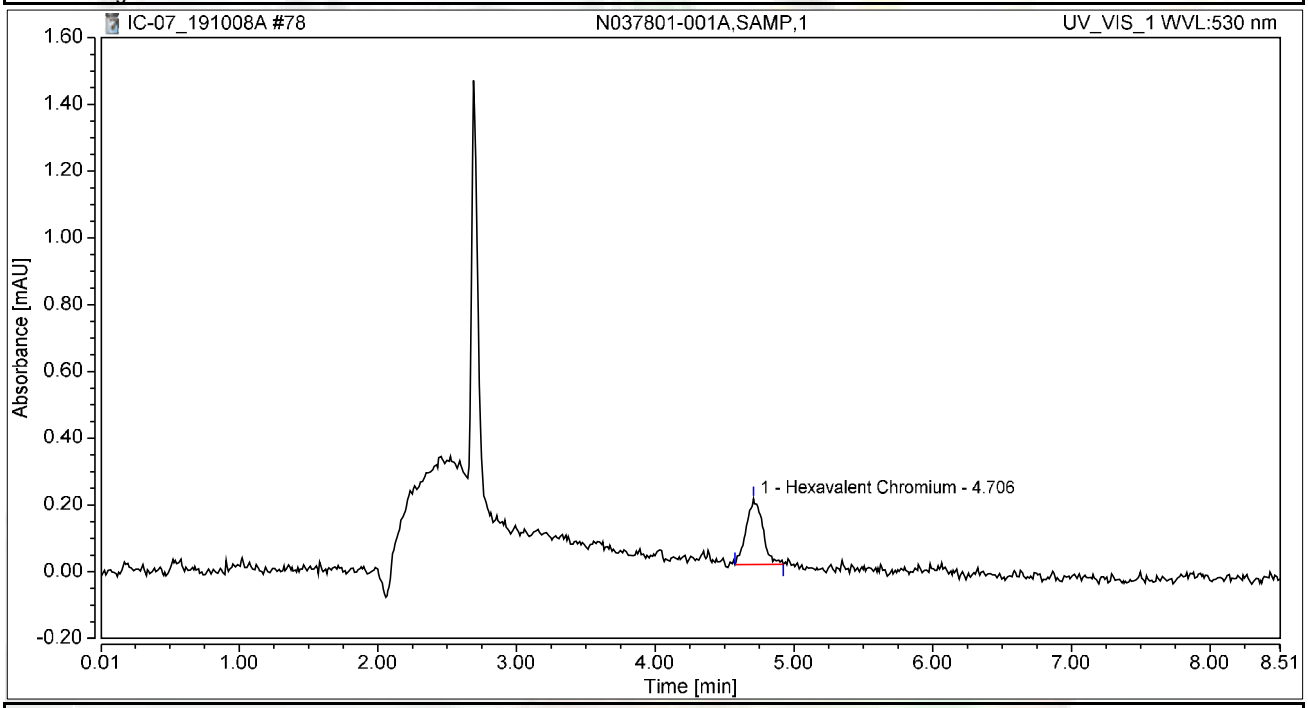
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.302	9.326	100.00	100.00	4.8386
Total:			**1.302**	**9.326**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

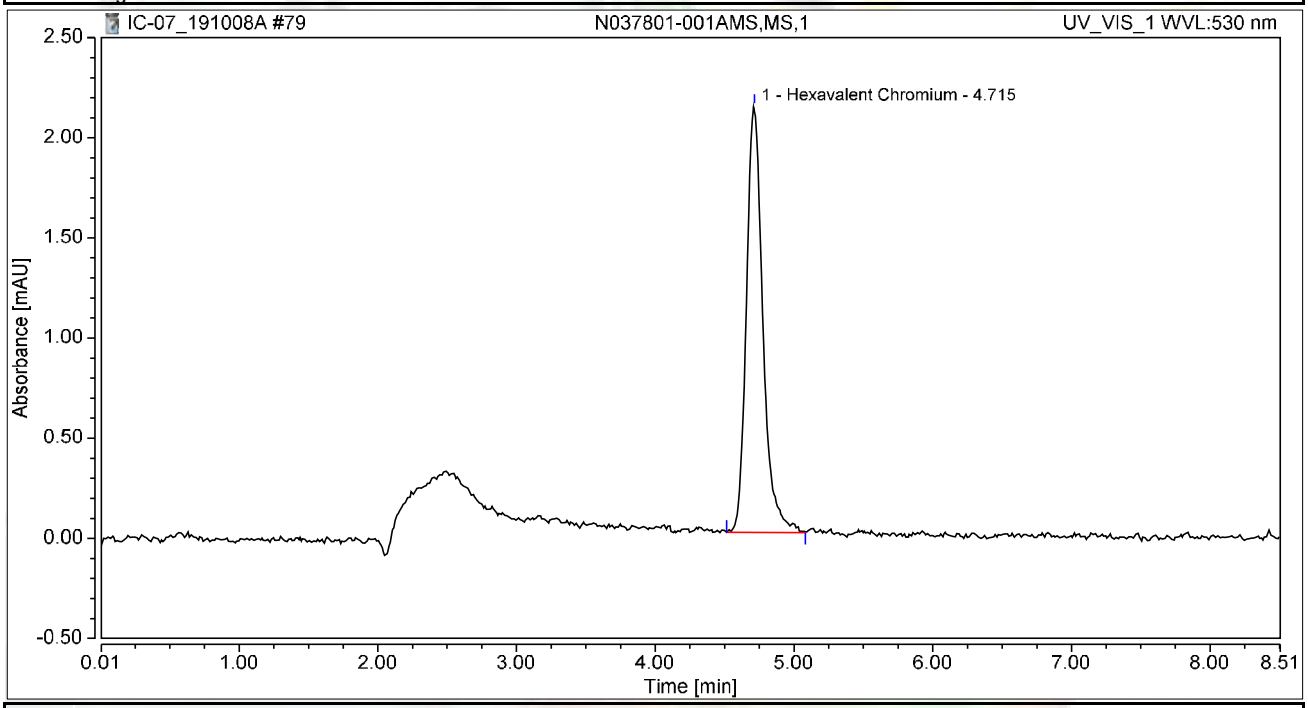
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.027	0.197	100.00	100.00	0.0999
Total:			**0.027**	**0.197**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

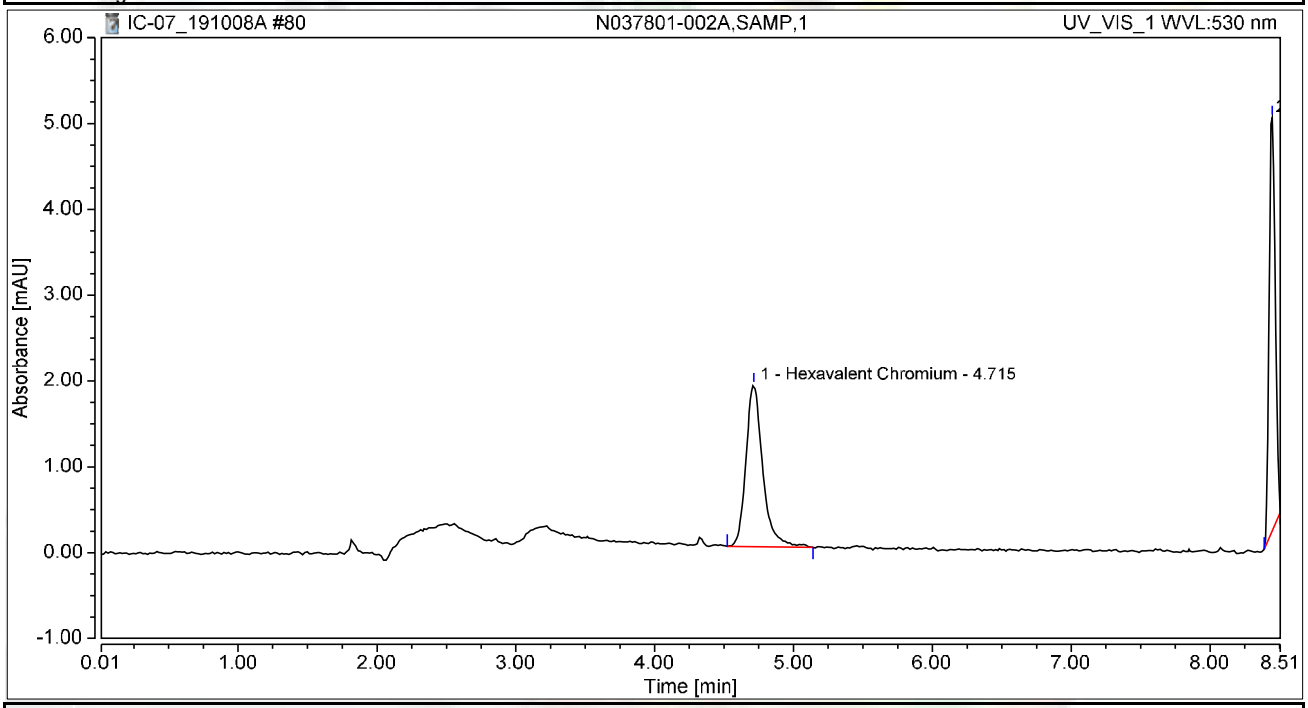
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.294	2.127	100.00	100.00	1.0906
Total:			**0.294**	**2.127**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

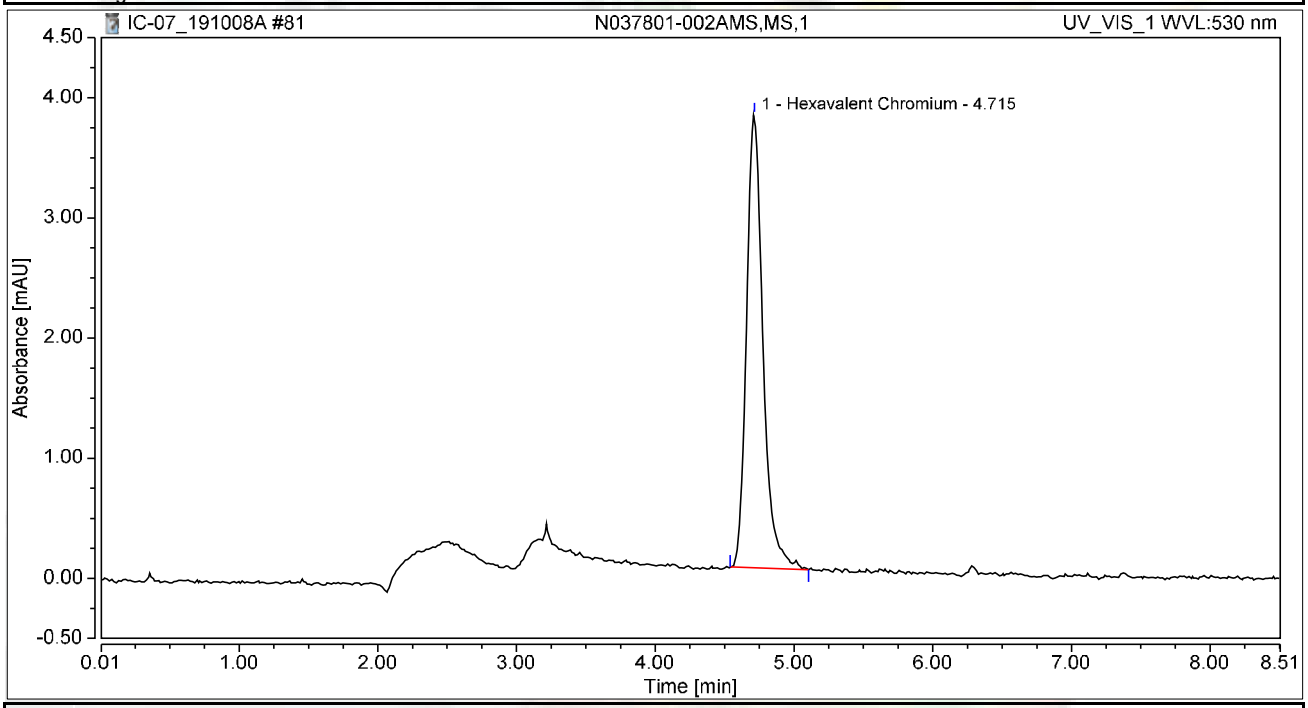
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.264	1.884	51.99	28.13	0.9826
2		8.448	0.244	4.814	48.01	71.87	n.a.
Total:			**0.509**	**6.698**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

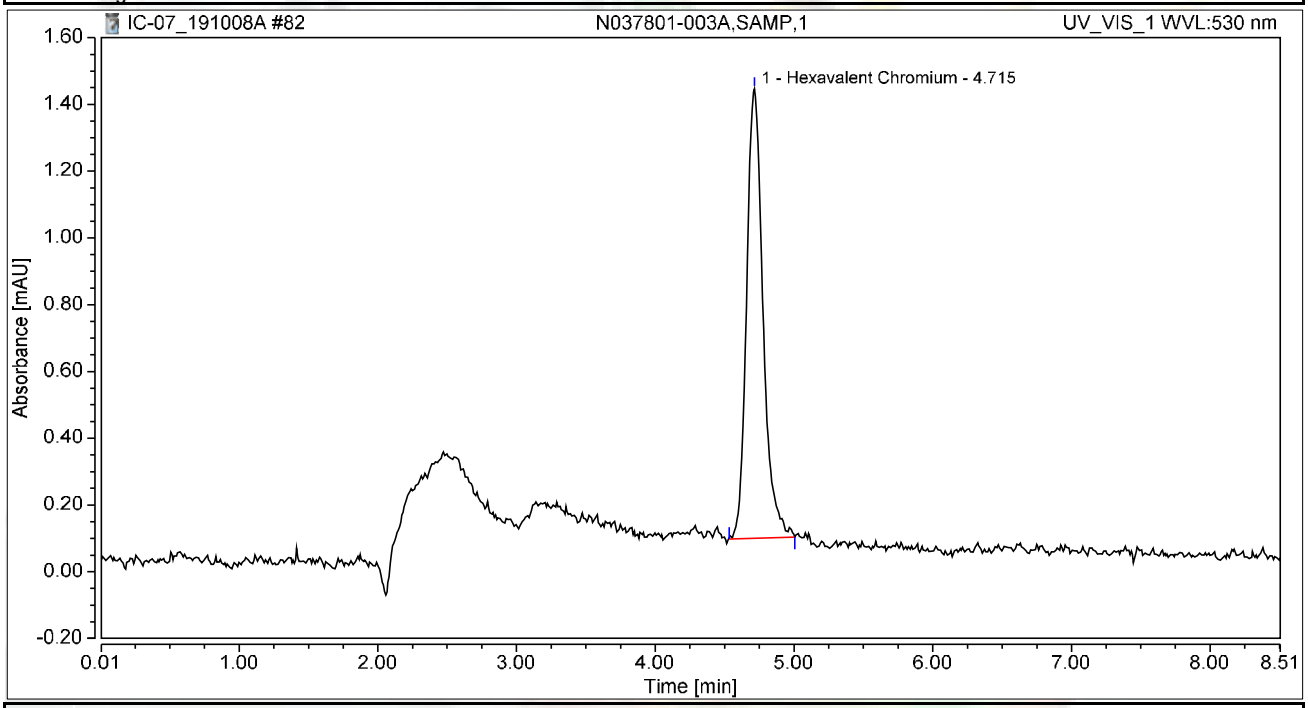
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.520	3.768	100.00	100.00	1.9314
Total:			**0.520**	**3.768**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

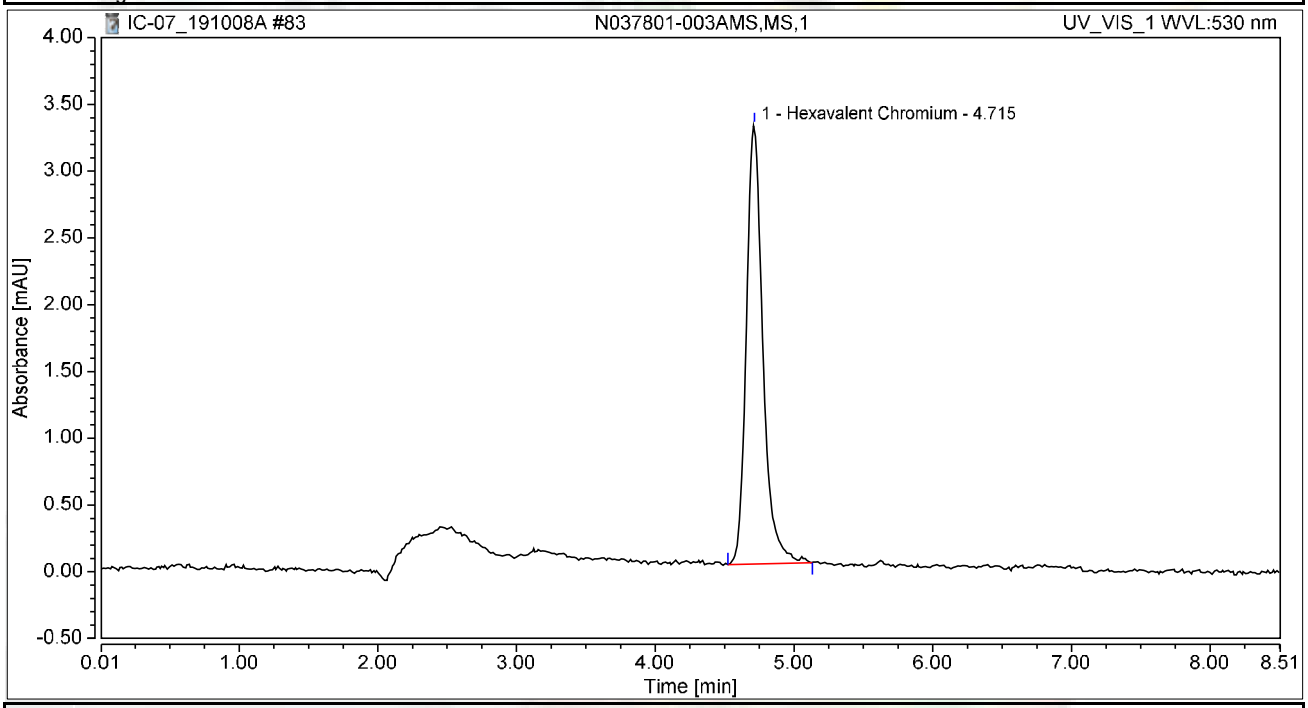
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.185	1.346	100.00	100.00	0.6877
Total:			**0.185**	**1.346**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

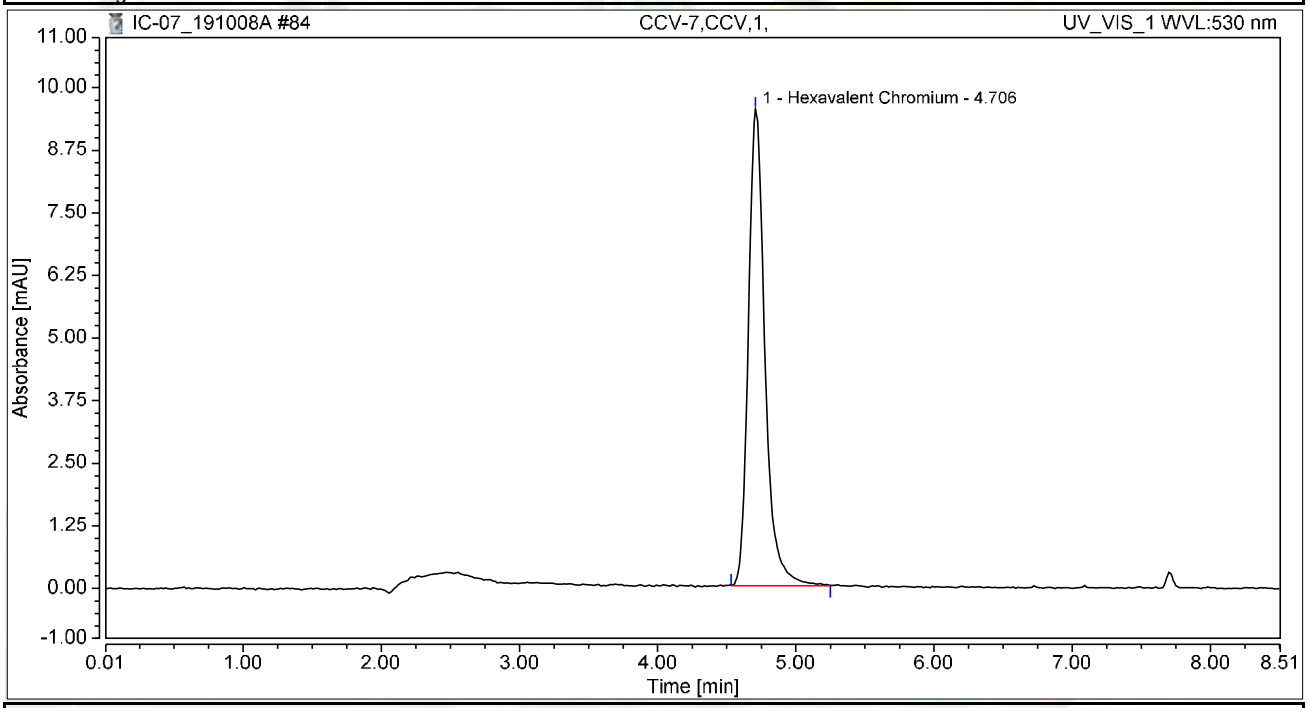
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.456	3.290	100.00	100.00	1.6926
Total:			**0.456**	**3.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

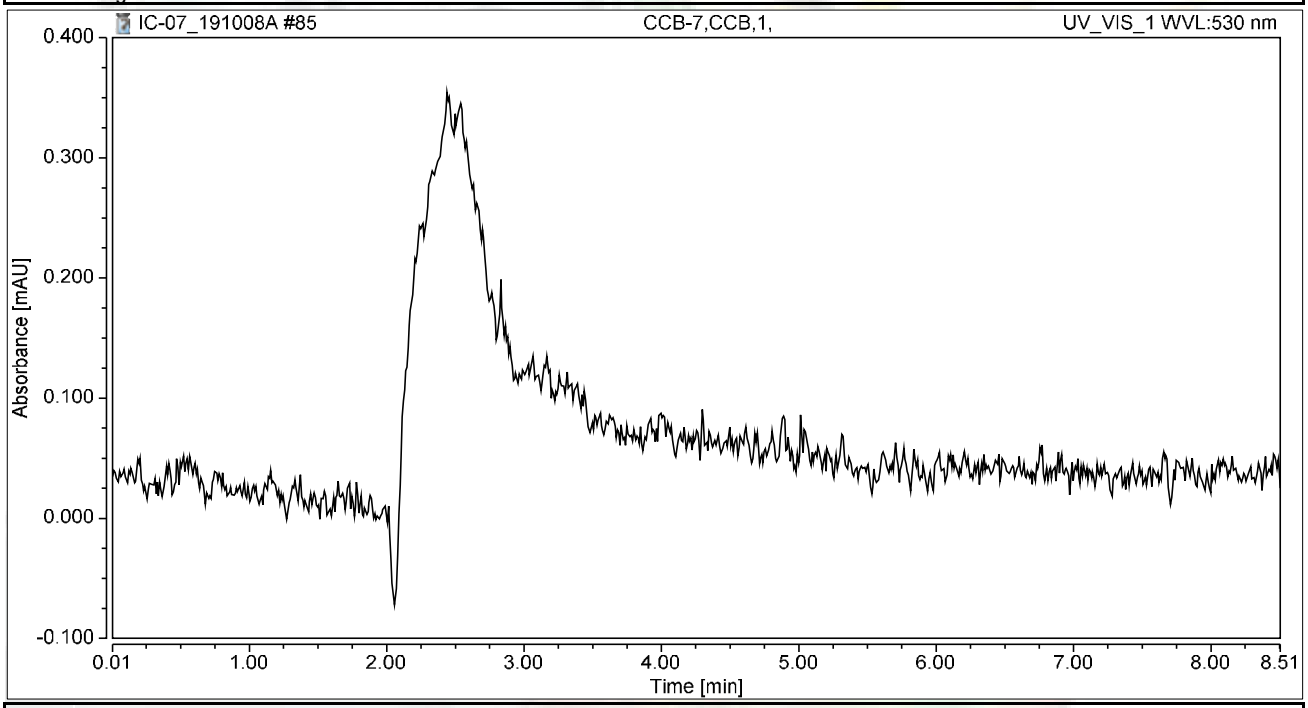
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.322	9.517	100.00	100.00	4.9133
Total:			**1.322**	**9.517**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

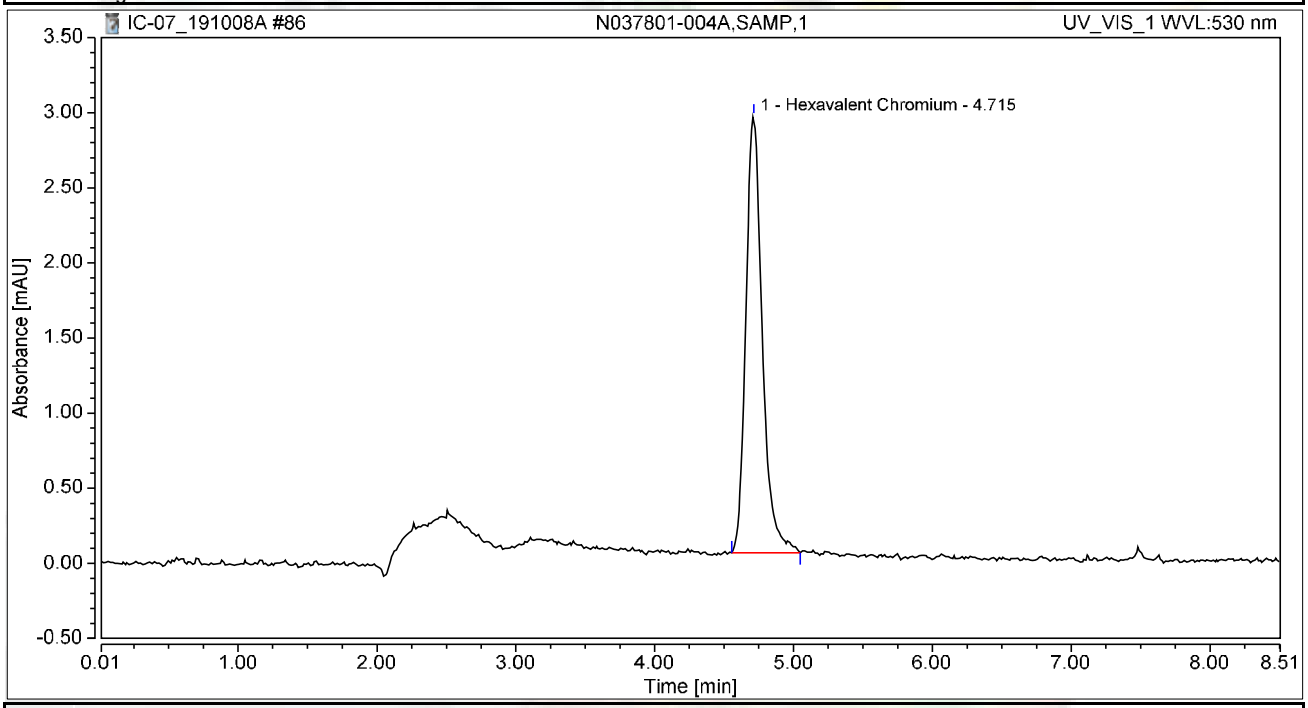
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

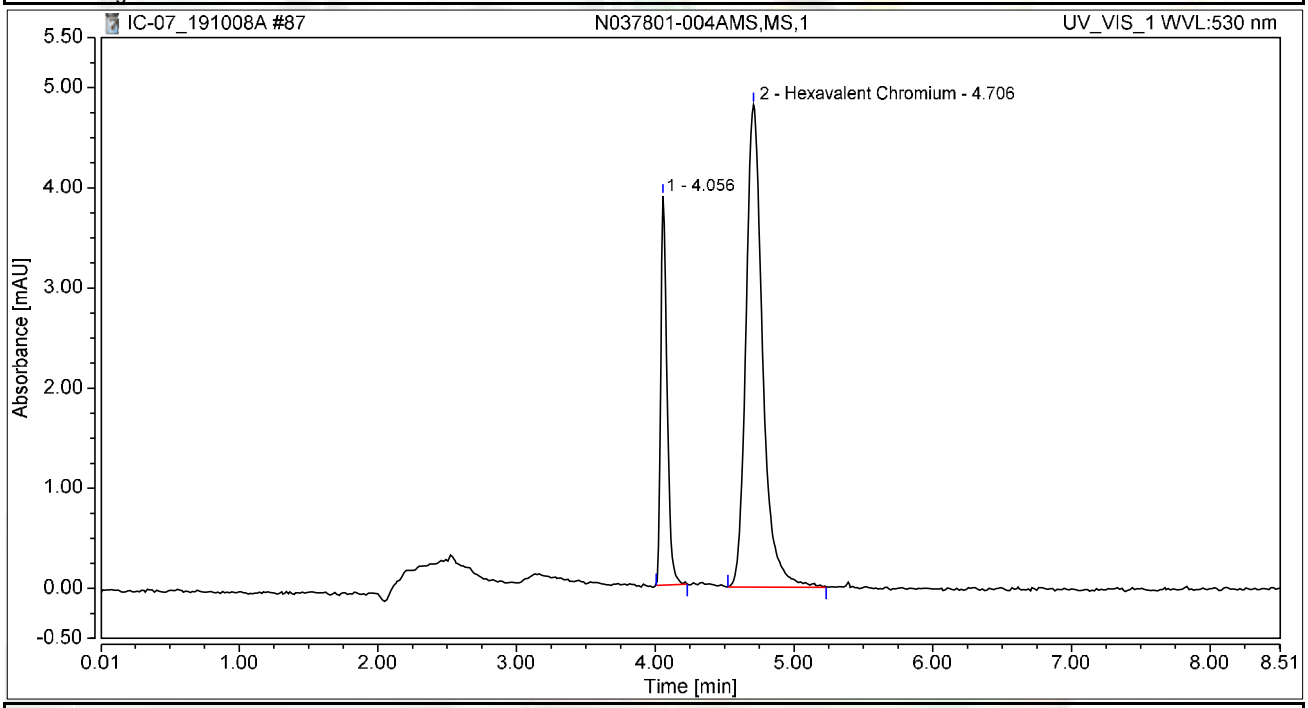
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.399	2.907	100.00	100.00	1.4817
Total:			**0.399**	**2.907**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

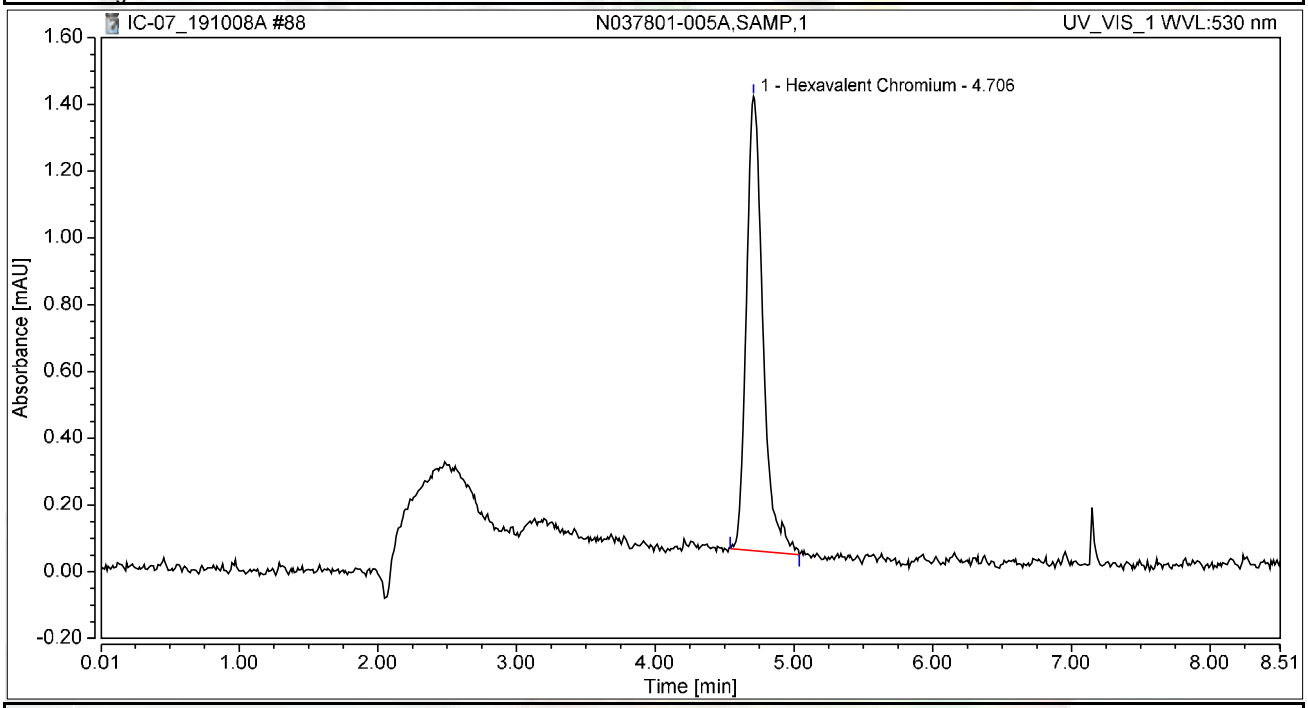
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.056	0.207	3.886	23.49	44.65	n.a.
2	Hexavalent Chromium	4.706	0.674	4.818	76.51	55.35	2.5041
Total:			**0.881**	**8.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

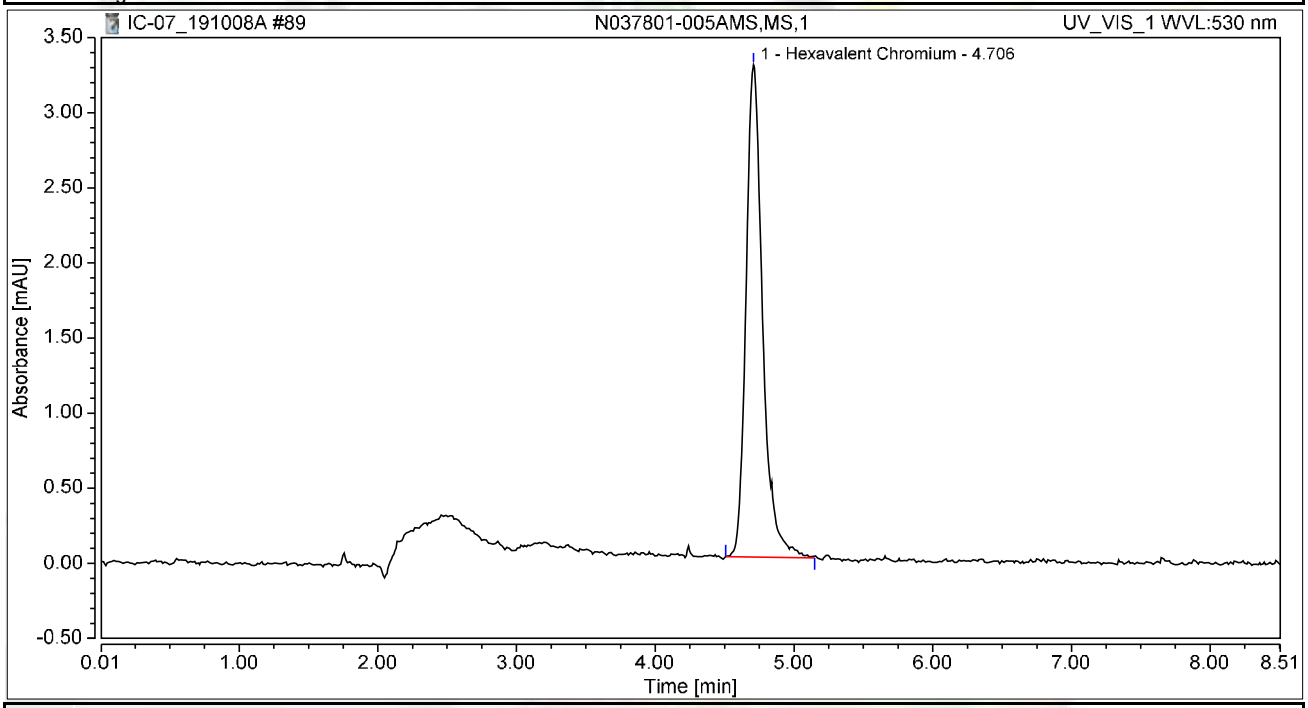
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.188	1.361	100.00	100.00	0.7001
Total:			**0.188**	**1.361**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

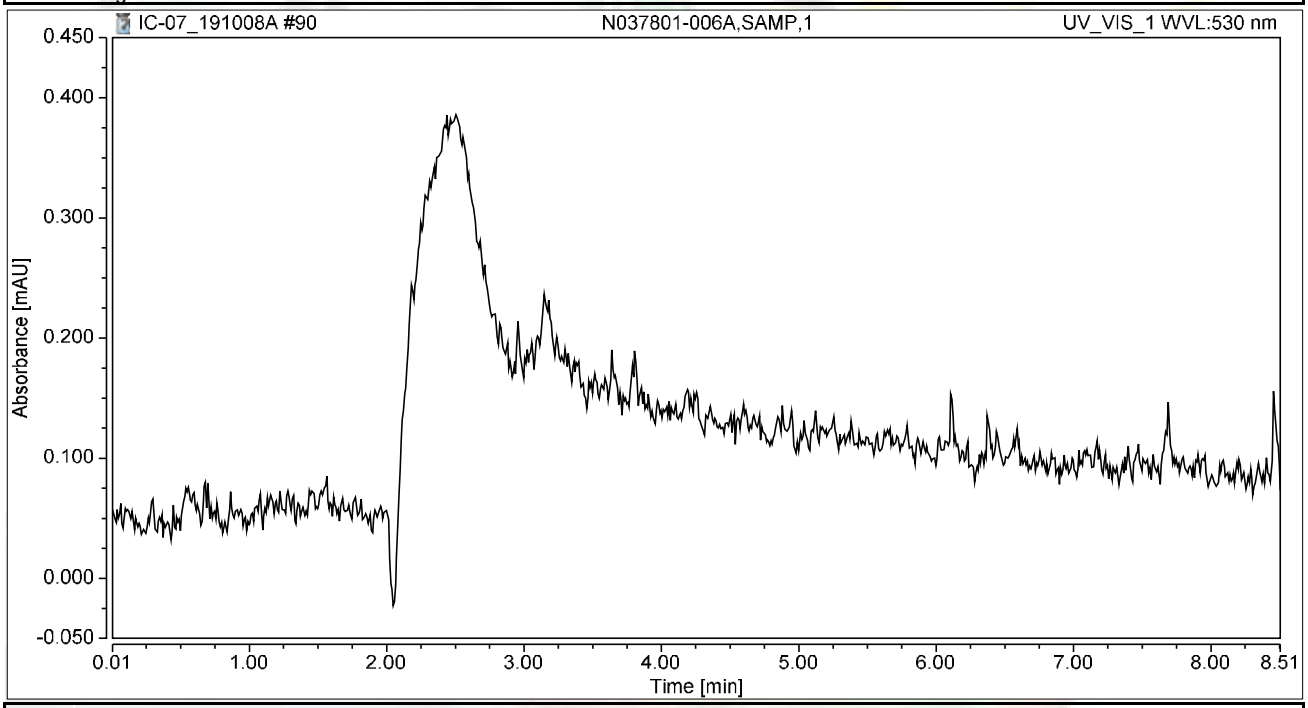
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.456	3.277	100.00	100.00	1.6928
Total:			**0.456**	**3.277**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

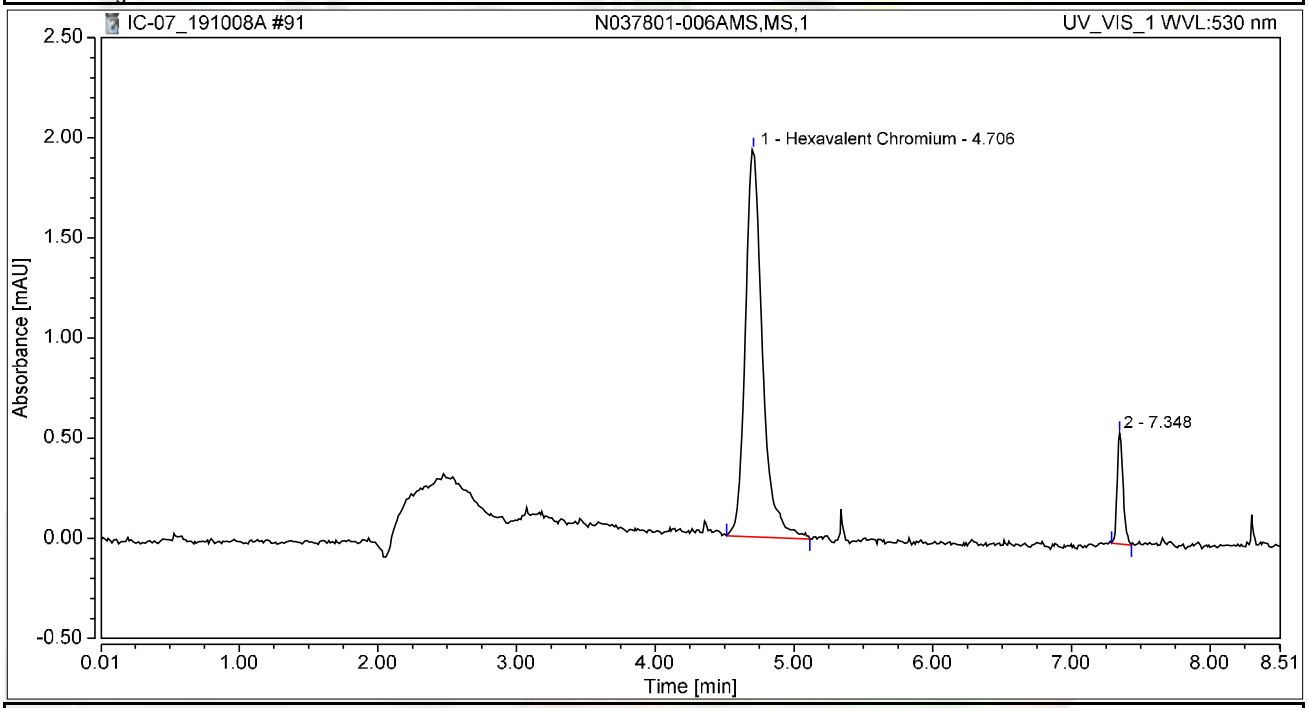
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

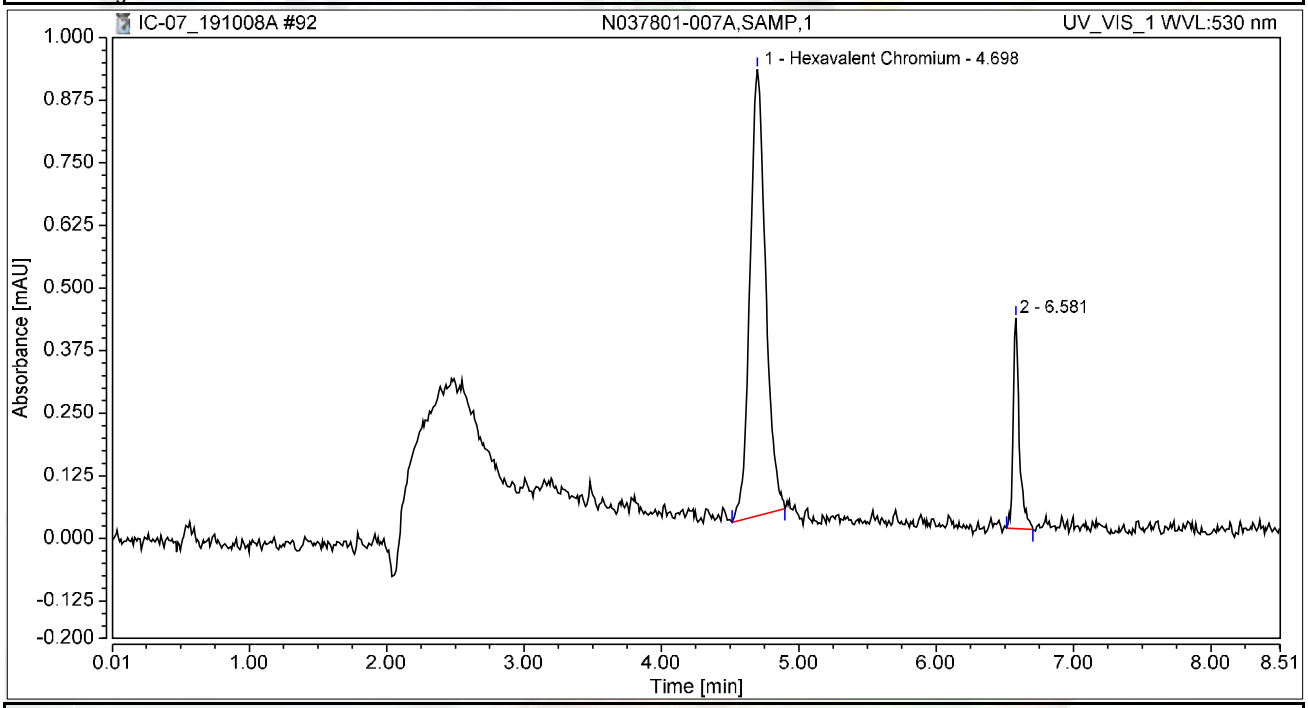
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.277	1.933	91.05	77.75	1.0287
2		7.348	0.027	0.553	8.95	22.25	n.a.
Total:			**0.304**	**2.486**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

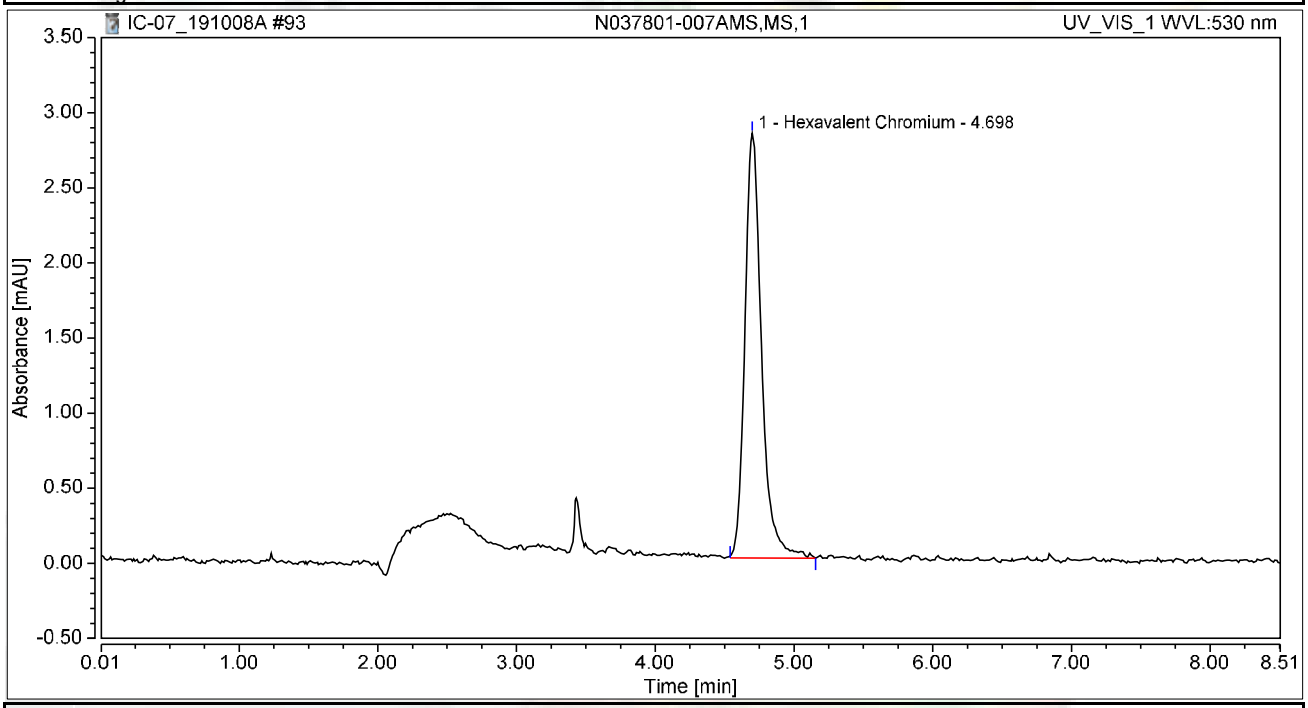
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.118	0.891	84.32	67.92	0.4390
2		6.581	0.022	0.421	15.68	32.08	n.a.
Total:			**0.140**	**1.312**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

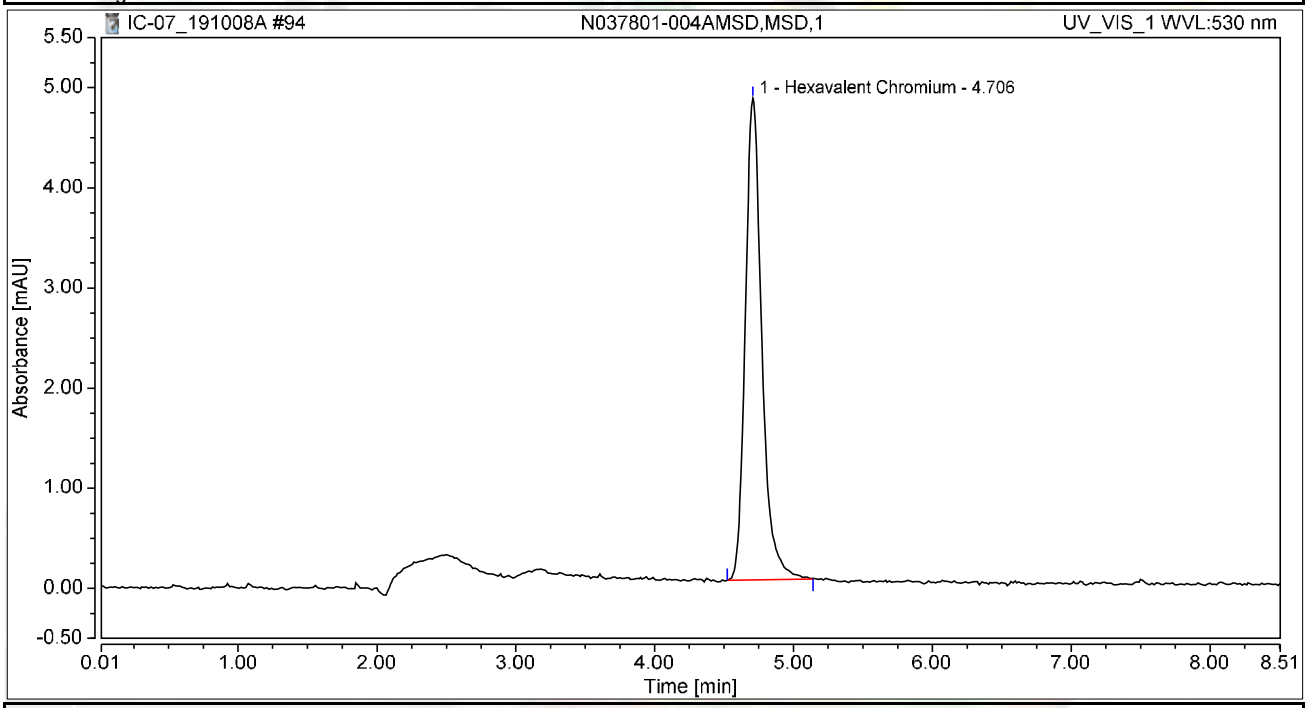
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.395	2.827	100.00	100.00	1.4661
Total:			**0.395**	**2.827**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-004AMSD,MSD,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

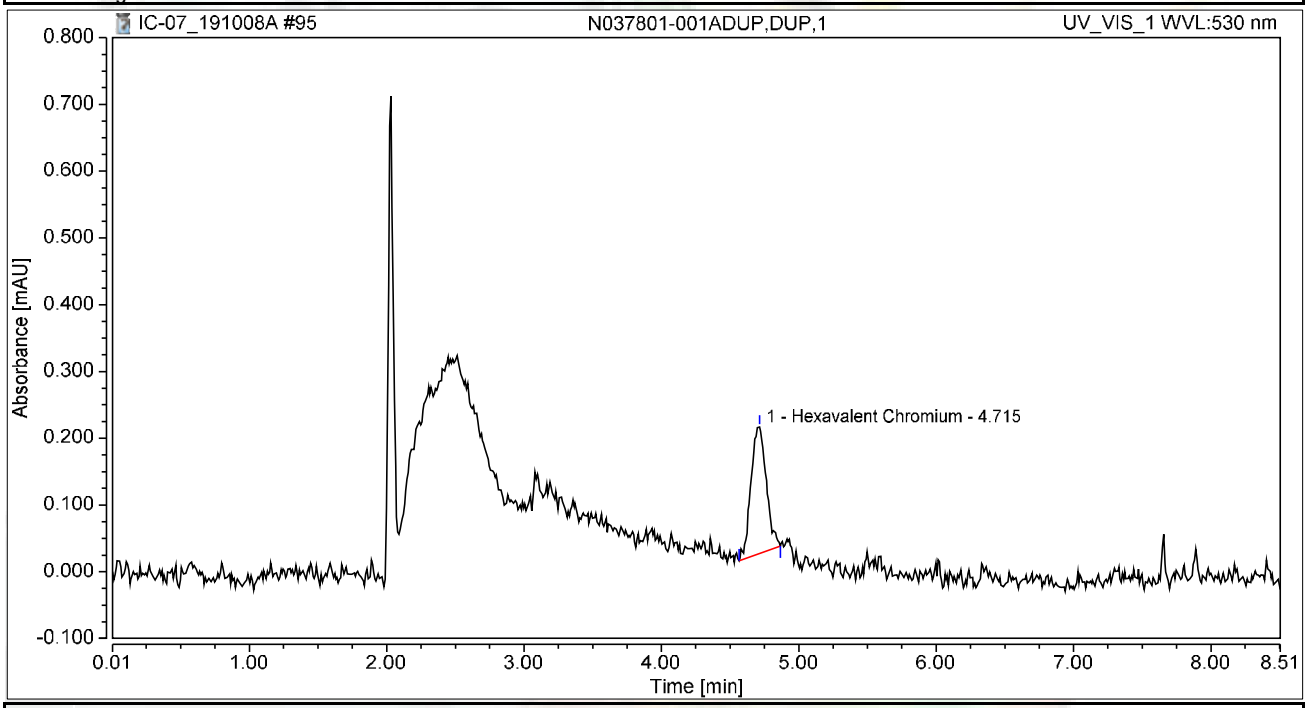
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.664	4.808	100.00	100.00	2.4673
Total:			**0.664**	**4.808**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-001ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

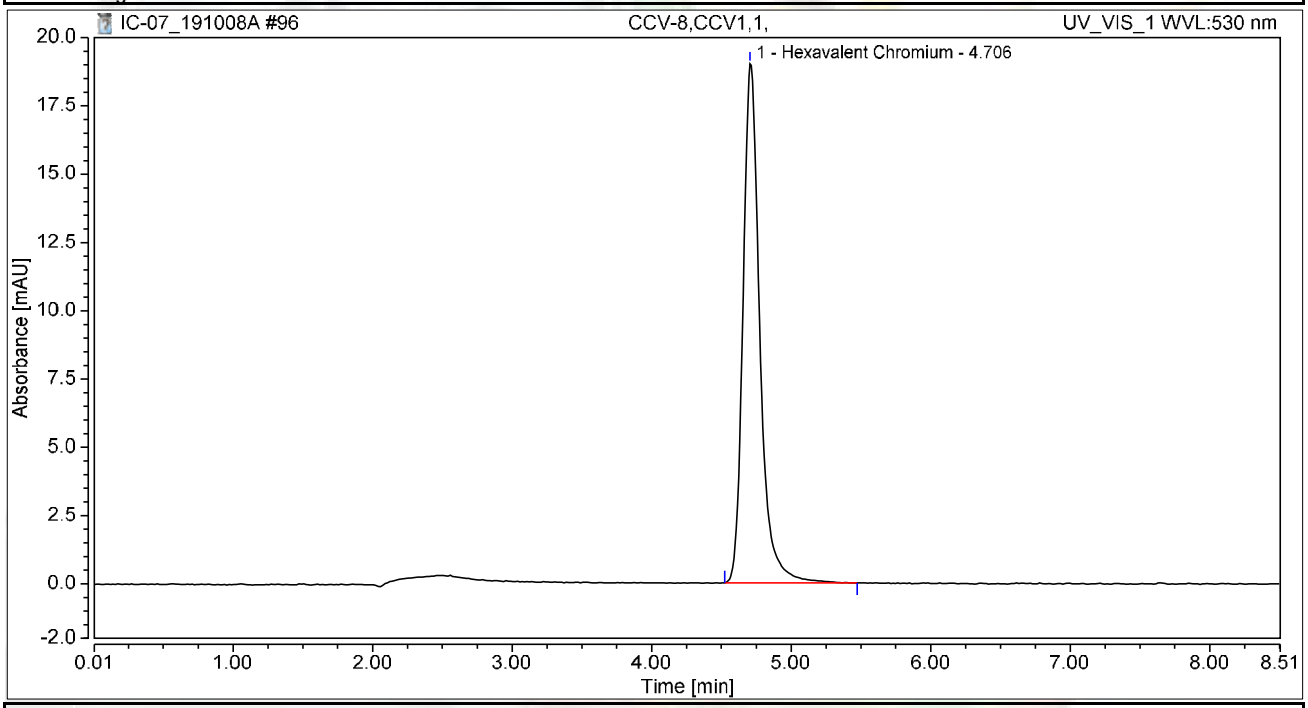
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.025	0.189	100.00	100.00	0.0919
Total:			**0.025**	**0.189**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-8,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

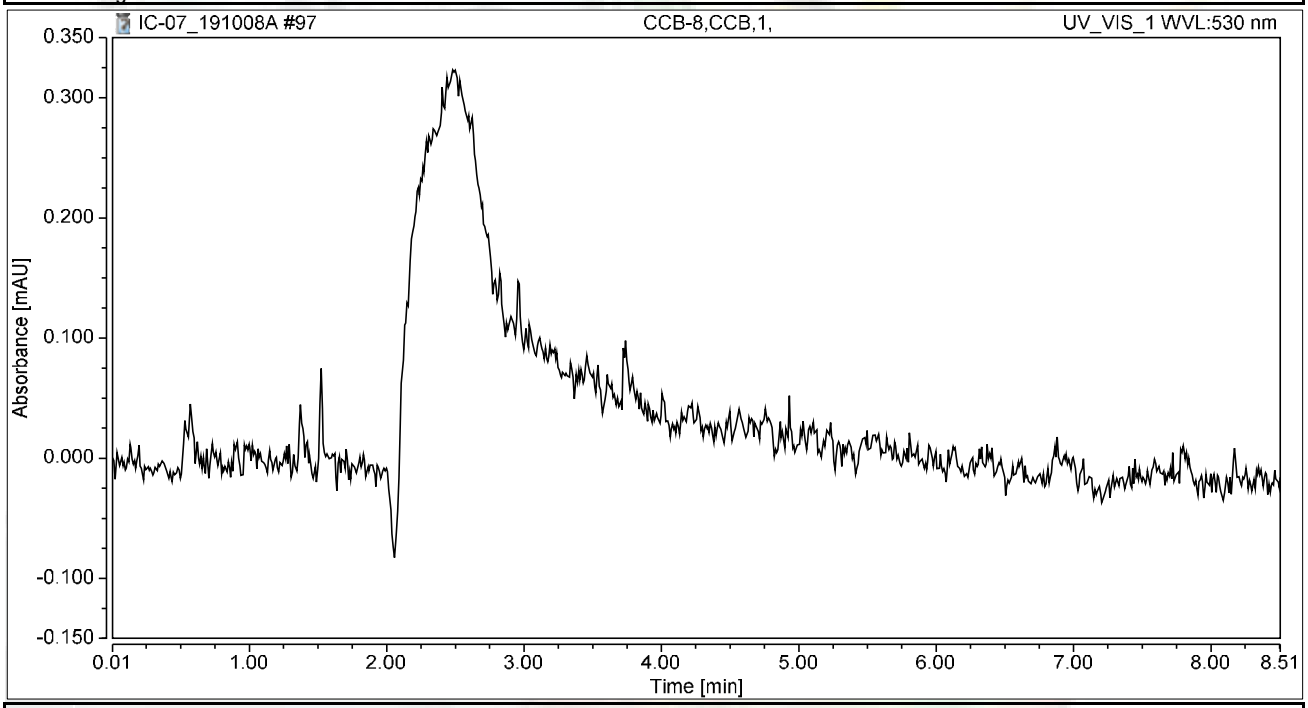
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.658	19.005	100.00	100.00	9.8757
Total:			**2.658**	**19.005**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-8,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

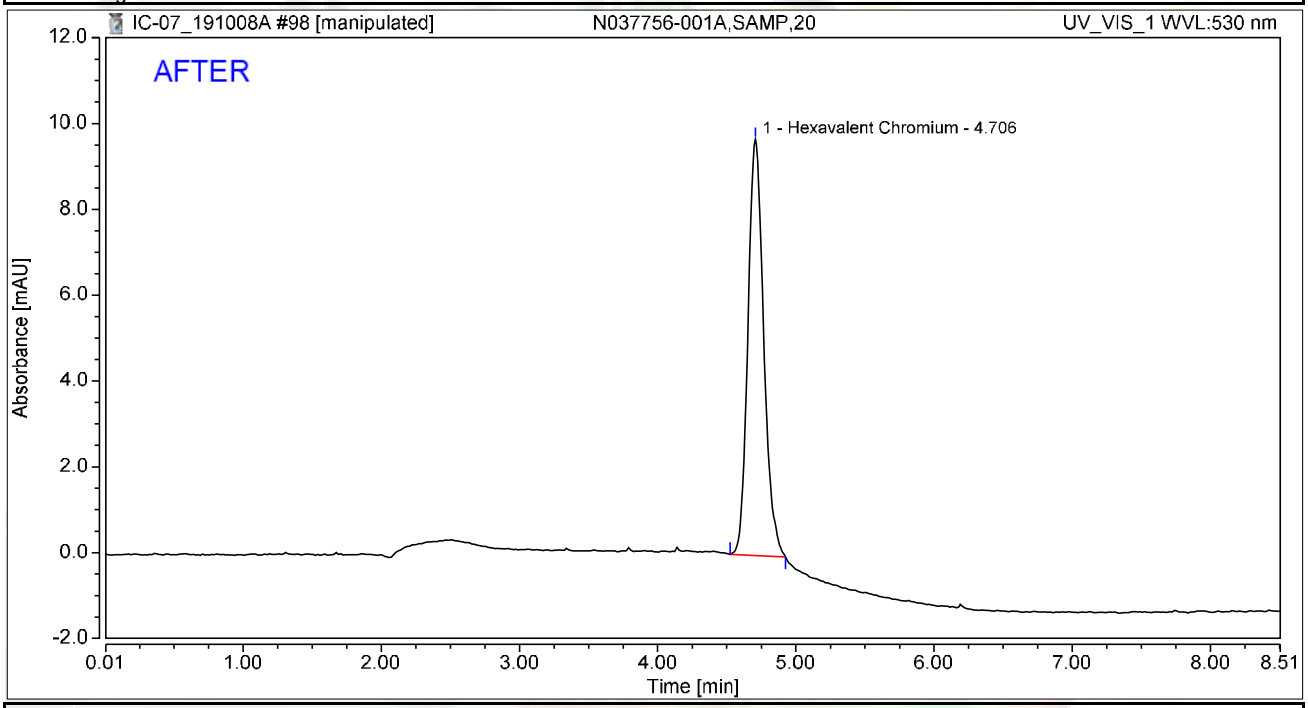
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037756-001A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.280	9.697	100.00	100.00	4.7540
Total:			**1.280**	**9.697**	**100.00**	**100.00**	

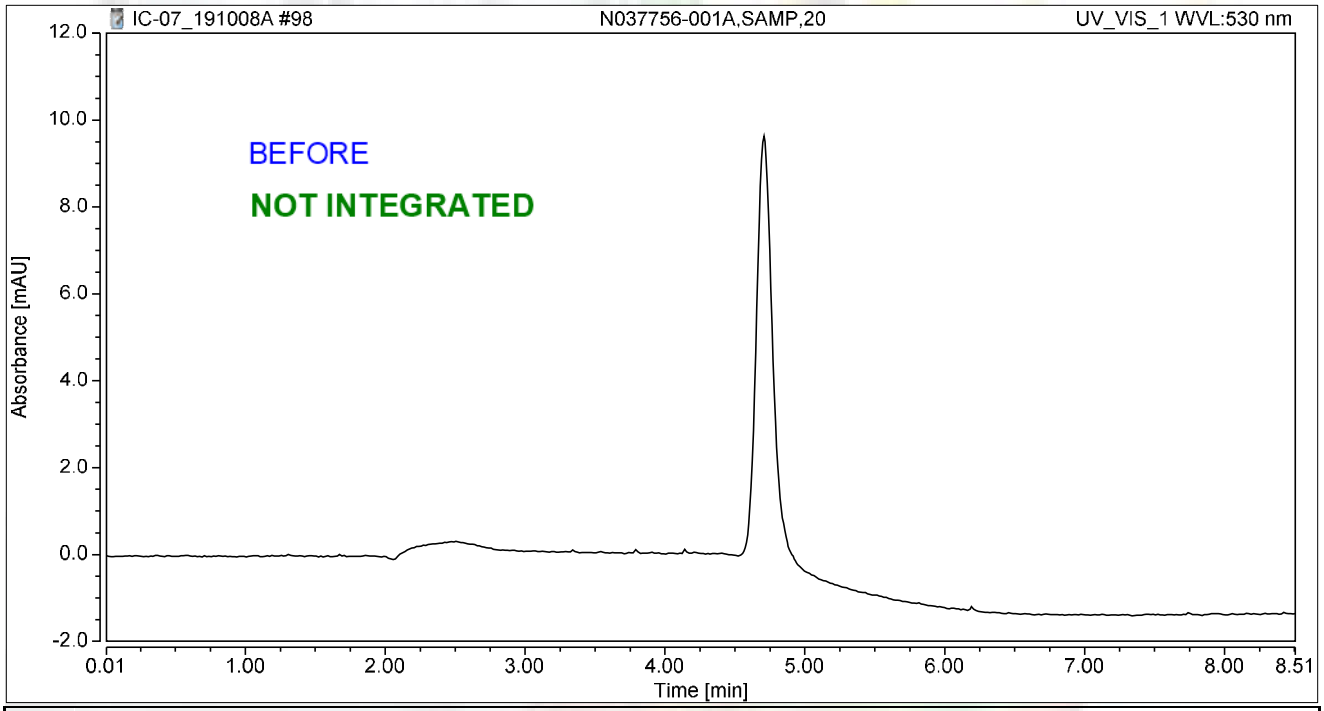
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037756-001A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

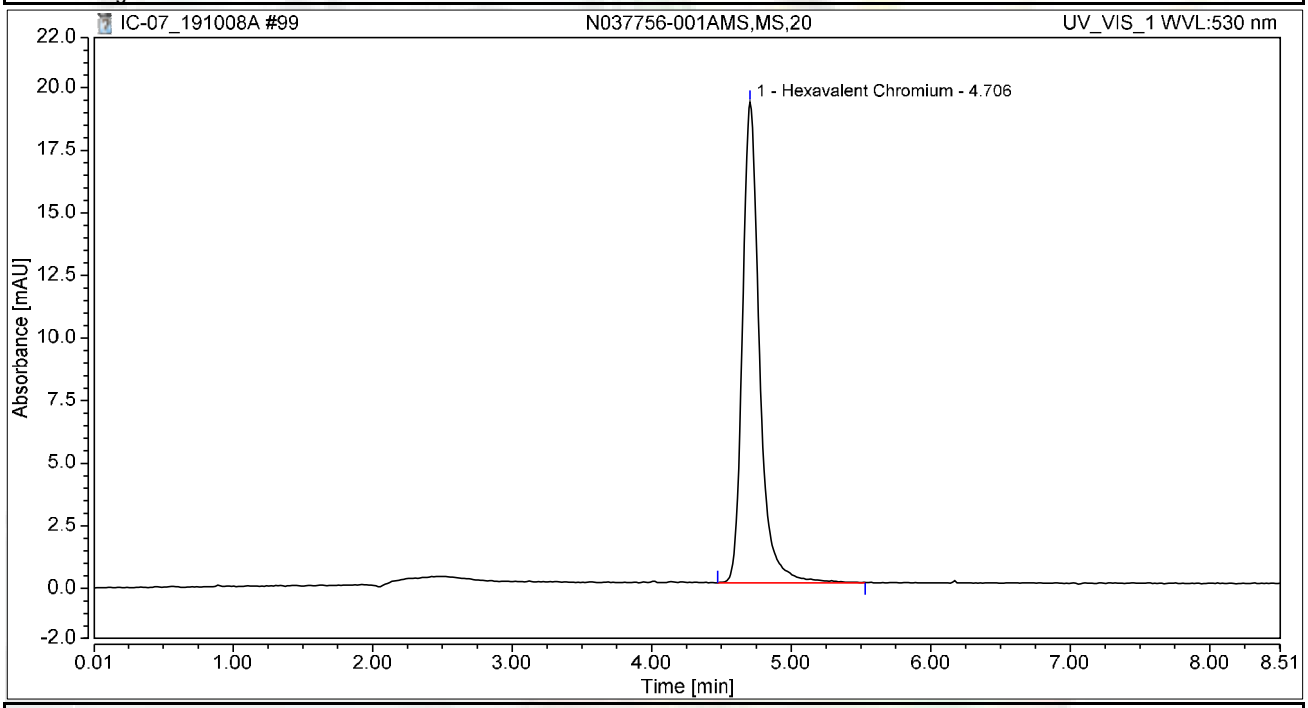
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037756-001AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

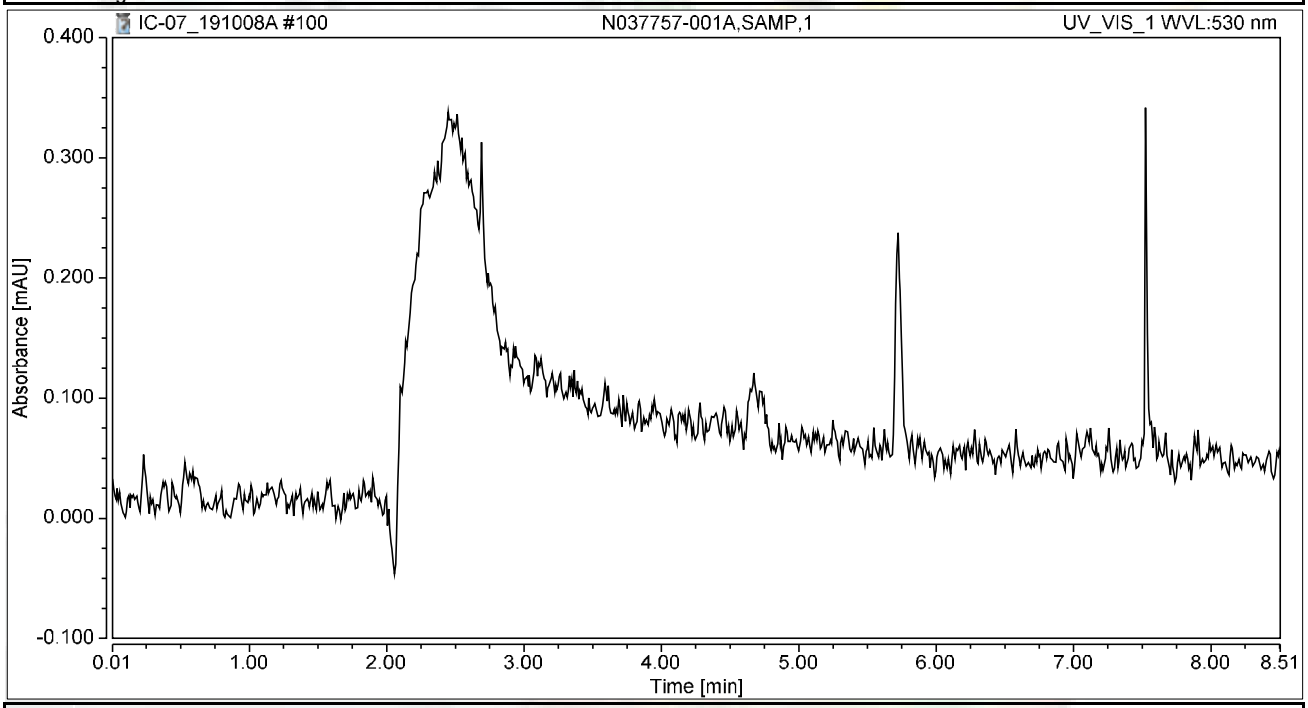
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.721	19.193	100.00	100.00	10.1095
Total:			**2.721**	**19.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

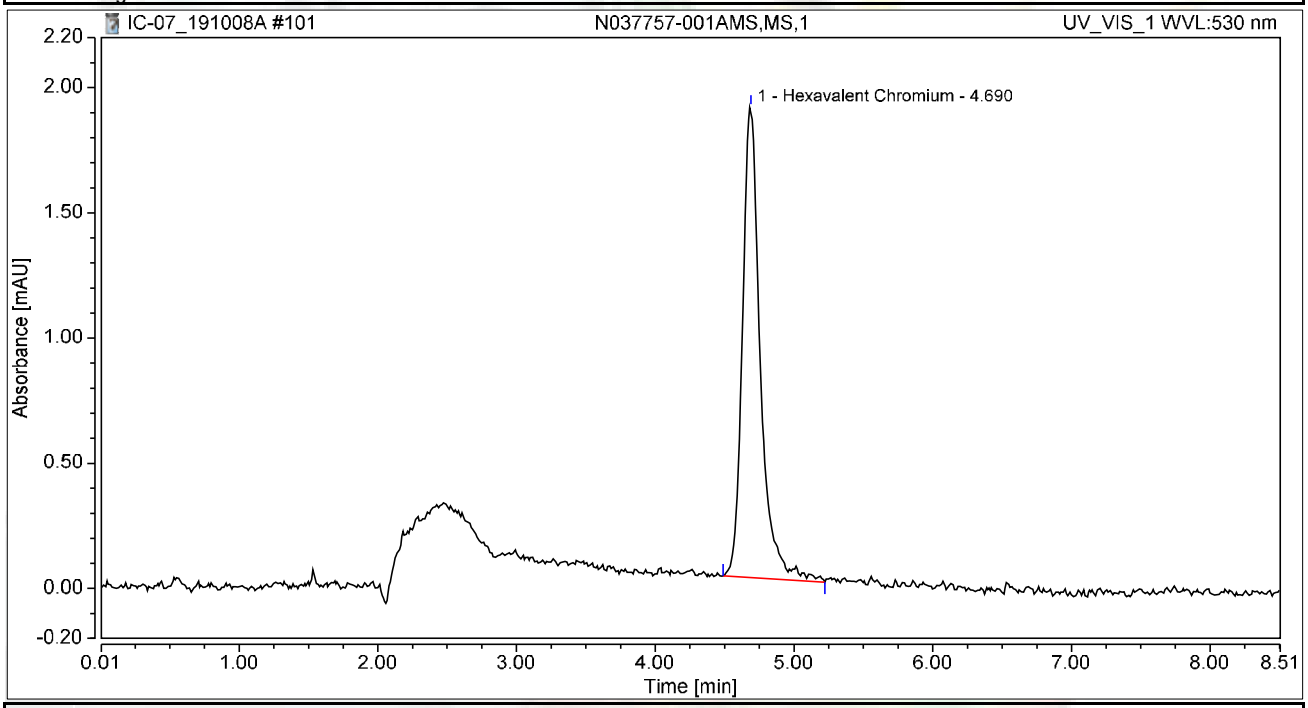
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

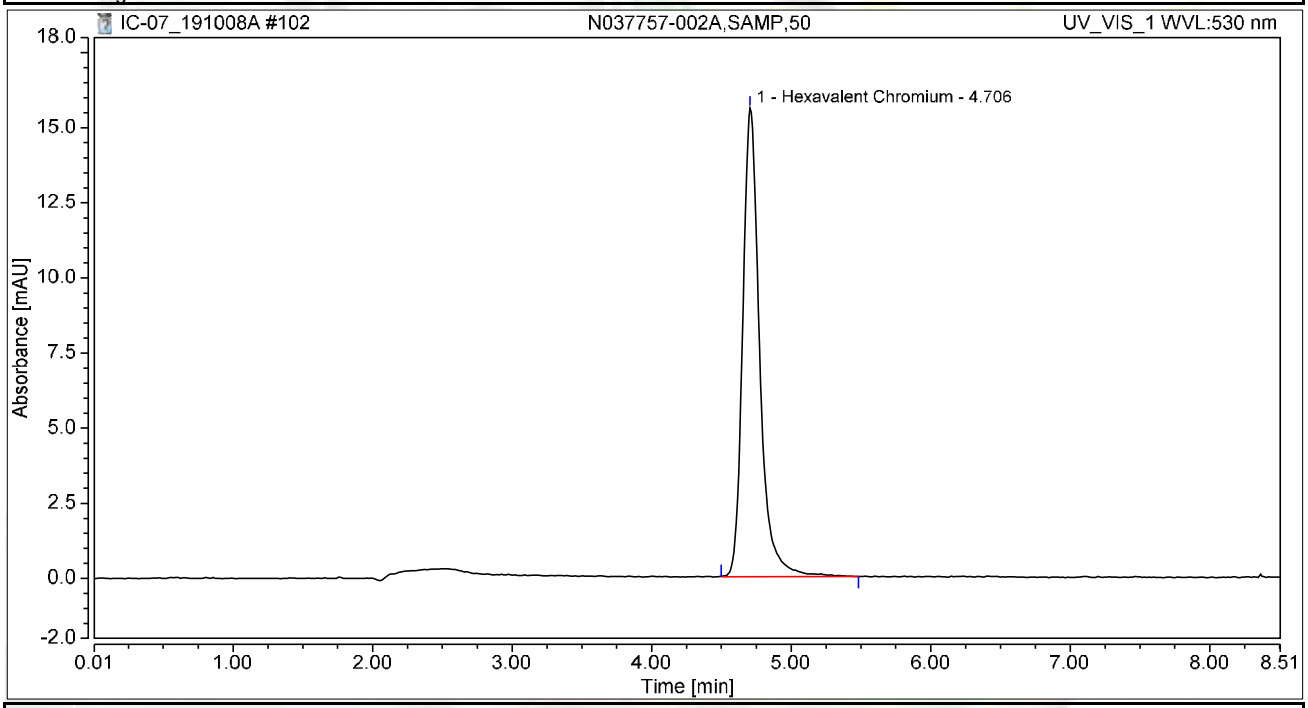
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.282	1.880	100.00	100.00	1.0459
Total:			**0.282**	**1.880**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-002A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

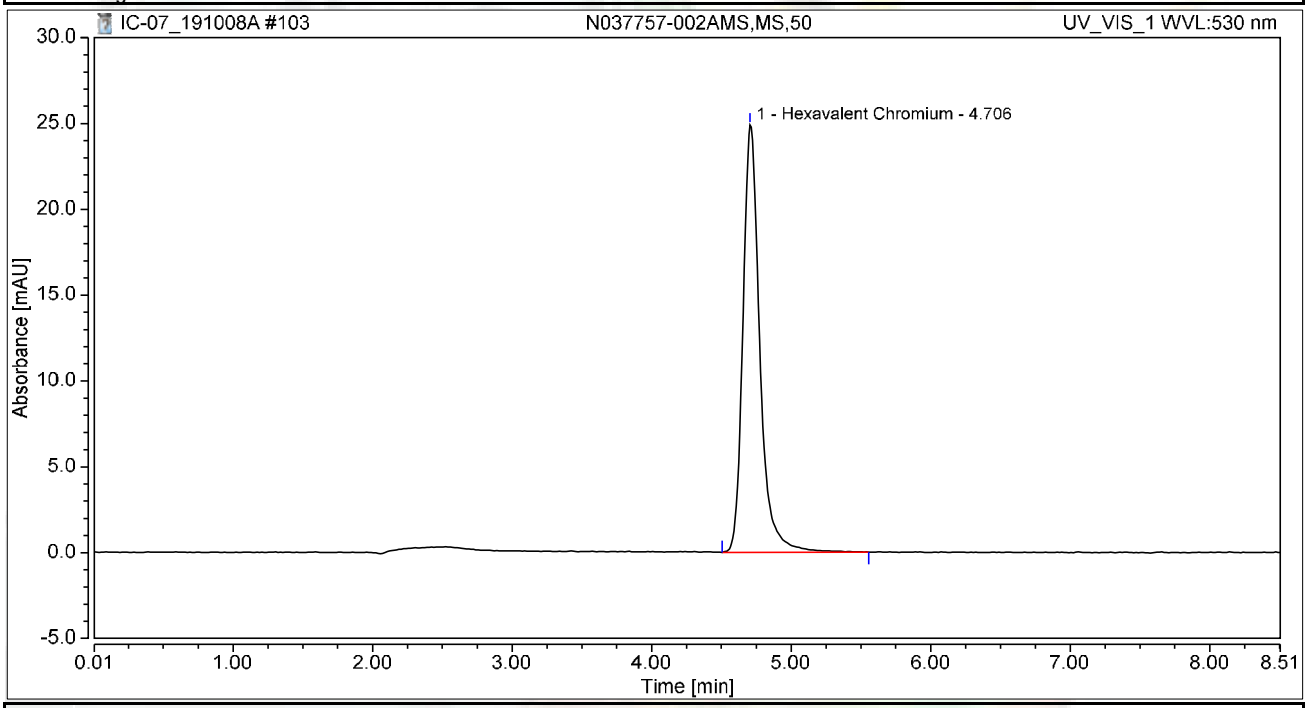
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.197	15.601	100.00	100.00	8.1628
Total:			**2.197**	**15.601**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-002AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

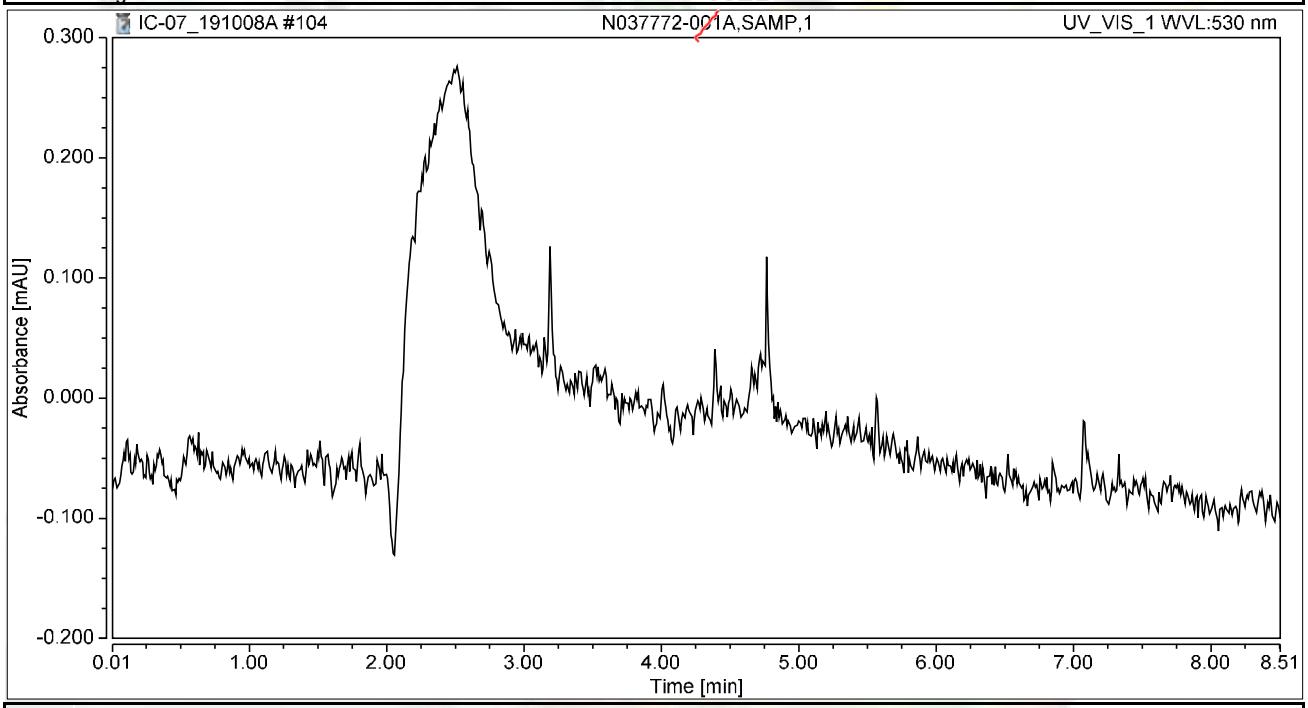
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	3.500	24.906	100.00	100.00	13.0029
Total:			**3.500**	**24.906**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details -002B

Injection Name:	**N037772-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:20**	*Sample Weight:*	**1.0000**

Chromatogram -002B



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

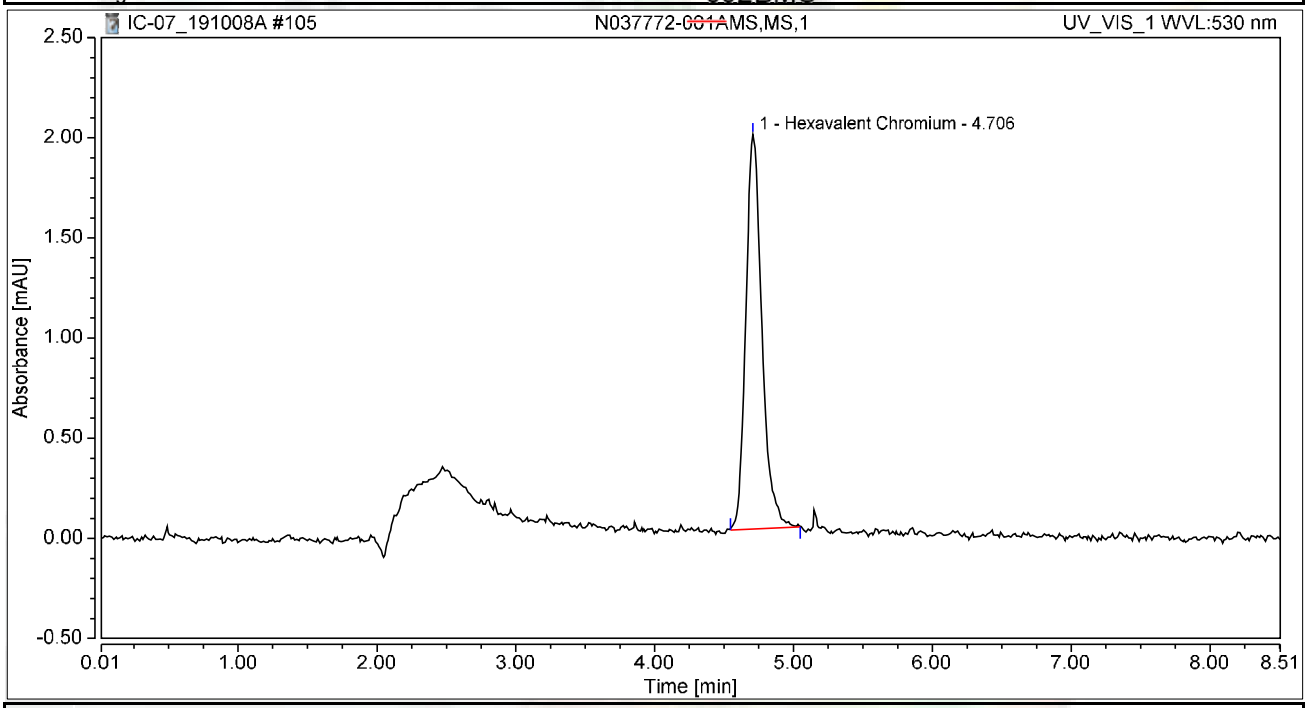
10/14/2019
for

Chromatogram and Results

Injection Details -002BMS

Injection Name:	**N037772-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:29**	*Sample Weight:*	**1.0000**

Chromatogram -002BMS



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.264	1.968	100.00	100.00	0.9816
Total:			**0.264**	**1.968**	**100.00**	**100.00**	

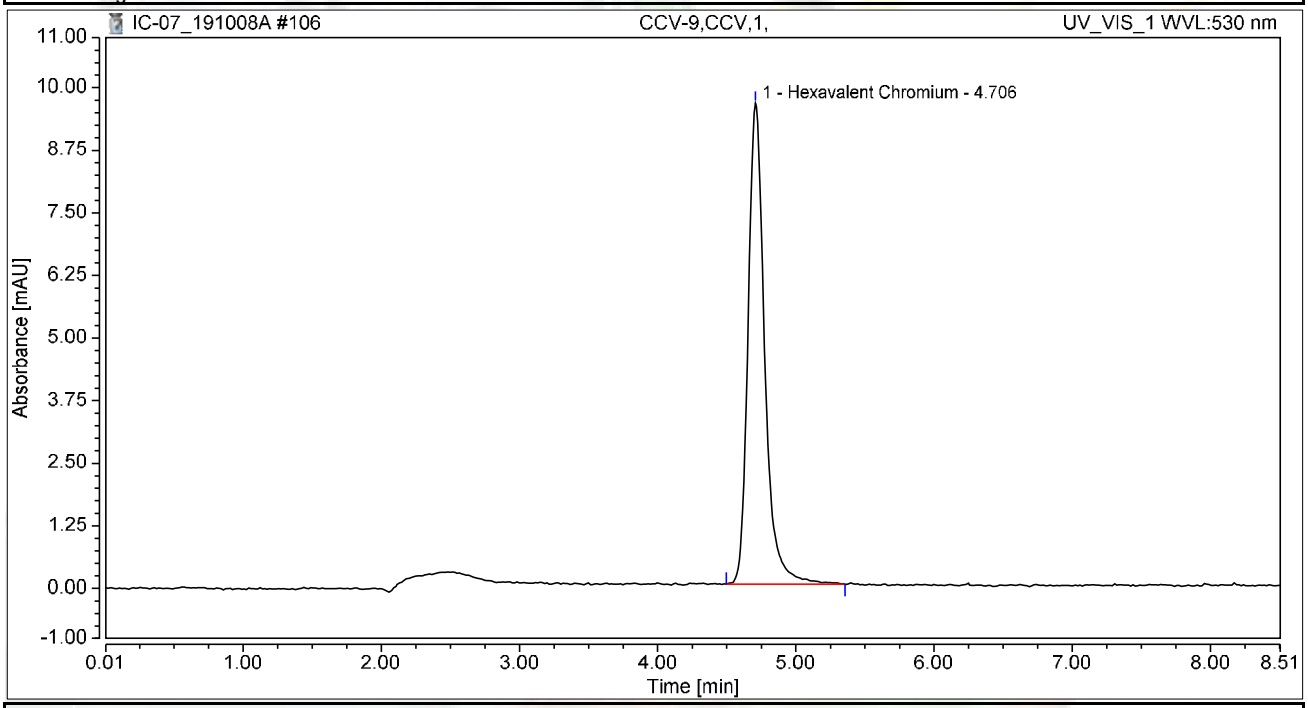
10/14/2019
for

Chromatogram and Results

Injection Details

Injection Name:	**CCV-9,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

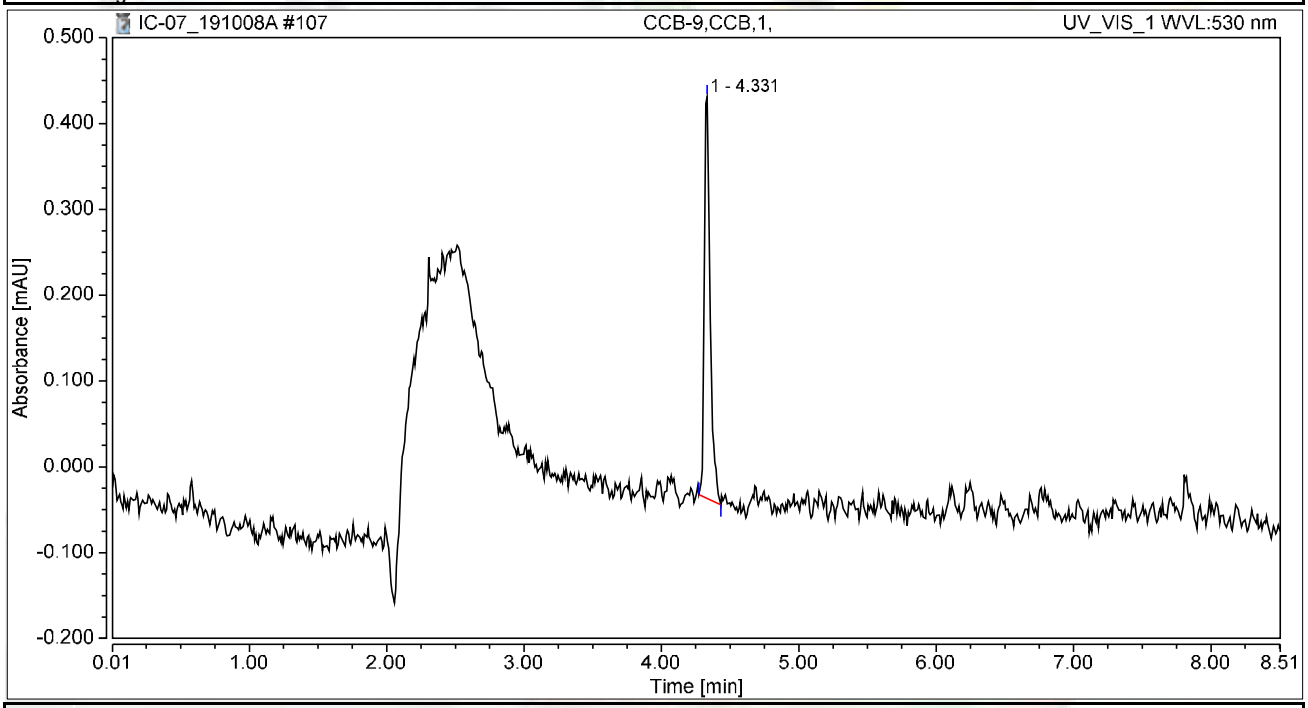
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.341	9.605	100.00	100.00	4.9820
Total:			**1.341**	**9.605**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-9,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

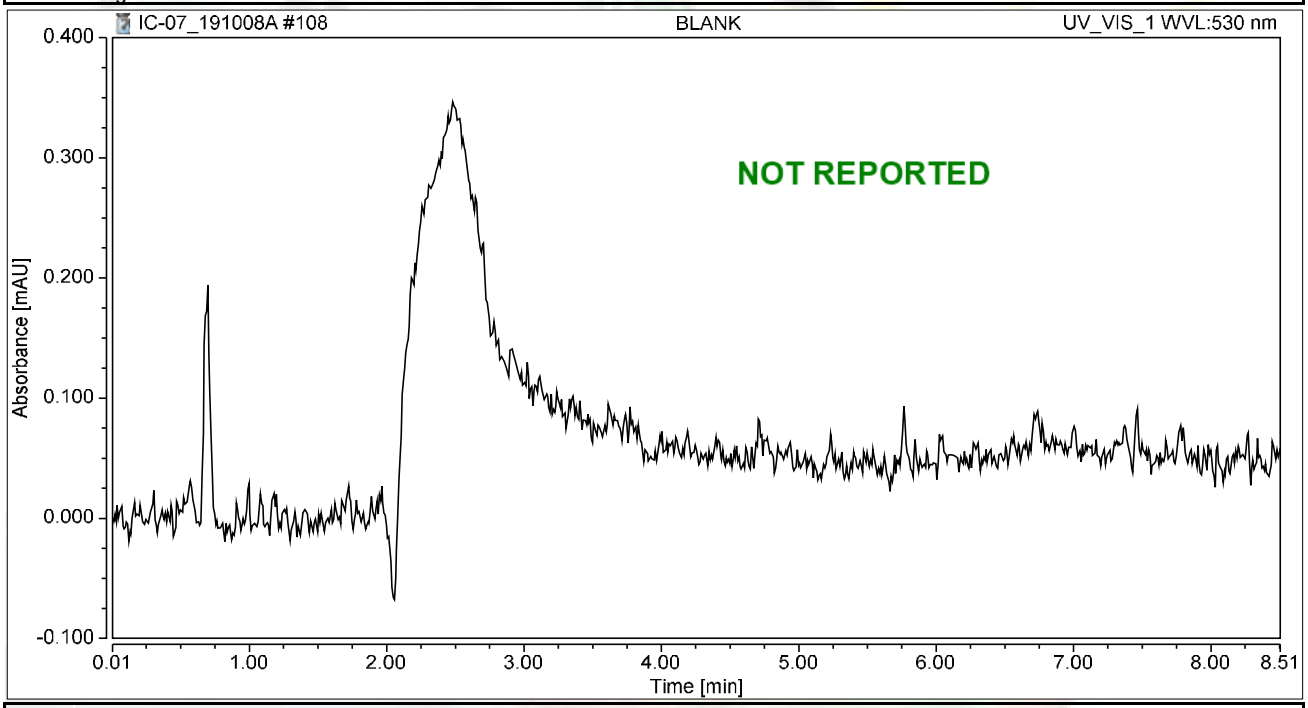
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.331	0.023	0.468	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.023**	**0.468**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320 B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136779 **Analyst:** LSR

ASSET #: N037756 **Date Analyzed:** 4-Oct

Method: EPA 2320

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 10/7/2019

2nd Level Reviewer: Mary 10/22/2019 Date: —

SAMPLE CALCULATION

Sample ID: **N037756-001C @ pH 7.49**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.525 mL)

= **0.02169 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (7.20) (0.02169 N) (1) * 1000

= 156.1680 mg**/L**

Reporting results in two significant figures,

=**160 as CaCO3**

Sirisha Ramisetty 10/7/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02169 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (7.20 mL) (0.02169) (1) * 1000

= 156.1680 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ =156.1680 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **160 mg/L**

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.63	50	0.00	0.050	MBLK
LCS-1	8.45	50	0.05	4.75	LCS
N037756-001C	7.49	50	0.00	7.20	SAMP
N037757-001C	7.85	50	0.00	11.70	SAMP
N037757-002C	7.95	50	0.00	7.70	SAMP
N037758-001D	7.01	50	0.00	2.80	SAMP
N037758-002D	7.70	50	0.00	3.35	SAMP
N037758-003D	7.15	50	0.00	12.80	SAMP
N037758-005D	7.60	50	0.00	3.40	SAMP
N037758-006D	7.58	50	0.00	6.20	SAMP
N037758-008D	7.88	50	0.00	3.65	SAMP
N037758-009D	7.75	50	0.00	3.75	SAMP
N037758-010D	7.78	50	0.00	3.65	SAMP
N037758-003DDUP	7.28	50	0.00	12.95	DUP
N037758-005DMS	8.14	50	0.00	7.85	MS
N037758-005DMSD	8.14	50	0.00	7.90	MSD

Standardization:

Spike amt:	**5**	ml
Titrant used:	**11.525**	ml
N H2SO4	**0.02169**	Normal
Date Analyzed:	**10/4/19**	
Time:	**9:20 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190930B**	

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Date Analyzed:	10/4/19		Reagents:					Standardization:					P = 0
Time Started:	9:20 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.525	mL		P = 1/2 T
				Sulfuric Acid:		R190930B							P > 1/2 T
									N H2SO4	0.02169	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.63				0.02169	0.00	0.05	0.05	1	0.00	1.08	
LCS-1	50	8.45				0.02169	0.05	4.70	4.75	1	1.08	103.04	
N037756-001C	50	7.49				0.02169	0.00	7.20	7.20	1	0.00	156.18	
N037757-001C	50	7.85				0.02169	0.00	11.70	11.70	1	0.00	253.80	
N037757-002C	50	7.95				0.02169	0.00	7.70	7.70	1	0.00	167.03	
N037758-001D	50	7.01				0.02169	0.00	2.80	2.80	1	0.00	60.74	
N037758-002D	50	7.7				0.02169	0.00	3.35	3.35	1	0.00	72.67	
N037758-003D	50	7.15				0.02169	0.00	12.80	12.80	1	0.00	277.66	
N037758-005D	50	7.6				0.02169	0.00	3.40	3.40	1	0.00	73.75	
N037758-006D	50	7.58				0.02169	0.00	6.20	6.20	1	0.00	134.49	
N037758-008D	50	7.88				0.02169	0.00	3.65	3.65	1	0.00	79.18	
N037758-009D	50	7.75				0.02169	0.00	3.75	3.75	1	0.00	81.34	
N037758-010D	50	7.78				0.02169	0.00	3.65	3.65	1	0.00	79.18	
N037758-003DDU	50	7.28				0.02169	0.00	12.95	12.95	1	0.00	280.91	
N037758-005DMS	50	8.14				0.02169	0.00	7.85	7.85	1	0.00	170.28	
N037758-005DMS	50	8.14				0.02169	0.00	7.90	7.90	1	0.00	171.37	

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Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	10/4/19
Time:	9:20 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.08	1.08	1.08		P = 0
LCS-1	0.00	2.17	100.87	103.04	103.04		P < 1/2 T
N037756-001C	0.00	0.00	156.18	156.18	156.18		P = 0
N037757-001C	0.00	0.00	253.80	253.80	253.80		P = 0
N037757-002C	0.00	0.00	167.03	167.03	167.03		P = 0
N037758-001D	0.00	0.00	60.74	60.74	60.74		P = 0
N037758-002D	0.00	0.00	72.67	72.67	72.67		P = 0
N037758-003D	0.00	0.00	277.66	277.66	277.66		P = 0
N037758-005D	0.00	0.00	73.75	73.75	73.75		P = 0
N037758-006D	0.00	0.00	134.49	134.49	134.49		P = 0
N037758-008D	0.00	0.00	79.18	79.18	79.18		P = 0
N037758-009D	0.00	0.00	81.34	81.34	81.34		P = 0
N037758-010D	0.00	0.00	79.18	79.18	79.18		P = 0
N037758-003DDUP	0.00	0.00	280.91	280.91	280.91		P = 0
N037758-005DMS	0.00	0.00	170.28	170.28	170.28		P = 0
N037758-005DMSD	0.00	0.00	171.37	171.37	171.37		P = 0

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Alkalinity Preparation and Runlog

Matrix: H2O

Date Extracted: 10/4/19
Time Extracted: 1520
Extracted By: LBR

Date Analyzed: 10/4/19
Time Analyzed: 920
Analyzed By: LBR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV-161205A
Hydrochloric Acid: —
Sulfuric Acid: R190930B
Sodium Bicarbonate: CINV190515A

pH meter Calibration:
SLOPE: 97.7%
pH 7 - 7.02 CINV-190724H
4 - 4.01 J
10 - 10.02 CINV-190801A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50mL	10.66	INST190923DA	5mL	0.05N	-	-	11.50	50/50	$N_{H_2SO_4} = \frac{(2.65g/L)(5mL)}{(53)(V\ titrant)}$	= 0.021739B
	#2	↓	10.74	↓	↓	↓	-	-	11.55	↓		= 0.021645021
1)	MBLK	50mL	5.63	-	-	-	0.02169		0.05	50/50		Ave: 0.02169205
2)	LCS		8.45	INST191003A	1mL	0.05N			4.75			
3)	N037756-1C		7.49						7.20			
4)	N037757-1C		7.85						11.70			
5)	↓ 2C		7.95						7.70			
6)	N037758-1D		7.01						2.80			
7)	2D		7.70						3.35			
8)	3D		7.15						12.80			
9)	5D		7.60						3.40			
10)	6D		7.58						6.20			
11)	8D		7.88						3.65			
12)	9D		7.75						3.75			
13)	10D		7.78						12953.65	WP 10/4		
14)	300DP		7.28						12.95			
15)	5DMS		8.14	INST191003A	1mL	0.05N			7.85			
16)	5DMSD	↓	8.14	↓	↓	↓			7.90			
17)												
18)				$P = \frac{(V\ pH\ 8.3)(N_{H_2SO_4})(50,000)}{V_{SK}}$								
19)												
20)											Julia Ramit 10/7/2019	
	MS			$T = \frac{(V\ pH\ 4.5)(N_{H_2SO_4})(50,000)}{V_{SK}}$								
	MSD											
	LCS											

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136817
ASSET #: N037758 / N037771 / N037756

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 10/7/2019

Method:

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: rba 10/21/2019 Date: —

2nd Level Reviewer: [signature] 10/21/2019 Date: —

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136840
ASSET #: N037756 / N037758

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 10/8/2019

Method:

[X] EPA 300.0
[ ] EPA 7199

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: rba 10/21/2019 Date: –

2nd Level Reviewer: 10/21/2019 Date: –

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N037756-001C** concentration in mg/L is calculated as follows:

Chloride, mg/L = 3.1423 * 500

= 1571.15

Reporting result in two significant values,

Chloride, mg/L = 1600

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 30
Created: 10/1/2019 10:29:50 AM by IC-05
Last Update: 10/2/2019 8:19:06 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
7	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
8	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
9	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
10	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
11	N037613-012A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
12	N037613-012A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
13	N037613-013A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
14	N037613-013A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
15	N037613-012AMS,MS,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
16	N037613-012AMSD,MSD,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
17	N037613-012AMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
18	N037613-012AMSD,MSD,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
19	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
20	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
21	N037613-013ADUP,DUP,20	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
22	N037613-013ADUP,DUP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
23	N037648-011A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
24	N037648-011A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
25	N037648-012A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
26	N037648-012A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
27	N037648-013A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
28	N037648-013A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
29	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
30	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished

10/14/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 30
Created: 10/1/2019 10:29:50 AM by IC-05
Last Update: 10/2/2019 8:19:06 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	10/1/2019 10:33:40 AM	IBLANK
2	Std - 1	10/1/2019 10:49:28 AM	STD-LOW
3	Std - 2	10/1/2019 11:05:16 AM	STD
4	Std - 3	10/1/2019 11:21:04 AM	STD
5	Std - 4	10/1/2019 11:36:52 AM	STD
6	Std - 5	10/1/2019 11:52:39 AM	STD-HIGH
7	ICV,ICV,1	10/1/2019 12:14:13 PM	ICV
8	ICB,ICB,1	10/1/2019 12:30:01 PM	ICB
9	MB-H2O,MBLK,1	10/1/2019 12:45:49 PM	METHOD BLANK
10	LCS-H2O,LCS,1	10/1/2019 1:01:37 PM	LCS
11	N037613-012A,SAMP,100	10/1/2019 1:23:59 PM	BLANK
12	N037613-012A,SAMP,1000	10/1/2019 1:39:47 PM	SAMP
13	N037613-013A,SAMP,20	10/1/2019 1:55:35 PM	SAMP
14	N037613-013A,SAMP,100	10/1/2019 2:11:23 PM	SAMP
15	N037613-012AMS,MS,100	10/1/2019 2:27:11 PM	SAMP
16	N037613-012AMSD,MSD,100	10/1/2019 2:42:59 PM	SAMP
17	N037613-012AMS,MS,1000	10/1/2019 2:58:47 PM	SAMP
18	N037613-012AMSD,MSD,1000	10/1/2019 3:14:34 PM	SAMP
19	CCV-1,CCV,1	10/1/2019 3:30:22 PM	CCV
20	CCB-1,CCB,1	10/1/2019 3:46:10 PM	CCB
21	N037613-013ADUP,DUP,20	10/1/2019 4:01:58 PM	SAMP
22	N037613-013ADUP,DUP,100	10/1/2019 4:17:46 PM	SAMP
23	N037648-011A,SAMP,50	10/1/2019 4:33:34 PM	SAMP
24	N037648-011A,SAMP,1000	10/1/2019 4:49:21 PM	SAMP
25	N037648-012A,SAMP,50	10/1/2019 5:05:09 PM	SAMP
26	N037648-012A,SAMP,1000	10/1/2019 5:20:57 PM	SAMP
27	N037648-013A,SAMP,50	10/1/2019 5:36:45 PM	SAMP
28	N037648-013A,SAMP,1000	10/1/2019 5:52:33 PM	SAMP
29	CCV-2,CCV,1	10/1/2019 6:08:21 PM	CCV
30	CCB-2,CCB,1	10/1/2019 6:24:09 PM	CCB

10/14/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/7/2019 9:30:26 AM by IC-05
Last Update: 10/8/2019 3:07:59 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
7	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
8	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
9	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
12	N037718-001B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
13	N037718-002B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
14	N037718-003A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
15	N037722-001D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
16	N037722-002D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
17	N037736-001D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
18	N037736-002D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
19	N037736-003D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
20	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
21	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
22	N037736-004D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
23	N037736-005D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
24	N037736-006D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
25	N037736-007D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
26	N037736-001DMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
27	N037736-001DMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
28	N037722-001DMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
29	N037718-001BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
30	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
31	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
32	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
33	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
34	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
35	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
36	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
37	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
38	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
39	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
40	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
41	N037758-001D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/7/2019 9:30:26 AM by IC-05
Last Update: 10/8/2019 3:07:59 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	10/1/2019 10:33:40 AM	IBLANK
2	Std - 1	10/1/2019 10:49:28 AM	STD-LOW
3	Std - 2	10/1/2019 11:05:16 AM	STD
4	Std - 3	10/1/2019 11:21:04 AM	STD
5	Std - 4	10/1/2019 11:36:52 AM	STD
6	Std - 5	10/1/2019 11:52:39 AM	STD-HIGH
7	BLANK	10/7/2019 9:30:54 AM	BLANK
8	CCV-1,CCV,1	10/7/2019 9:46:41 AM	CCV
9	CCB-1,CCB,1	10/7/2019 10:02:29 AM	CCB
10	MB-H2O,MBLK,1	10/7/2019 10:18:17 AM	METHOD BLANK
11	LCS-H2O,LCS,1	10/7/2019 10:34:05 AM	LCS
12	N037718-001B,SAMP,5	10/7/2019 11:02:45 AM	SAMP,2>10mL
13	N037718-002B,SAMP,5	10/7/2019 11:18:32 AM	SAMP,2>10mL
14	N037718-003A,SAMP,20	10/7/2019 11:34:20 AM	SAMP,0.5>10mL
15	N037722-001D,SAMP,5	10/7/2019 12:10:15 PM	SAMP,2>10mL
16	N037722-002D,SAMP,5	10/7/2019 12:26:04 PM	SAMP,2>10mL
17	N037736-001D,SAMP,5	10/7/2019 12:41:51 PM	SAMP,2>10mL
18	N037736-002D,SAMP,5	10/7/2019 12:57:39 PM	SAMP,2>10mL
19	N037736-003D,SAMP,5	10/7/2019 1:13:27 PM	SAMP,2>10mL
20	CCV-2,CCV,1	10/7/2019 1:29:15 PM	CCV
21	CCB-2,CCB,1	10/7/2019 1:45:03 PM	CCB
22	N037736-004D,SAMP,5	10/7/2019 2:00:51 PM	SAMP,2>10mL
23	N037736-005D,SAMP,5	10/7/2019 2:16:39 PM	SAMP,2>10mL
24	N037736-006D,SAMP,5	10/7/2019 2:32:27 PM	SAMP,2>10mL
25	N037736-007D,SAMP,5	10/7/2019 2:48:14 PM	SAMP,2>10mL
26	N037736-001DMS,MS,5	10/7/2019 3:09:36 PM	MS,2>10mL
27	N037736-001DMSD,MSD,5	10/7/2019 3:32:39 PM	MSD,2>10mL
28	N037722-001DMS,MS,5	10/7/2019 3:49:10 PM	MS,2>10mL
29	N037718-001BDUP,DUP,5	10/7/2019 4:04:58 PM	DUP,2>10mL
30	LCS-2,LCS,1	10/7/2019 4:20:46 PM	LCS
31	MB-2,MBLK,1	10/7/2019 4:36:34 PM	METHOD BLANK
32	CCV-3,CCV,1	10/7/2019 4:52:22 PM	CCV
33	CCB-3,CCB,1	10/7/2019 5:08:10 PM	CCB
34	BLANK	10/7/2019 5:43:16 PM	BLANK
35	BLANK	10/7/2019 5:59:34 PM	SAMP
36	CCV-3,CCV,1	10/7/2019 6:15:22 PM	CCV
37	CCV-3,CCV,1	10/7/2019 6:50:48 PM	CCV
38	CCB-3,CCB,1	10/7/2019 7:06:36 PM	CCB
39	LCS-2,LCS,1	10/7/2019 7:26:12 PM	LCS
40	MB-2,MBLK,1	10/7/2019 7:42:00 PM	METHOD BLANK
41	N037758-001D,SAMP,5	10/7/2019 8:02:44 PM	SAMP,2>10mL

10/8/2019

*Lines 30-36 were not reported due to clogged in autosampler occured in line 33

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/7/2019 9:30:26 AM by IC-05
Last Update: 10/8/2019 3:07:59 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N037758-001DMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
43	N037758-001DMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
44	N037758-003D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
45	N037758-003DMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
46	N037758-006D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
47	N037758-006DDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
48	N037758-002D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
49	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
50	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
51	N037758-004C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
52	N037758-005D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
53	N037758-007C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
54	N037758-008D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
55	N037758-009D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
56	N037758-010D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
57	N037758-011C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
58	N037771-001A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
59	N037771-002A,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
60	N037771-003A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
61	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
62	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
63	N037756-001C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
64	N037756-001CDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
65	N037756-001CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
66	N037756-001CMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
67	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
68	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished



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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/7/2019 9:30:26 AM by IC-05
Last Update: 10/8/2019 3:07:59 AM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N037758-001DMS,MS,5	10/7/2019 8:18:32 PM	MS,2>10mL
43	N037758-001DMSD,MSD,5	10/7/2019 8:34:20 PM	MSD,2>10mL
44	N037758-003D,SAMP,5	10/7/2019 8:50:08 PM	SAMP,2>10mL
45	N037758-003DMS,MS,5	10/7/2019 9:05:55 PM	MS,2>10mL
46	N037758-006D,SAMP,5	10/7/2019 9:21:43 PM	SAMP,2>10mL
47	N037758-006DDUP,DUP,5	10/7/2019 9:37:31 PM	DUP,2>10mL
48	N037758-002D,SAMP,5	10/7/2019 9:53:19 PM	SAMP,2>10mL
49	CCV-4,CCV,1	10/7/2019 10:09:07 PM	CCV
50	CCB-4,CCB,1	10/7/2019 10:24:55 PM	CCB
51	N037758-004C,SAMP,5	10/7/2019 10:40:43 PM	SAMP,2>10mL
52	N037758-005D,SAMP,5	10/7/2019 10:56:31 PM	SAMP,2>10mL
53	N037758-007C,SAMP,5	10/7/2019 11:12:19 PM	SAMP,2>10mL
54	N037758-008D,SAMP,5	10/7/2019 11:28:07 PM	SAMP,2>10mL
55	N037758-009D,SAMP,5	10/7/2019 11:43:55 PM	SAMP,2>10mL
56	N037758-010D,SAMP,5	10/7/2019 11:59:43 PM	SAMP,2>10mL
57	N037758-011C,SAMP,5	10/8/2019 12:15:30 AM	SAMP,2>10mL
58	N037771-001A,SAMP,5	10/8/2019 12:31:18 AM	SAMP,2>10mL
59	N037771-002A,SAMP,10	10/8/2019 12:47:06 AM	SAMP,1>10mL
60	N037771-003A,SAMP,5	10/8/2019 1:02:54 AM	SAMP,2>10mL
61	CCV-5,CCV,1	10/8/2019 1:18:42 AM	CCV
62	CCB-5,CCB,1	10/8/2019 1:34:30 AM	CCB
63	N037756-001C,SAMP,5	10/8/2019 1:50:18 AM	SAMP,2>10mL
64	N037756-001CDUP,DUP,5	10/8/2019 2:06:06 AM	DUP,2>10mL
65	N037756-001CMS,MS,5	10/8/2019 2:21:54 AM	MS,2>10mL
66	N037756-001CMSD,MSD,5	10/8/2019 2:37:42 AM	MSD,2>10mL
67	CCV-6,CCV,1	10/8/2019 2:53:29 AM	CCV
68	CCB-6,CCB,1	10/8/2019 3:09:17 AM	CCB

10/8/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 96
Created: 10/8/2019 8:37:37 AM by IC-05
Last Update: 10/8/2019 6:04:03 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_191001	Finished
7	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
8	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
9	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
12	N037718-001B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
13	N037718-002B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
14	N037771-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
15	N037771-002A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
16	N037771-003A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
17	N037767-001B,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
18	N037722-001D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
19	N037722-001D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
20	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
21	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
22	N037722-002D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
23	N037722-002D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
24	N037722-001DMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
25	N037722-001DMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
26	N037736-004D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
27	N037736-004D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
28	N037736-004DMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
29	N037736-004DMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
30	N037736-004DMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
31	N037736-004DMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
32	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
33	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
34	N037736-005D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
35	N037736-005D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
36	N037736-005DDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
37	N037736-005DDUP,DUP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
38	N037736-001D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
39	N037736-001D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
40	N037736-002D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
41	N037736-002D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished

PROCESSED BY:



10/9/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 96
Created: 10/8/2019 8:37:37 AM by IC-05
Last Update: 10/8/2019 6:04:03 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	10/1/2019 10:33:40 AM	IBLANK
2	Std - 1	10/1/2019 10:49:28 AM	STD-LOW
3	Std - 2	10/1/2019 11:05:16 AM	STD
4	Std - 3	10/1/2019 11:21:04 AM	STD
5	Std - 4	10/1/2019 11:36:52 AM	STD
6	Std - 5	10/1/2019 11:52:39 AM	STD-HIGH
7	BLANK	10/8/2019 8:38:04 AM	BLANK
8	CCV-1,CCV,1	10/8/2019 8:53:52 AM	CCV
9	CCB-1,CCB,1	10/8/2019 9:09:40 AM	CCB
10	MB-H2O,MBLK,1	10/8/2019 9:25:28 AM	METHOD BLANK
11	LCS-H2O,LCS,1	10/8/2019 9:41:16 AM	LCS
12	N037718-001B,SAMP,50	10/8/2019 10:00:04 AM	SAMP,0.2>10mL
13	N037718-002B,SAMP,50	10/8/2019 10:15:52 AM	SAMP,0.2>10mL
14	N037771-001A,SAMP,100	10/8/2019 10:44:38 AM	SAMP,0.1>10mL
15	N037771-002A,SAMP,100	10/8/2019 11:00:26 AM	SAMP,0.1>10mL
16	N037771-003A,SAMP,100	10/8/2019 11:16:14 AM	SAMP,0.1>10mL
17	N037767-001B,SAMP,10	10/8/2019 11:32:02 AM	SAMP,1>10mL
18	N037722-001D,SAMP,50	10/8/2019 11:55:52 AM	SAMP,0.2>10mL
19	N037722-001D,SAMP,500	10/8/2019 12:11:40 PM	SAMP,2>10mL
20	CCV-2,CCV,1	10/8/2019 12:27:28 PM	CCV
21	CCB-2,CCB,1	10/8/2019 12:43:16 PM	CCB
22	N037722-002D,SAMP,50	10/8/2019 12:59:03 PM	SAMP,0.2>10mL
23	N037722-002D,SAMP,500	10/8/2019 1:14:51 PM	SAMP,0.02>10mL
24	N037722-001DMS,MS,50	10/8/2019 1:30:39 PM	MS,0.2>10mL
25	N037722-001DMS,MS,500	10/8/2019 1:46:27 PM	MS,0.02>10mL
26	N037736-004D,SAMP,50	10/8/2019 2:02:16 PM	SAMP,0.2>10mL
27	N037736-004D,SAMP,500	10/8/2019 2:18:04 PM	SAMP,0.02>10mL
28	N037736-004DMS,MS,50	10/8/2019 2:33:52 PM	MS,0.2>10mL
29	N037736-004DMSD,MSD,50	10/8/2019 2:49:40 PM	MSD,0.2>10mL
30	N037736-004DMS,MS,500	10/8/2019 3:05:28 PM	MS,0.02>10mL
31	N037736-004DMSD,MSD,500	10/8/2019 3:21:15 PM	MSD,0.02>10mL
32	CCV-3,CCV,1	10/8/2019 3:37:03 PM	CCV
33	CCB-3,CCB,1	10/8/2019 3:52:51 PM	CCB
34	N037736-005D,SAMP,50	10/8/2019 4:08:39 PM	SAMP,0.2>10mL
35	N037736-005D,SAMP,500	10/8/2019 4:24:27 PM	SAMP,0.02>10mL
36	N037736-005DDUP,DUP,50	10/8/2019 4:40:15 PM	DUP,0.2>10mL
37	N037736-005DDUP,DUP,500	10/8/2019 4:56:02 PM	DUP,0.02>10mL
38	N037736-001D,SAMP,50	10/8/2019 5:11:50 PM	SAMP,0.2>10mL
39	N037736-001D,SAMP,500	10/8/2019 5:27:38 PM	SAMP,0.02>10mL
40	N037736-002D,SAMP,50	10/8/2019 5:43:27 PM	SAMP,0.2>10mL
41	N037736-002D,SAMP,500	10/8/2019 5:59:15 PM	SAMP,0.02>10mL



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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 96
Created: 10/8/2019 8:37:37 AM by IC-05
Last Update: 10/8/2019 6:04:03 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N037736-003D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
43	N037736-003D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
44	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
45	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
46	N037736-006D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
47	N037736-006D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
48	N037736-007D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
49	N037736-007D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
50	N037771-001A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
51	N037771-002A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
52	N037771-003A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
53	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
54	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
55	N037758-003D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
56	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
57	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
58	N037758-003DMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
59	N037758-003DMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
60	N037758-003D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
61	N037758-003DMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
62	N037758-003DMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
63	N037758-009D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
64	N037758-009DMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
65	N037758-009D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
66	N037758-009DMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
67	N037758-005D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
68	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
69	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
70	N037758-005D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
71	N037758-005DDUP,DUP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
72	N037758-005DDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
73	N037758-001D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
74	N037758-002D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
75	N037758-004C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
76	N037758-006D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
77	N037758-007C,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
78	N037758-008D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
79	N037758-010D,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
80	CCV-7,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
81	CCB-7,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
82	N037758-011C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished



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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 96
Created: 10/8/2019 8:37:37 AM by IC-05
Last Update: 10/8/2019 6:04:03 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N037736-003D,SAMP,50	10/8/2019 6:15:02 PM	SAMP,0.2>10mL
43	N037736-003D,SAMP,500	10/8/2019 6:30:50 PM	SAMP,0.02>10mL
44	CCV-4,CCV,1	10/8/2019 6:46:38 PM	CCV
45	CCB-4,CCB,1	10/8/2019 7:02:26 PM	CCB
46	N037736-006D,SAMP,50	10/8/2019 7:18:14 PM	SAMP,0.2>10mL
47	N037736-006D,SAMP,500	10/8/2019 7:34:01 PM	SAMP,0.02>10mL
48	N037736-007D,SAMP,50	10/8/2019 7:49:50 PM	SAMP,0.2>10mL
49	N037736-007D,SAMP,500	10/8/2019 8:05:38 PM	SAMP,0.02>10mL
50	N037771-001A,SAMP,2000	10/8/2019 8:21:26 PM	SAMP,0.005>10mL
51	N037771-002A,SAMP,2000	10/8/2019 8:37:14 PM	SAMP,0.005>10mL
52	N037771-003A,SAMP,500	10/8/2019 8:53:01 PM	SAMP,0.02>10mL
53	LCS-2,LCS,1	10/8/2019 9:08:49 PM	LCS
54	MB-2,MBLK,1	10/8/2019 9:24:38 PM	METHOD BLANK
55	N037758-003D,SAMP,500	10/8/2019 9:40:25 PM	SAMP,0.02>10mL
56	CCV-5,CCV,1	10/8/2019 9:56:13 PM	CCV
57	CCB-5,CCB,1	10/8/2019 10:12:01 PM	CCB
58	N037758-003DMS,MS,500	10/8/2019 10:27:49 PM	MS,0.02>10mL
59	N037758-003DMSD,MSD,500	10/8/2019 10:43:37 PM	MSD,0.02>10mL
60	N037758-003D,SAMP,50	10/8/2019 10:59:25 PM	SAMP,0.2>10mL
61	N037758-003DMS,MS,50	10/8/2019 11:15:13 PM	MS,0.2>10mL
62	N037758-003DMSD,MSD,50	10/8/2019 11:31:00 PM	MSD,0.2>10mL
63	N037758-009D,SAMP,500	10/8/2019 11:46:48 PM	SAMP,0.02>10mL
64	N037758-009DMS,MS,500	10/9/2019 12:02:36 AM	MS,0.02>10mL
65	N037758-009D,SAMP,50	10/9/2019 12:18:24 AM	SAMP,0.2>10mL
66	N037758-009DMS,MS,50	10/9/2019 12:34:12 AM	MS,0.2>10mL
67	N037758-005D,SAMP,500	10/9/2019 12:50:00 AM	SAMP,0.02>10mL
68	CCV-6,CCV,1	10/9/2019 1:05:48 AM	CCV
69	CCB-6,CCB,1	10/9/2019 1:21:36 AM	CCB
70	N037758-005D,SAMP,50	10/9/2019 1:37:24 AM	SAMP,0.2>10mL
71	N037758-005DDUP,DUP,500	10/9/2019 1:53:12 AM	DUP,0.02>10mL
72	N037758-005DDUP,DUP,50	10/9/2019 2:09:00 AM	DUP,0.2>10mL
73	N037758-001D,SAMP,500	10/9/2019 2:24:48 AM	SAMP,0.02>10mL
74	N037758-002D,SAMP,500	10/9/2019 2:40:36 AM	SAMP,0.02>10mL
75	N037758-004C,SAMP,500	10/9/2019 2:56:24 AM	SAMP,0.02>10mL
76	N037758-006D,SAMP,500	10/9/2019 3:12:12 AM	SAMP,0.02>10mL
77	N037758-007C,SAMP,200	10/9/2019 3:27:59 AM	SAMP,0.02>10mL
78	N037758-008D,SAMP,500	10/9/2019 3:43:47 AM	SAMP,0.02>10mL
79	N037758-010D,SAMP,500	10/9/2019 3:59:35 AM	SAMP,0.02>10mL
80	CCV-7,CCV,1	10/9/2019 4:15:23 AM	CCV
81	CCB-7,CCB,1	10/9/2019 4:31:10 AM	CCB
82	N037758-011C,SAMP,500	10/9/2019 4:46:58 AM	SAMP,0.02>10mL



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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 96
Created: 10/8/2019 8:37:37 AM by IC-05
Last Update: 10/8/2019 6:04:03 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
83	N037756-001C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
84	N037758-001D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
85	N037758-002D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
86	N037758-004C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
87	N037758-006D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
88	N037756-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
89	N037758-008D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
90	N037758-010D,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
91	N037758-011C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
92	CCV-8,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
93	CCB-8,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
94	N037758-007C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
95	CCV-9,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished
96	CCB-9,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191001	Finished



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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 96
Created: 10/8/2019 8:37:37 AM by IC-05
Last Update: 10/8/2019 6:04:03 PM by IC-05

No.	Name	Inj. Date/Time	Comment
83	N037756-001C,SAMP,500	10/9/2019 5:02:46 AM	SAMP,0.02>10mL
84	N037758-001D,SAMP,50	10/9/2019 5:18:34 AM	SAMP,0.2>10mL
85	N037758-002D,SAMP,50	10/9/2019 5:34:22 AM	SAMP,0.2>10mL
86	N037758-004C,SAMP,50	10/9/2019 5:50:10 AM	SAMP,0.2>10mL
87	N037758-006D,SAMP,50	10/9/2019 6:05:58 AM	SAMP,0.2>10mL
88	N037756-001C,SAMP,50	10/9/2019 6:21:46 AM	SAMP,0.2>10mL
89	N037758-008D,SAMP,50	10/9/2019 6:37:34 AM	SAMP,0.2>10mL
90	N037758-010D,SAMP,50	10/9/2019 6:53:22 AM	SAMP,0.2>10mL
91	N037758-011C,SAMP,50	10/9/2019 7:09:09 AM	SAMP,0.2>10mL
92	CCV-8,CCV,1	10/9/2019 7:24:57 AM	CCV
93	CCB-8,CCB,1	10/9/2019 7:40:45 AM	CCB
94	N037758-007C,SAMP,10	10/9/2019 7:56:33 AM	SAMP,1>10mL
95	CCV-9,CCV,1	10/9/2019 8:12:21 AM	CCV
96	CCB-9,CCB,1	10/9/2019 8:28:09 AM	CCB

10/9/2019

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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/1/2019

Initial Calibration:

Bromide	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.05	0.25	0.5	1.25	2.5	R^2
Area,mAU*min	0.0000	0.0024	0.0162	0.0332	0.0813	0.1662	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914D

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/1/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0762	0.1545	0.3115	0.8013	1.6873	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/1/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0560	0.2347	0.4691	1.1936	2.4902	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **ICV**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3530536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.240	0.50	1.250	0	99.2	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **CCV**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/7/2019**	SeqNo: **3530538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.232	0.50	1.250	0	98.5	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **CCV**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/7/2019**	SeqNo: **3530542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.267	0.50	1.250	0	101	90	110				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **CCV**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.251	0.50	1.250	0	100	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **136817**
Client ID: **CCV**	Batch ID: **R136817**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3530553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.257	0.50	1.250	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **ICV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3531670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.002	0.50	2.000	0	100	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.996	0.50	2.000	0	99.8	90	110				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.996	0.50	2.000	0	99.8	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.001	0.50	2.000	0	100	90	110				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.010	0.50	2.000	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCV-8**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.017	0.50	2.000	0	101	90	110				

Sample ID **CCV-9**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.995	0.50	2.000	0	99.8	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **ICV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3531733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.039	0.50	4.000	0	101	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.029	0.50	4.000	0	101	90	110				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.024	0.50	4.000	0	101	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.998	0.50	4.000	0	99.9	90	110				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.018	0.50	4.000	0	100	90	110				

Qualifiers:

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

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCV-8**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.020	0.50	4.000	0	100	90	110				

Sample ID **CCV-9**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCV**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.020	0.50	4.000	0	101	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	**ICB**	SampType:	**ICB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**136817**
Client ID:	**ICB**	Batch ID:	**R136817**	TestNo:	**EPA 300.0**			Analysis Date:	**10/1/2019**	SeqNo:	**3530537**

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

Sample ID	**CCB-3**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**136817**
Client ID:	**CCB**	Batch ID:	**R136817**	TestNo:	**EPA 300.0**			Analysis Date:	**10/7/2019**	SeqNo:	**3530539**

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

Sample ID	**CCB-4**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**136817**
Client ID:	**CCB**	Batch ID:	**R136817**	TestNo:	**EPA 300.0**			Analysis Date:	**10/7/2019**	SeqNo:	**3530543**

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

Sample ID	**CCB-5**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**136817**
Client ID:	**CCB**	Batch ID:	**R136817**	TestNo:	**EPA 300.0**			Analysis Date:	**10/8/2019**	SeqNo:	**3530548**

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

Sample ID	**CCB-6**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**136817**
Client ID:	**CCB**	Batch ID:	**R136817**	TestNo:	**EPA 300.0**			Analysis Date:	**10/8/2019**	SeqNo:	**3530554**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **ICB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3531671**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.134	0.50									

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531678**

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

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531685**

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

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531696**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCB-8**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531700**

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

Sample ID **CCB-9**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531702**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.140	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **ICB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/1/2019**	SeqNo: **3531734**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531736**

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

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/8/2019**	SeqNo: **3531740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.203	0.50									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531747**

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

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.207	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCB-8**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531761**

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

Sample ID **CCB-9**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136840**
Client ID: **CCB**	Batch ID: **R136840**	TestNo: **EPA 300.0**		Analysis Date: **10/9/2019**	SeqNo: **3531764**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/7/2019

Sample Name		Retention Time	Evaluation
ICV	Bromide	6.710	
CCV-3	Bromide	6.677	
CCV-4	Bromide	6.697	
CCV-5	Bromide	6.713	
CCV-6	Bromide	6.707	
	Average	6.699	
	Applied RT Window	6.499 - 6.899	
LCS-R136817_BR	Bromide	6.677	PASS
MB-R136817_BR	Bromide	N.A.	N.A.
N037756-001C	Bromide	6.710	PASS
N037756-001CDUP	Bromide	6.713	PASS
N037756-001CMS	Bromide	6.717	PASS
N037756-001CMSD	Bromide	6.717	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.583	
CCV-4	Chloride	4.577	
CCV-5	Chloride	4.597	
CCV-6	Chloride	4.597	
CCV-7	Chloride	4.587	
CCV-8	Chloride	4.577	
CCV-9	Chloride	4.574	
	Average	4.585	
	Applied RT Window	4.385 - 4.785	
LCS-R136840_CL	Chloride	4.597	PASS
MB-R136840_CL	Chloride	N.A.	N.A.
N037758-003DMS	Chloride	4.604	PASS
N037758-003DMSD	Chloride	4.604	PASS
N037758-009DMS	Chloride	4.600	PASS
N037758-005DDUP	Chloride	4.597	PASS
N037756-001C	Chloride	4.583	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	11.583	
CCV-4	Sulfate	11.423	
CCV-5	Sulfate	11.400	
CCV-6	Sulfate	11.390	
CCV-7	Sulfate	11.394	
CCV-8	Sulfate	11.400	
CCV-9	Sulfate	11.407	
	Average	11.402	
	Applied RT Window	11.202 - 11.602	
LCS-R136840_SO4	Sulfate	11.407	PASS
MB-R136840_SO4	Sulfate	N.A.	N.A.
N037758-003DMS	Sulfate	11.397	PASS
N037758-003DMSD	Sulfate	11.397	PASS
N037758-009DMS	Sulfate	11.397	PASS
N037758-005DDUP	Sulfate	11.397	PASS
N037756-001C	Sulfate	11.403	PASS

MDL STUDY

METHOD DETECTION LIMIT 2019

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 1/7/2019 ; 1/9/2019 ; 5/6/2019
Analyst/Technician: Ria Abes / Hanah Glodoviza

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

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	190107A D51	190107A D52	190107A D53	190109A D79	190109A D80	190506A D16	190506A D17					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.034	0.039	0.039	0.038	0.038	0.043	0.043	0.020	0.0031	**0.0096**	0.020	0.10
Chloride	0.201	0.201	0.200	0.200	0.202	0.178	0.179	0.050	0.0111	**0.0348**	0.080	0.50
Nitrite	0.033	0.032	0.032	0.035	0.035	0.031	0.031	0.020	0.0016	**0.0050**	0.010	0.05
Bromide	0.040	0.043	0.044	0.043	0.043	0.025	0.022	0.040	0.0095	**0.0300**	0.060	0.50
Nitrate	0.037	0.035	0.035	0.037	0.042	0.040	0.040	0.020	0.0028	**0.0087**	0.020	0.05
Phosphate	0.067	0.069	0.061	0.066	0.069	0.080	0.097	0.040	0.0120	**0.0378**	0.080	0.10
Sulfate	0.294	0.291	0.289	0.325	0.305	0.309	0.306	0.100	0.0127	**0.0399**	0.080	0.50

Note: All 7 Method Blanks analyzed together with the MDL samples have 0 ug/L concentrations

MDL/LOD & PQL Verification 2019 (1st Quarter)

Method Name: **Inorganic Anions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/8/2019
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD actual Conc., mg/L	PQL Spike Conc., mg/L	PQL actual Conc., mg/L	%Recovery
Fluoride	**0.0096**	0.02	0.038	0.100	0.114	**114**
Chloride	**0.0348**	0.08	0.207	0.500	0.550	**110**
Nitrite	**0.0050**	0.01	0.023	0.050	0.057	**114**
Bromide	**0.0300**	0.06	0.048	0.500	0.503	**101**
Nitrate	**0.0087**	0.02	0.032	0.050	0.064	**129**
Phosphate	**0.0378**	0.08	0.139	0.100	0.141	**141**
Sulfate	**0.0399**	0.08	0.291	0.500	0.661	**132**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75562
ASSET #: N037756

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/11/2019

Method:

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

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

Comments:

RSD of Se in N037756-001B failed. For rerun.
% Rec of Cr in N037709-001B-MS/MSD failed, low bias. However, LCS passed criteria.

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

1st Level Reviewer CEI Date: 10/14/2019

2nd Level Reviewer NS 10/14/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75562
ASSET #: N037756

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/14/2019

Method:

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

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

Comments:

Se rerun

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

1st Level Reviewer CEI Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

Selenium , ug/L = A * DF * PF

where:

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

For Sample **N037756-001B** , the concentration in ug/L is calculated as follows:

Selenium , ug/L = 2.31741 * 1 *(25 / 25)

Selenium , ug/L = 2.31741

Reporting results in two significant figures,

Selenium , ug/L = 2.3

% RSD SUMMARY

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.13	23.117	15	<PQL	0.09	7.669	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.52	9.218	15	PASS	0.49	1.061	15	PASS
Std3-5/50 ppb	ICAL	1	5.2	2.485	15	PASS	5.03	1.222	15	PASS
Std4-10/100 ppb	ICAL	1	10.25	0.359	15	PASS	10.19	1.46	15	PASS
Std5-20/200 ppb	ICAL	1	20.37	0.233	15	PASS	20.09	1.165	15	PASS
Std6-40/400 ppb	ICAL	1	40.82	2.072	15	PASS	40.69	1.647	15	PASS
Std7-100/1000 ppb	ICAL	1	100.69	1.721	15	PASS	101.19	3.379	15	PASS
Std8-200/2000 ppb	ICAL	1	199.43	0.801	15	PASS	199.25	1.473	15	PASS
ICV	ICV	1	10.95	1.692	15	PASS	108.44	1.339	15	PASS
ICB	ICB	1	0.05	63.72	15	<PQL	0.02	44.514	15	<PQL
LLICV	CCV1	1	1.1	1.708	20	PASS	0.56	5.534	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.29	2.125	15	PASS	19.47	0.669	15	PASS
LLICV	CCV1	1	1.07	0.881	20	PASS	0.59	9.735	20	PASS
CCV1	CCV	1	19.61	2.371	15	PASS	20.5	1.258	15	PASS
CCB1	CCB	1	0.01	147.204	15	<PQL	0.02	42.411	15	<PQL
CCV2	CCV	1	20.09	1.986	15	PASS	19.97	0.462	15	PASS
CCB2	CCB	1	0.03	31.999	15	<PQL	0.01	140.116	15	<PQL
CCV3	CCV	1	19.74	0.808	15	PASS	20.52	1.684	15	PASS
CCB3	CCB	1	0.03	68.356	15	<PQL	0.02	25.756	15	<PQL
CCV4	CCV	1	19.91	0.868	15	PASS	20.35	1.83	15	PASS
CCB4	CCB	1	0.02	90.1	15	<PQL	0.01	76.13	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.67	1.592	15	PASS	19.32	1.411	15	PASS
MB-75562	MBLK	1	0.02	109.222	15	<PQL	0.02	110.511	15	<PQL
LCS-75562	LCS	1	10.66	0.829	15	PASS	107.82	1.337	15	PASS
N037709-001B	SAMP	1	147.48	2.76	15	PASS	<0.000	N/A	15	<PQL
N037709-001B	SAMP	5	29.92	1.539	15	PASS	<0.000	N/A	15	<PQL
N037709-001B	SAMP	25	6.1	0.317	15	PASS	<0.000	N/A	15	<PQL
N037709-001B-PS	PS	1	157.19	0.425	15	PASS	83.53	0.392	15	PASS
N037709-001B-PS	PS	5	33.1	1.168	15	PASS	17.76	0.239	15	PASS
N037709-001B-MS	MS	1	152.51	0.67	15	PASS	83.95	0.707	15	PASS
N037709-001B-MS	MS	5	31.54	0.713	15	PASS	17.56	2.05	15	PASS
N037709-001B-MSD	MSD	1	153.87	1.348	15	PASS	84.42	1.404	15	PASS
CCV5	CCV	1	20.29	1.97	15	PASS	20.28	0.802	15	PASS
CCB5	CCB	1	0.03	43.514	15	<PQL	0.01	255.282	15	<PQL
N037709-001B-MSD	MSD	5	32.15	1.028	15	PASS	17.36	1.873	15	PASS
N037709-002B	SAMP	1	111.24	0.369	15	PASS	<0.000	N/A	15	<PQL
N037709-002B	SAMP	5	22.86	0.971	15	PASS	<0.000	N/A	15	<PQL
N037709-003B	SAMP	1	47.38	0.471	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	9.87	1.693	15	PASS	<0.000	N/A	15	<PQL
N037723-001B	SAMP	1	6.3	1.819	15	PASS	<0.000	N/A	15	<PQL
N037723-001B	SAMP	5	1.31	2.488	15	PASS	<0.000	N/A	15	<PQL
N037723-002B	SAMP	1	6.11	2.497	15	PASS	<0.000	N/A	15	<PQL
N037723-002B	SAMP	5	1.29	3.466	15	PASS	<0.000	N/A	15	<PQL
N037723-003B	SAMP	1	0.25	19.212	15	<PQL	64.02	3.693	15	PASS
CCV6	CCV	1	20.15	1.14	15	PASS	20.3	0.587	15	PASS
CCB6	CCB	1	0.04	37.369	15	<PQL	0.01	66.639	15	<PQL
N037723-003B	SAMP	5	0.09	11.846	15	PASS	12.98	0.671	15	PASS
N037723-004B	SAMP	1	585.69	1.066	15	PASS	<0.000	N/A	15	<PQL
N037723-004B	SAMP	5	105.67	0.797	15	PASS	<0.000	N/A	15	<PQL
N037735-001B	SAMP	1	<0.000	N/A	15	<PQL	488.26	0.464	15	PASS
N037735-001B	SAMP	5	0.05	36.503	15	<PQL	101.73	0.465	15	PASS
N037756-001B	SAMP	1	109.77	0.315	15	PASS	<0.000	N/A	15	<PQL
N037756-001B	SAMP	5	22.72	0.662	15	PASS	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.53	1.45	15	PASS	20.35	3.22	15	PASS
CCB7	CCB	1	0.07	21.896	15	<PQL	0.1	37.504	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.92	0.457	15	PASS	19.22	0.456	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0	N/A	15	<PQL	0.09	37.211	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.35	50.99	15	<PQL	0.53	0.662	15	PASS
Std3-5/50 ppb	ICAL	1	4.98	15.431	15	NR!	4.84	2.476	15	PASS
Std4-10/100 ppb	ICAL	1	9.4	7.219	15	PASS	9.86	2.463	15	PASS
Std5-20/200 ppb	ICAL	1	20.94	5.992	15	PASS	19.84	1.787	15	PASS
Std6-40/400 ppb	ICAL	1	41.36	8.487	15	PASS	39.86	1.266	15	PASS
Std7-100/1000 ppb	ICAL	1	98.83	2.462	15	PASS	99.73	1.302	15	PASS
Std8-200/2000 ppb	ICAL	1	200.25	1.349	15	PASS	200.19	0.382	15	PASS
ICV	ICV	1	9.07	4.617	15	PASS	10.42	1.091	15	PASS
ICB	ICB	1	0	N/A	15	<PQL	0.1	7.117	15	PASS
LLICV	CCV1	1	0.66	26.38	20	NR!	0.54	4.565	20	PASS
ICSA1	ICSA	1	0.11	123.282	15	<PQL	0.05	33.66	15	<PQL
ICSAB1	ICSAB	1	19.93	14.599	15	PASS	22.49	0.623	15	PASS
LLICV	CCV1	1	0.63	43.039	20	NR!	0.67	5.167	20	PASS
CCV1	CCV	1	18.51	6.498	15	PASS	20.41	1.369	15	PASS
CCB1	CCB	1	0.02	173.205	15	<PQL	0.21	15.253	15	<PQL
CCV2	CCV	1	19.13	8.913	15	PASS	19.93	1.767	15	PASS
CCB2	CCB	1	0.09	173.205	15	<PQL	0.13	8.186	15	PASS
CCV3	CCV	1	21.07	2.238	15	PASS	20.1	0.705	15	PASS
CCB3	CCB	1	0.11	124.388	15	<PQL	0.13	10.405	15	PASS
CCV4	CCV	1	20.54	1.181	15	PASS	20.41	0.803	15	PASS
CCB4	CCB	1	0.07	173.205	15	<PQL	0.18	16.908	15	<PQL
ICSA2	ICSA	1	0.05	173.205	15	<PQL	0.09	17.449	15	<PQL
ICSAB2	ICSAB	1	21.65	10.646	15	PASS	22.43	1.022	15	PASS
MB-75562	MBLK	1	0.06	173.205	15	<PQL	0.18	32.952	15	<PQL
LCS-75562	LCS	1	10.36	11.924	15	PASS	10.52	2.311	15	PASS
N037709-001B	SAMP	1	6.31	9.225	15	PASS	4.82	3.866	15	PASS
N037709-001B	SAMP	5	1.13	33.392	15	NR!	0.96	6.914	15	PASS
N037709-001B	SAMP	25	0.45	65.129	15	<PQL	0.18	13.463	15	PASS
N037709-001B-PS	PS	1	17.2	11.524	15	PASS	15.89	0.718	15	PASS
N037709-001B-PS	PS	5	4.07	20.255	15	NR!	3.2	0.804	15	PASS
N037709-001B-MS	MS	1	18.64	9.945	15	PASS	15.74	0.725	15	PASS
N037709-001B-MS	MS	5	3.33	11.753	15	PASS	3.17	4.543	15	PASS
N037709-001B-MSD	MSD	1	17.91	6.604	15	PASS	15.73	1.325	15	PASS
CCV5	CCV	1	20.61	3.415	15	PASS	20.11	1.184	15	PASS
CCB5	CCB	1	0.07	173.205	15	<PQL	0.19	21.835	15	<PQL
N037709-001B-MSD	MSD	5	3.26	35.543	15	NR!	3.11	2.021	15	PASS
N037709-002B	SAMP	1	7.29	11.729	15	PASS	18.18	0.88	15	PASS
N037709-002B	SAMP	5	1.34	32.421	15	NR!	3.67	1.86	15	PASS
N037709-003B	SAMP	1	5.68	13.023	15	PASS	5.29	2.621	15	PASS

PERCENT RSD SUMMARY: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037709-003B	SAMP	5	0.5	12.561	15	PASS	1.04	1.368	15	PASS
N037723-001B	SAMP	1	0.23	42.143	15	<PQL	88.7	0.636	15	PASS
N037723-001B	SAMP	5	0.05	86.64	15	<PQL	18.03	1.437	15	PASS
N037723-002B	SAMP	1	0.82	34.684	15	NR!	190.44	0.847	15	PASS
N037723-002B	SAMP	5	0.17	79.082	15	<PQL	38.11	2.007	15	PASS
N037723-003B	SAMP	1	0.24	123.345	15	<PQL	59.88	0.834	15	PASS
CCV6	CCV	1	19.09	6.891	15	PASS	20.36	0.34	15	PASS
CCB6	CCB	1	0.02	173.205	15	<PQL	0.25	12.337	15	PASS
N037723-003B	SAMP	5	0.07	173.205	15	<PQL	11.7	1.569	15	PASS
N037723-004B	SAMP	1	4.03	11.442	15	PASS	13.9	1.224	15	PASS
N037723-004B	SAMP	5	0.97	35.45	15	NR!	2.9	1.043	15	PASS
N037735-001B	SAMP	1	0.18	89.268	15	<PQL	13.08	2.222	15	PASS
N037735-001B	SAMP	5	0.1	173.205	15	<PQL	2.79	6.932	15	PASS
N037756-001B	SAMP	1	1.83	19.789	15	NR!	11.29	4.856	15	PASS
N037756-001B	SAMP	5	0.41	56.18	15	<PQL	2.32	3.131	15	PASS
CCV7	CCV	1	20.25	3.231	15	PASS	20.31	1.488	15	PASS
CCB7	CCB	1	0.05	173.205	15	<PQL	0.16	6.193	15	PASS
ICSA3	ICSA	1	0.08	100.155	15	<PQL	0.06	30.515	15	<PQL
ICSAB3	ICSAB	1	20.06	7.089	15	PASS	22.48	0.483	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.13	83.678	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.57	9.679	15	PASS
Std3-5/50 ppb	ICAL	1	4.53	13.876	15	PASS
Std4-10/100 ppb	ICAL	1	9.18	6.15	15	PASS
Std5-20/200 ppb	ICAL	1	20.58	1.035	15	PASS
Std6-40/400 ppb	ICAL	1	40.23	3.778	15	PASS
Std7-100/1000 ppb	ICAL	1	100.07	2.928	15	PASS
Std8-200/2000 ppb	ICAL	1	199.92	3.297	15	PASS
ICV	ICV	1	10.75	4	15	PASS
ICB	ICB	1	0.09	86.586	15	<PQL
LLICV	CCV1	1	0.5	4.64	20	PASS
ICSA1	ICSA	1	0	1761.856	15	<PQL
ICSAB1	ICSAB	1	20.99	12.989	15	PASS
LLICV	CCV1	1	0.47	56.07	20	<PQL
MB-75562	MBLK	1	<0.000	N/A	15	<PQL
LCS-75562	LCS	1	9.24	5.38	15	PASS
CCV1	CCV	1	19.95	5.339	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL
N037709-001B	SAMP	1	5.8	11.169	15	PASS
N037709-001B	SAMP	5	1.45	34.126	15	NR!
N037709-001B-PS	PS	1	14.51	2.816	15	PASS
N037709-001B-MS	MS	1	16.38	5.93	15	PASS
N037709-001B-MSD	MSD	1	14.88	10.613	15	PASS
N037709-002B	SAMP	1	6.3	4.605	15	PASS
N037709-003B	SAMP	1	4.67	6.496	15	PASS
N037723-001B	SAMP	1	0.03	162.943	15	<PQL
N037723-002B	SAMP	1	0.59	20.937	15	NR!
N037723-003B	SAMP	1	0.08	92.737	15	<PQL
CCV2	CCV	1	18.69	5.775	15	PASS
CCB2	CCB	1	0.04	228.247	15	<PQL
MB-75562	MBLK	1	<0.000	N/A	15	<PQL
N037723-004B	SAMP	1	4.16	4.989	15	PASS
N037756-001B	SAMP	1	1.93	26.531	15	NR!
N037723-002B	SAMP	1	0.8	22.383	15	NR!
N037756-001B	SAMP	1	2.32	4.505	15	PASS
CCV3	CCV	1	20.33	1.894	15	PASS
CCB3	CCB	1	0.07	95.604	15	<PQL
N037723-002B	SAMP	1	0.6	62.84	15	NR!
N037723-002B	SAMP	1	0.61	18.768	15	NR!
N037723-002B	SAMP	1	0.56	20.1	15	NR!

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
N037723-002B	SAMP	1	0.45	17.788	15	<PQL
N037723-002B	SAMP	1	0.41	35.208	15	<PQL
CCV4	CCV	1	18.81	6.142	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.41	1.945	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011001.D	RINSE	RINSE	1	10/11/19 4:22 PM
B1011002.D	Cal Blank	IBLK	1	10/11/19 4:26 PM
B1011003.D	Std1-0.1/1 ppb	ICAL	1	10/11/19 4:31 PM
B1011004.D	Std2-0.5/5 ppb	ICAL	1	10/11/19 4:36 PM
B1011005.D	Std3-5/50 ppb	ICAL	1	10/11/19 4:41 PM
B1011006.D	Std4-10/100 ppb	ICAL	1	10/11/19 4:46 PM
B1011007.D	Std5-20/200 ppb	ICAL	1	10/11/19 4:51 PM
B1011008.D	Std6-40/400 ppb	ICAL	1	10/11/19 4:55 PM
B1011009.D	Std7-100/1000 ppb	ICAL	1	10/11/19 5:00 PM
B1011010.D	Std8-200/2000 ppb	ICAL	1	10/11/19 5:05 PM
B1011011.D	ICV	ICV	1	10/11/19 5:11 PM
B1011012.D	ICB	ICB	1	10/11/19 5:16 PM
B1011013.D	LLICV	CCV1	1	10/11/19 5:20 PM
B1011014.D	ICSA1	ICSA	1	10/11/19 5:25 PM
B1011015.D	ICSAB1	ICSAB	1	10/11/19 5:30 PM
B1011016.D	LLICV	CCV1	1	10/11/19 5:35 PM
B1011017.D	MB-75625	MBLK	1	10/11/19 5:39 PM
B1011018.D	LCS-75625	LCS	1	10/11/19 5:44 PM
B1011019.D	N037828-001A	SAMP	1	10/11/19 5:48 PM
B1011020.D	N037828-001A	SAMP	5	10/11/19 5:54 PM
B1011021.D	N037828-001A	SAMP	25	10/11/19 5:59 PM
B1011022.D	N037828-001A-PS	PS	1	10/11/19 6:04 PM
B1011023.D	N037828-001A-PS	PS	5	10/11/19 6:09 PM
B1011024.D	N037828-001A-MS	MS	1	10/11/19 6:14 PM
B1011025.D	N037828-001A-MS	MS	5	10/11/19 6:19 PM
B1011026.D	N037828-001A-MSD	MSD	1	10/11/19 6:25 PM
B1011027.D	CCV1	CCV	1	10/11/19 6:30 PM
B1011028.D	CCB1	CCB	1	10/11/19 6:34 PM
B1011029.D	N037828-001A-MSD	MSD	5	10/11/19 6:39 PM
B1011030.D	N037828-002A	SAMP	1	10/11/19 6:44 PM
B1011031.D	N037828-002A	SAMP	5	10/11/19 6:49 PM
B1011032.D	MB-75605	MBLK	1	10/11/19 6:54 PM
B1011033.D	LCS-75605	LCS	1	10/11/19 6:58 PM
B1011034.D	N037801-001B	SAMP	1	10/11/19 7:03 PM
B1011035.D	N037801-002B	SAMP	1	10/11/19 7:08 PM
B1011036.D	N037801-003B	SAMP	1	10/11/19 7:12 PM
B1011037.D	N037801-004B	SAMP	1	10/11/19 7:17 PM
B1011038.D	N037801-004B	SAMP	5	10/11/19 7:22 PM
B1011039.D	CCV2	CCV	1	10/11/19 7:27 PM
B1011040.D	CCB2	CCB	1	10/11/19 7:32 PM
B1011041.D	N037801-004B-PS	PS	1	10/11/19 7:36 PM
B1011042.D	N037801-004B-MS	MS	1	10/11/19 7:41 PM

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011043.D	N037801-004B-MSD	MSD	1	10/11/19 7:46 PM
B1011044.D	N037801-005B	SAMP	1	10/11/19 7:50 PM
B1011045.D	N037801-006B	SAMP	1	10/11/19 7:55 PM
B1011046.D	N037801-007B	SAMP	1	10/11/19 8:01 PM
B1011047.D	N037813-001B	SAMP	1	10/11/19 8:06 PM
B1011048.D	N037813-002B	SAMP	1	10/11/19 8:11 PM
B1011049.D	N037813-003B	SAMP	1	10/11/19 8:16 PM
B1011050.D	N037813-004B	SAMP	1	10/11/19 8:21 PM
B1011051.D	CCV3	CCV	1	10/11/19 8:26 PM
B1011052.D	CCB3	CCB	1	10/11/19 8:31 PM
B1011053.D	N037813-005B	SAMP	1	10/11/19 8:36 PM
B1011054.D	N037813-006B	SAMP	1	10/11/19 8:41 PM
B1011055.D	N037813-007B	SAMP	1	10/11/19 8:46 PM
B1011056.D	N037813-008B	SAMP	1	10/11/19 8:50 PM
B1011057.D	N037813-009B	SAMP	1	10/11/19 8:56 PM
B1011058.D	N037813-009B	SAMP	5	10/11/19 9:01 PM
B1011059.D	N037813-009B-PS	PS	1	10/11/19 9:06 PM
B1011060.D	N037813-009B-MS	MS	1	10/11/19 9:11 PM
B1011061.D	N037813-009B-MSD	MSD	1	10/11/19 9:16 PM
B1011062.D	N037813-010B	SAMP	1	10/11/19 9:21 PM
B1011063.D	CCV4	CCV	1	10/11/19 9:26 PM
B1011064.D	CCB4	CCB	1	10/11/19 9:31 PM
B1011065.D	ICSA2	ICSA	1	10/11/19 9:35 PM
B1011066.D	ICSAB2	ICSAB	1	10/11/19 9:40 PM
B1011067.D	MB-75562	MBLK	1	10/11/19 9:45 PM
B1011068.D	LCS-75562	LCS	1	10/11/19 9:49 PM
B1011069.D	N037709-001B	SAMP	1	10/11/19 9:54 PM
B1011070.D	N037709-001B	SAMP	5	10/11/19 9:59 PM
B1011071.D	N037709-001B	SAMP	25	10/11/19 10:04 PM
B1011072.D	N037709-001B-PS	PS	1	10/11/19 10:09 PM
B1011073.D	N037709-001B-PS	PS	5	10/11/19 10:14 PM
B1011074.D	N037709-001B-MS	MS	1	10/11/19 10:19 PM
B1011075.D	N037709-001B-MS	MS	5	10/11/19 10:24 PM
B1011076.D	N037709-001B-MSD	MSD	1	10/11/19 10:29 PM
B1011077.D	CCV5	CCV	1	10/11/19 10:34 PM
B1011078.D	CCB5	CCB	1	10/11/19 10:39 PM
B1011079.D	N037709-001B-MSD	MSD	5	10/11/19 10:43 PM
B1011080.D	N037709-002B	SAMP	1	10/11/19 10:48 PM
B1011081.D	N037709-002B	SAMP	5	10/11/19 10:53 PM
B1011082.D	N037709-003B	SAMP	1	10/11/19 10:58 PM
B1011083.D	N037709-003B	SAMP	5	10/11/19 11:03 PM
B1011084.D	N037723-001B	SAMP	1	10/11/19 11:07 PM

INJECTION LOG: 191011B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1011085.D	N037723-001B	SAMP	5	10/11/19 11:12 PM
B1011086.D	N037723-002B	SAMP	1	10/11/19 11:17 PM
B1011087.D	N037723-002B	SAMP	5	10/11/19 11:22 PM
B1011088.D	N037723-003B	SAMP	1	10/11/19 11:28 PM
B1011089.D	CCV6	CCV	1	10/11/19 11:33 PM
B1011090.D	CCB6	CCB	1	10/11/19 11:37 PM
B1011091.D	N037723-003B	SAMP	5	10/11/19 11:42 PM
B1011092.D	N037723-004B	SAMP	1	10/11/19 11:47 PM
B1011093.D	N037723-004B	SAMP	5	10/11/19 11:52 PM
B1011094.D	N037735-001B	SAMP	1	10/11/19 11:57 PM
B1011095.D	N037735-001B	SAMP	5	10/12/19 12:02 AM
B1011096.D	N037756-001B	SAMP	1	10/12/19 12:07 AM
B1011097.D	N037756-001B	SAMP	5	10/12/19 12:12 AM
B1011098.D	CCV7	CCV	1	10/12/19 12:17 AM
B1011099.D	CCB7	CCB	1	10/12/19 12:22 AM
B1011100.D	ICSA3	ICSA	1	10/12/19 12:26 AM
B1011101.D	ICSAB3	ICSAB	1	10/12/19 12:31 AM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014001.D	RINSE	RINSE	1	10/14/19 12:32 PM
B1014002.D	Cal Blank	IBLK	1	10/14/19 12:37 PM
B1014003.D	Std1-0.1/1 ppb	ICAL	1	10/14/19 12:42 PM
B1014004.D	Std2-0.5/5 ppb	ICAL	1	10/14/19 12:49 PM
B1014005.D	Std3-5/50 ppb	ICAL	1	10/14/19 12:54 PM
B1014006.D	Std4-10/100 ppb	ICAL	1	10/14/19 12:59 PM
B1014007.D	Std5-20/200 ppb	ICAL	1	10/14/19 1:04 PM
B1014008.D	Std6-40/400 ppb	ICAL	1	10/14/19 1:09 PM
B1014009.D	Std7-100/1000 ppb	ICAL	1	10/14/19 1:14 PM
B1014010.D	Std8-200/2000 ppb	ICAL	1	10/14/19 1:20 PM
B1014011.D	ICV	ICV	1	10/14/19 1:25 PM
B1014012.D	ICB	ICB	1	10/14/19 1:29 PM
B1014013.D	LLICV	CCV1	1	10/14/19 1:34 PM
B1014014.D	ICSA1	ICSA	1	10/14/19 1:39 PM
B1014015.D	ICSAB1	ICSAB	1	10/14/19 1:44 PM
B1014016.D	LLICV	CCV1	1	10/14/19 1:59 PM
B1014017.D	MB-75625	MBLK	1	10/14/19 2:04 PM
B1014018.D	LCS-75625	LCS	1	10/14/19 2:08 PM
B1014019.D	N037828-001A	SAMP	1	10/14/19 2:13 PM
B1014020.D	N037828-001A	SAMP	5	10/14/19 2:18 PM
B1014021.D	N037828-001A-PS	PS	1	10/14/19 2:23 PM
B1014022.D	N037828-001A-MS	MS	1	10/14/19 2:28 PM
B1014023.D	N037828-001A-MSD	MSD	1	10/14/19 2:33 PM
B1014024.D	N037828-002A	SAMP	1	10/14/19 2:39 PM
B1014025.D	MB-75562	MBLK	1	10/14/19 2:44 PM
B1014026.D	LCS-75562	LCS	1	10/14/19 2:49 PM
B1014027.D	CCV1	CCV	1	10/14/19 2:54 PM
B1014028.D	CCB1	CCB	1	10/14/19 2:59 PM
B1014029.D	N037709-001B	SAMP	1	10/14/19 3:04 PM
B1014030.D	N037709-001B	SAMP	5	10/14/19 3:09 PM
B1014031.D	N037709-001B-PS	PS	1	10/14/19 3:14 PM
B1014032.D	N037709-001B-MS	MS	1	10/14/19 3:19 PM
B1014033.D	N037709-001B-MSD	MSD	1	10/14/19 3:24 PM
B1014034.D	N037709-002B	SAMP	1	10/14/19 3:29 PM
B1014035.D	N037709-003B	SAMP	1	10/14/19 3:34 PM
B1014036.D	N037723-001B	SAMP	1	10/14/19 3:39 PM
B1014037.D	N037723-002B	SAMP	1	10/14/19 3:45 PM
B1014038.D	N037723-003B	SAMP	1	10/14/19 3:50 PM
B1014039.D	CCV2	CCV	1	10/14/19 3:55 PM
B1014040.D	CCB2	CCB	1	10/14/19 4:00 PM
B1014041.D	MB-75562	MBLK	1	10/14/19 4:05 PM
B1014042.D	N037723-004B	SAMP	1	10/14/19 4:10 PM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014043.D	N037756-001B	SAMP	1	10/14/19 4:16 PM
B1014044.D	N037828-002A	SAMP	1	10/14/19 4:21 PM
B1014045.D	N037723-002B	SAMP	1	10/14/19 4:26 PM
B1014046.D	N037756-001B	SAMP	1	10/14/19 4:31 PM
B1014047.D	N037828-002A	SAMP	1	10/14/19 4:36 PM
B1014048.D	N037666-003B	SAMP	1	10/14/19 4:41 PM
B1014049.D	N037666-006B	SAMP	1	10/14/19 4:46 PM
B1014050.D	N037666-007B	SAMP	1	10/14/19 4:51 PM
B1014051.D	CCV3	CCV	1	10/14/19 4:57 PM
B1014052.D	CCB3	CCB	1	10/14/19 5:02 PM
B1014053.D	N037828-002A	SAMP	1	10/14/19 5:06 PM
B1014054.D	N037723-002B	SAMP	1	10/14/19 5:12 PM
B1014055.D	N037666-006B	SAMP	1	10/14/19 5:17 PM
B1014056.D	N037828-002A	SAMP	1	10/14/19 5:22 PM
B1014057.D	N037723-002B	SAMP	1	10/14/19 5:27 PM
B1014058.D	N037723-002B	SAMP	1	10/14/19 5:32 PM
B1014059.D	N037723-002B	SAMP	1	10/14/19 5:37 PM
B1014060.D	N037723-002B	SAMP	1	10/14/19 5:43 PM
B1014061.D	CCV4	CCV	1	10/14/19 5:48 PM
B1014062.D	CCB4	CCB	1	10/14/19 5:53 PM
B1014063.D	ICSA2	ICSA	1	10/14/19 5:58 PM
B1014064.D	ICSAB2	ICSAB	1	10/14/19 6:03 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/7/2019 8:31:50 A**
Prep End Date: **10/7/2019 12:45:00**
Prep Batch **75562** Prep Code: **3010_W_MSDI**

Reviewed/ Date: JRB 10/23/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.0**	**02-2**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75562	Aqueous		25	☐	25	1.000		
MB-75562	Aqueous		25	☐	25	1.000		
N037709-001B	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037709-002B	Groundwater	<2	25	☐	25	1.000		
N037709-003B	Groundwater	<2	25	☐	25	1.000		
N037723-001B	Groundwater	<2	25	☐	25	1.000		
N037723-002B	Groundwater	<2	25	☐	25	1.000		
N037723-003B	Groundwater	<2	25	☐	25	1.000		
N037723-004B	Groundwater	<2	25	☐	25	1.000		
N037735-001B	Groundwater	<2	25	☐	25	1.000		
N037756-001B	Groundwater	<2	25	☐	25	1.000		

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

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2019 02:38:43 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	96050.50	0.00	
24 Mg	212058.00	0.00	
25 Mg	27559.70	0.00	
26 Mg	32141.80	0.00	
59 Co	186908.00	0.00	
115 In	253394.00	0.00	
206 Pb	84354.30	0.00	
207 Pb	74840.20	0.00	
208 Pb	182447.00	0.00	

RSD (%)

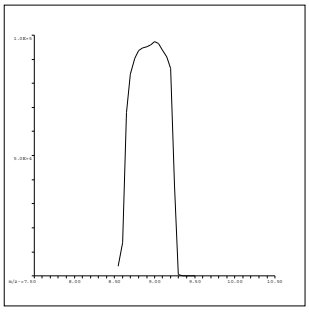
Element	Actual	Required	Flag
9 Be	0.84	5.00	
24 Mg	0.54	5.00	
25 Mg	1.61	5.00	
26 Mg	1.77	5.00	
59 Co	1.27	5.00	
115 In	0.69	5.00	
206 Pb	0.89	5.00	
207 Pb	0.47	5.00	
208 Pb	0.82	5.00	

Ion Ratio

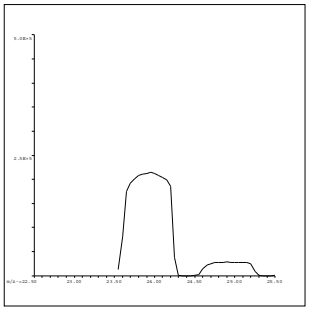
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

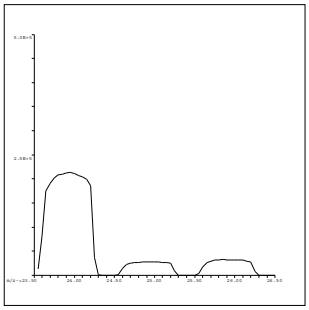
Element	Actual	Required	Flag



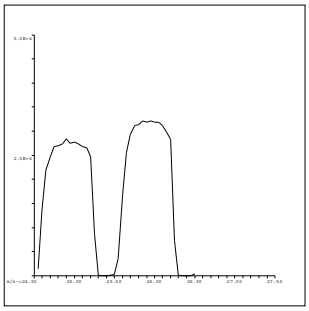
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



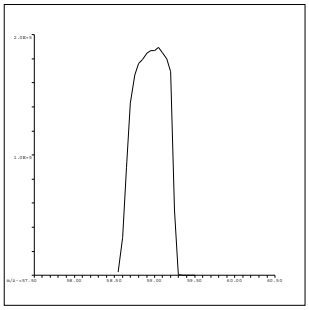
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



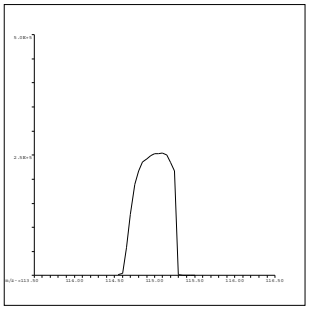
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



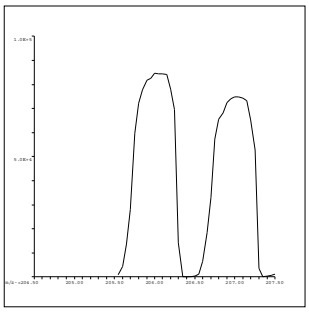
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



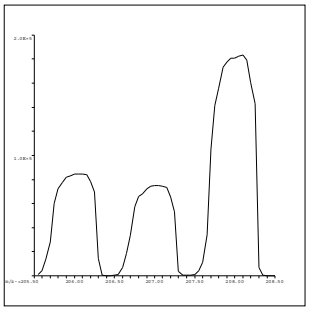
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



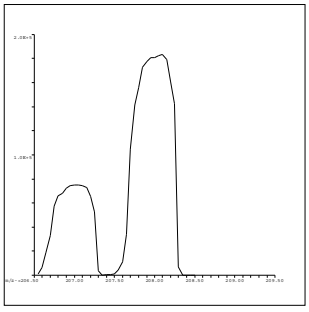
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Oct 2019 08:29:10 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	72409.90	0.00	
24	Mg	265407.00	0.00	
25	Mg	34485.40	0.00	
26	Mg	39923.50	0.00	
59	Co	229056.00	0.00	
115	In	366181.00	0.00	
206	Pb	109296.00	0.00	
207	Pb	96870.30	0.00	
208	Pb	236666.00	0.00	

RSD (%)

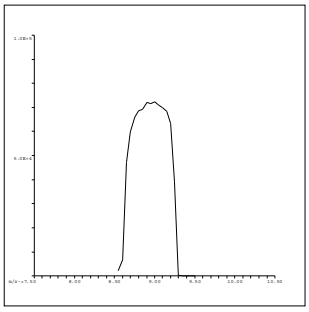
Element		Actual	Required	Flag
9	Be	0.81	5.00	
24	Mg	1.53	5.00	
25	Mg	2.48	5.00	
26	Mg	0.72	5.00	
59	Co	0.96	5.00	
115	In	0.58	5.00	
206	Pb	0.84	5.00	
207	Pb	0.59	5.00	
208	Pb	0.62	5.00	

Ion Ratio

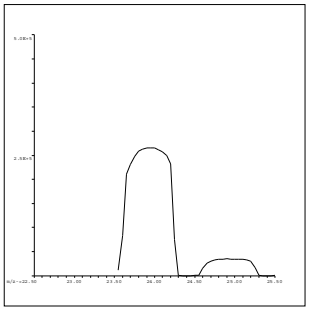
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

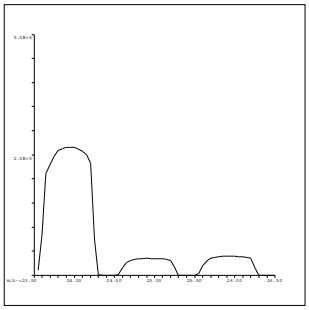
Element	Actual	Required	Flag



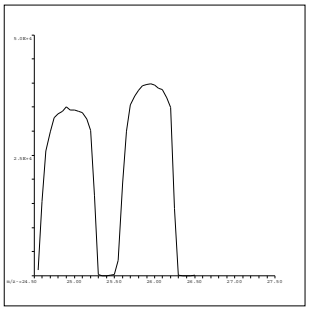
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



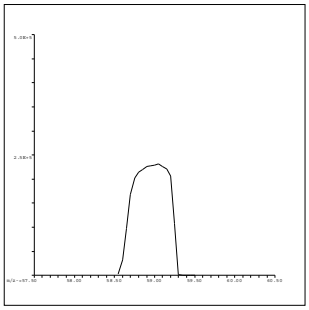
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



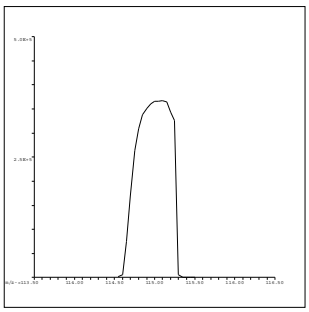
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



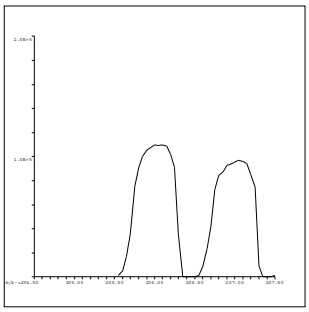
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



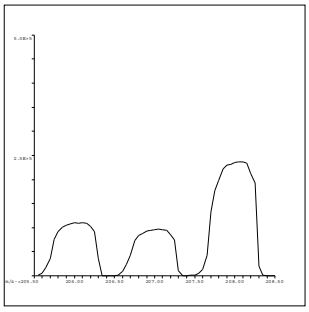
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



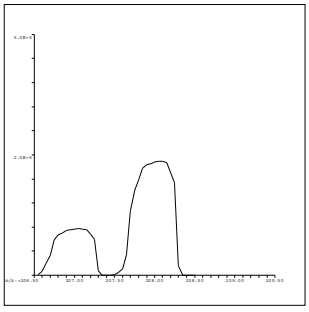
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191011B

Instrument ID: ICPMS-02

Analyte	Data File	B1011002.D	B1011004.D	B1011005.D	B1011006.D	B1011007.D	B1011008.D	B1011009.D	B1011010.D	
	Acq. Date-Time	10/11/2019 04:26 PM	10/11/2019 04:36 PM	10/11/2019 04:41 PM	10/11/2019 04:46 PM	10/11/2019 04:51 PM	10/11/2019 04:55 PM	10/11/2019 05:00 PM	10/11/2019 05:05 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	47299.4	47746.1	48066	48900.7	48837.3	48629.8	48604	48951.9	
55 Mn [2]	CPS	38.4	798.5	7840.1	16113.2	31685	63847.8	158536.8	314555.4	1.0000
52 Cr [2]	CPS	415.5	1921.2	15615.2	30896.9	60882.5	121055.3	297755.9	593695.9	1.0000
72 Ge (ISTD) [1]	CPS	13284.9	13489.4	14012.1	14026.6	13638.5	13852	13772	13923.2	
78 Se [1]	CPS	0	16.7	242.2	457.8	990.1	1989.1	4725.4	9675.5	0.9999
103 Rh (ISTD) [2]	CPS	528382.5	534713.4	536738.7	539558	536487.9	540658.8	536347.1	534410	
95 Mo [2]	CPS	27.8	736.7	6571.6	13439.5	26853.4	54337.6	134826.6	269609.7	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.99

INITIAL CALIBRATION SUMMARY: 191014B

Instrument ID: ICPMS-02

Analyte	Data File	B1014002.D	B1014004.D	B1014005.D	B1014006.D	B1014007.D	B1014008.D	B1014009.D	B1014010.D	
	Acq. Date-Time	10/14/2019 12:37 PM	10/14/2019 12:49 PM	10/14/2019 12:54 PM	10/14/2019 12:59 PM	10/14/2019 01:04 PM	10/14/2019 01:09 PM	10/14/2019 01:14 PM	10/14/2019 01:20 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	20186.6	20431.4	19781.7	19693.8	19282.2	18764.9	19045.2	18984	
78 Se [1]	CPS	2.2	44.4	326.7	657.8	1441.2	2739.2	6914	13762	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	108.438	0.50	100.0	0	108	90	110				
Molybdenum	10.416	0.50	10.00	0	104	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ZZZZZZ** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.564	0.50	0.5000	0	113	80	120				
Molybdenum	0.537	0.50	0.5000	0	107	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.500	0.50	20.00	0	102	90	110				
Molybdenum	20.415	0.50	20.00	0	102	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.968	0.50	20.00	0	99.8	90	110				
Molybdenum	19.933	0.50	20.00	0	99.7	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **CCV** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.524	0.50	20.00	0	103	90	110				
Molybdenum	20.104	0.50	20.00	0	101	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.350	0.50	20.00	0	102	90	110				
Molybdenum	20.414	0.50	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.285	0.50	20.00	0	101	90	110				
Molybdenum	20.112	0.50	20.00	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.299	0.50	20.00	0	101	90	110				
Molybdenum	20.361	0.50	20.00	0	102	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.348	0.50	20.00	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	20.313	0.50	20.00	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.752	0.50	10.00	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535805**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.500	0.50	0.5000	0	100	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.953	0.50	20.00	0	99.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.686	0.50	20.00	0	93.4	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.327	0.50	20.00	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.811	0.50	20.00	0	94.1	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.949	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ZZZZZZ**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.101	1.0	1.000	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.605	1.0	20.00	0	98.0	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.091	1.0	20.00	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.737	1.0	20.00	0	98.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.912	1.0	20.00	0	99.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.287	1.0	20.00	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.152	1.0	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCV**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.525	1.0	20.00	0	103	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533763**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533779**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533791**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533803**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533815**

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

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533829**

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

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.249	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533850**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535804**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535820**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535832**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535844**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535854**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533672**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533688**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533700**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533712**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533724**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533738**

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

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533750**

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

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **CCB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533759**

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

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSA** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533765**

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

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSAB** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.465	0.50	20.00	0	97.3	80	120				
Molybdenum	22.485	0.50	20.00	0	112	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSA** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533816**

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

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSAB** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3533817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.321	0.50	20.00	0	96.6	80	120				
Molybdenum	22.433	0.50	20.00	0	112	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136915**
Client ID: **ICSA** Batch ID: **R136915** TestNo: **EPA 6020** Analysis Date: **10/12/2019** SeqNo: **3533851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533851**

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

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.222	0.50	20.00	0	96.1	80	120				
Molybdenum	22.480	0.50	20.00	0	112	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	ICSA1	SampType:	ICSA	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ICSA	Batch ID:	R136952	TestNo:	EPA 6020			Analysis Date:	10/14/2019	SeqNo:	3535806

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

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ICSAB	Batch ID:	R136952	TestNo:	EPA 6020			Analysis Date:	10/14/2019	SeqNo:	3535807

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.986	0.50	20.00	0	105	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ICSA	Batch ID:	R136952	TestNo:	EPA 6020			Analysis Date:	10/14/2019	SeqNo:	3535855

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

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ICSAB	Batch ID:	R136952	TestNo:	EPA 6020			Analysis Date:	10/14/2019	SeqNo:	3535856

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.408	0.50	20.00	0	102	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533674**

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

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.289	1.0	20.00	0	101	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533725**

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

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3533726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.665	1.0	20.00	0	103	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSA**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533760**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID: **ICSAB**	Batch ID: **R136915**	TestNo: **EPA 6020**		Analysis Date: **10/12/2019**	SeqNo: **3533761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.918	1.0	20.00	0	105	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	47299.4	47299.4	100	PASS	70-125	13284.9	13284.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	47669.4	47299.4	100.78	PASS	70-125	13310.5	13284.9	100.19	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	47746.1	47299.4	100.94	PASS	70-125	13489.4	13284.9	101.54	PASS	70-125
Std3-5/50 ppb	ICAL	1	48066	47299.4	101.62	PASS	70-125	14012.1	13284.9	105.47	PASS	70-125
Std4-10/100 ppb	ICAL	1	48900.7	47299.4	103.39	PASS	70-125	14026.6	13284.9	105.58	PASS	70-125
Std5-20/200 ppb	ICAL	1	48837.3	47299.4	103.25	PASS	70-125	13638.5	13284.9	102.66	PASS	70-125
Std6-40/400 ppb	ICAL	1	48629.8	47299.4	102.81	PASS	70-125	13852	13284.9	104.27	PASS	70-125
Std7-100/1000 ppb	ICAL	1	48604	47299.4	102.76	PASS	70-125	13772	13284.9	103.67	PASS	70-125
Std8-200/2000 ppb	ICAL	1	48951.9	47299.4	103.49	PASS	70-125	13923.2	13284.9	104.8	PASS	70-125
ICV	ICV	1	43981.5	47299.4	92.99	PASS	70-125	12734.3	13284.9	95.86	PASS	70-125
ICB	ICB	1	47435.3	47299.4	100.29	PASS	70-125	13567.3	13284.9	102.13	PASS	70-125
LLICV	CCV1	1	47112.2	47299.4	99.6	PASS	70-125	13549.5	13284.9	101.99	PASS	70-125
ICSA1	ICSA	1	50400.7	47299.4	106.56	PASS	70-125	14986.4	13284.9	112.81	PASS	70-125
ICSAB1	ICSAB	1	53205.1	47299.4	112.49	PASS	70-125	16375.5	13284.9	123.26	PASS	70-125
LLICV	CCV1	1	55627.5	47299.4	117.61	PASS	70-125	17305.4	13284.9	130.26	NR!	70-125
CCV1	CCV	1	54353.2	47299.4	114.91	PASS	70-125	17110.8	13284.9	128.8	NR!	70-125
CCB1	CCB	1	51230	47299.4	108.31	PASS	70-125	15313.4	13284.9	115.27	PASS	70-125
CCV2	CCV	1	52371.2	47299.4	110.72	PASS	70-125	15105.4	13284.9	113.7	PASS	70-125
CCB2	CCB	1	49797.7	47299.4	105.28	PASS	70-125	14047.7	13284.9	105.74	PASS	70-125
CCV3	CCV	1	52674.6	47299.4	111.36	PASS	70-125	16414.4	13284.9	123.56	PASS	70-125
CCB3	CCB	1	50310.3	47299.4	106.37	PASS	70-125	14485.9	13284.9	109.04	PASS	70-125
CCV4	CCV	1	51338.3	47299.4	108.54	PASS	70-125	15155.4	13284.9	114.08	PASS	70-125
CCB4	CCB	1	48825.9	47299.4	103.23	PASS	70-125	13975.5	13284.9	105.2	PASS	70-125
ICSA2	ICSA	1	48307.8	47299.4	102.13	PASS	70-125	13222.6	13284.9	99.53	PASS	70-125
ICSAB2	ICSAB	1	49450	47299.4	104.55	PASS	70-125	13843.1	13284.9	104.2	PASS	70-125
MB-75562	MBLK	1	52845.9	47299.4	111.73	PASS	70-125	14985.3	13284.9	112.8	PASS	70-125
LCS-75562	LCS	1	50494.4	47299.4	106.75	PASS	70-125	14064.4	13284.9	105.87	PASS	70-125
N037709-001B	SAMP	1	44847.2	47299.4	94.82	PASS	70-125	12631	13284.9	95.08	PASS	70-125
N037709-001B	SAMP	5	48828.1	47299.4	103.23	PASS	70-125	13947.6	13284.9	104.99	PASS	70-125
N037709-001B	SAMP	25	48740	47299.4	103.05	PASS	70-125	13689.6	13284.9	103.05	PASS	70-125
N037709-001B-PS	PS	1	46978.7	47299.4	99.32	PASS	70-125	12862.3	13284.9	96.82	PASS	70-125
N037709-001B-PS	PS	5	49212.5	47299.4	104.05	PASS	70-125	13909.8	13284.9	104.7	PASS	70-125
N037709-001B-MS	MS	1	46452.6	47299.4	98.21	PASS	70-125	12651	13284.9	95.23	PASS	70-125
N037709-001B-MS	MS	5	49443.3	47299.4	104.53	PASS	70-125	14013.3	13284.9	105.48	PASS	70-125
N037709-001B-MSD	MSD	1	45912.2	47299.4	97.07	PASS	70-125	12520.8	13284.9	94.25	PASS	70-125
CCV5	CCV	1	51300.2	47299.4	108.46	PASS	70-125	14092.2	13284.9	106.08	PASS	70-125
CCB5	CCB	1	48334.5	47299.4	102.19	PASS	70-125	13194.8	13284.9	99.32	PASS	70-125
N037709-001B-MSD	MSD	5	46463.8	47299.4	98.23	PASS	70-125	12176.2	13284.9	91.65	PASS	70-125
N037709-002B	SAMP	1	44300	47299.4	93.66	PASS	70-125	12090.6	13284.9	91.01	PASS	70-125
N037709-002B	SAMP	5	47865.5	47299.4	101.2	PASS	70-125	12834.5	13284.9	96.61	PASS	70-125
N037709-003B	SAMP	1	45553.5	47299.4	96.31	PASS	70-125	12113.9	13284.9	91.19	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	47730.7	47299.4	100.91	PASS	70-125	13383.9	13284.9	100.75	PASS	70-125
N037723-001B	SAMP	1	43243	47299.4	91.42	PASS	70-125	11199.9	13284.9	84.31	PASS	70-125
N037723-001B	SAMP	5	51188.6	47299.4	108.22	PASS	70-125	14106.6	13284.9	106.19	PASS	70-125
N037723-002B	SAMP	1	44627.6	47299.4	94.35	PASS	70-125	11622.4	13284.9	87.49	PASS	70-125
N037723-002B	SAMP	5	51753.7	47299.4	109.42	PASS	70-125	14884	13284.9	112.04	PASS	70-125
N037723-003B	SAMP	1	49412.1	47299.4	104.47	PASS	70-125	13472.8	13284.9	101.41	PASS	70-125
CCV6	CCV	1	55921.5	47299.4	118.23	PASS	70-125	15916.2	13284.9	119.81	PASS	70-125
CCB6	CCB	1	53597.1	47299.4	113.31	PASS	70-125	14493.7	13284.9	109.1	PASS	70-125
N037723-003B	SAMP	5	49482.2	47299.4	104.61	PASS	70-125	13120.3	13284.9	98.76	PASS	70-125
N037723-004B	SAMP	1	49744.4	47299.4	105.17	PASS	70-125	12718.8	13284.9	95.74	PASS	70-125
N037723-004B	SAMP	5	52463.6	47299.4	110.92	PASS	70-125	13610.8	13284.9	102.45	PASS	70-125
N037735-001B	SAMP	1	47582.5	47299.4	100.6	PASS	70-125	12182.8	13284.9	91.7	PASS	70-125
N037735-001B	SAMP	5	51189.7	47299.4	108.22	PASS	70-125	13199.2	13284.9	99.35	PASS	70-125
N037756-001B	SAMP	1	49228.5	47299.4	104.08	PASS	70-125	12925.7	13284.9	97.3	PASS	70-125
N037756-001B	SAMP	5	50375.1	47299.4	106.5	PASS	70-125	13098	13284.9	98.59	PASS	70-125
CCV7	CCV	1	50844.1	47299.4	107.49	PASS	70-125	13539.5	13284.9	101.92	PASS	70-125
CCB7	CCB	1	50856.3	47299.4	107.52	PASS	70-125	13341.6	13284.9	100.43	PASS	70-125
ICSA3	ICSA	1	48936.4	47299.4	103.46	PASS	70-125	12754.4	13284.9	96.01	PASS	70-125
ICSAB3	ICSAB	1	49123.5	47299.4	103.86	PASS	70-125	12814.5	13284.9	96.46	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	528382.5	528382.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	531282	528382.5	100.55	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	534713.4	528382.5	101.2	PASS	70-125
Std3-5/50 ppb	ICAL	1	536738.7	528382.5	101.58	PASS	70-125
Std4-10/100 ppb	ICAL	1	539558	528382.5	102.12	PASS	70-125
Std5-20/200 ppb	ICAL	1	536487.9	528382.5	101.53	PASS	70-125
Std6-40/400 ppb	ICAL	1	540658.8	528382.5	102.32	PASS	70-125
Std7-100/1000 ppb	ICAL	1	536347.1	528382.5	101.51	PASS	70-125
Std8-200/2000 ppb	ICAL	1	534410	528382.5	101.14	PASS	70-125
ICV	ICV	1	499367.1	528382.5	94.51	PASS	70-125
ICB	ICB	1	528393.8	528382.5	100	PASS	70-125
LLICV	CCV1	1	531330.8	528382.5	100.56	PASS	70-125
ICSA1	ICSA	1	512103.3	528382.5	96.92	PASS	70-125
ICSAB1	ICSAB	1	535124.8	528382.5	101.28	PASS	70-125
LLICV	CCV1	1	603020.7	528382.5	114.13	PASS	70-125
CCV1	CCV	1	571996.2	528382.5	108.25	PASS	70-125
CCB1	CCB	1	559078.5	528382.5	105.81	PASS	70-125
CCV2	CCV	1	568068.9	528382.5	107.51	PASS	70-125
CCB2	CCB	1	556602.8	528382.5	105.34	PASS	70-125
CCV3	CCV	1	567757.4	528382.5	107.45	PASS	70-125
CCB3	CCB	1	553388.2	528382.5	104.73	PASS	70-125
CCV4	CCV	1	550505.2	528382.5	104.19	PASS	70-125
CCB4	CCB	1	540585.3	528382.5	102.31	PASS	70-125
ICSA2	ICSA	1	499834.2	528382.5	94.6	PASS	70-125
ICSAB2	ICSAB	1	510594.1	528382.5	96.63	PASS	70-125
MB-75562	MBLK	1	580173.3	528382.5	109.8	PASS	70-125
LCS-75562	LCS	1	560142.8	528382.5	106.01	PASS	70-125
N037709-001B	SAMP	1	461750.6	528382.5	87.39	PASS	70-125
N037709-001B	SAMP	5	513529.3	528382.5	97.19	PASS	70-125
N037709-001B	SAMP	25	531517.9	528382.5	100.59	PASS	70-125
N037709-001B-PS	PS	1	482324.4	528382.5	91.28	PASS	70-125
N037709-001B-PS	PS	5	516061.7	528382.5	97.67	PASS	70-125
N037709-001B-MS	MS	1	482112.2	528382.5	91.24	PASS	70-125
N037709-001B-MS	MS	5	515062.8	528382.5	97.48	PASS	70-125
N037709-001B-MSD	MSD	1	478444.5	528382.5	90.55	PASS	70-125
CCV5	CCV	1	564247.8	528382.5	106.79	PASS	70-125
CCB5	CCB	1	547042.5	528382.5	103.53	PASS	70-125
N037709-001B-MSD	MSD	5	498730.5	528382.5	94.39	PASS	70-125
N037709-002B	SAMP	1	465258.7	528382.5	88.05	PASS	70-125
N037709-002B	SAMP	5	505954.5	528382.5	95.76	PASS	70-125
N037709-003B	SAMP	1	472923.9	528382.5	89.5	PASS	70-125

INTERNAL STANDARD: 191011B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N037709-003B	SAMP	5	509898.4	528382.5	96.5	PASS	70-125
N037723-001B	SAMP	1	435766.4	528382.5	82.47	PASS	70-125
N037723-001B	SAMP	5	523759.4	528382.5	99.13	PASS	70-125
N037723-002B	SAMP	1	432175	528382.5	81.79	PASS	70-125
N037723-002B	SAMP	5	505560.5	528382.5	95.68	PASS	70-125
N037723-003B	SAMP	1	474073.5	528382.5	89.72	PASS	70-125
CCV6	CCV	1	600391.5	528382.5	113.63	PASS	70-125
CCB6	CCB	1	589095.7	528382.5	111.49	PASS	70-125
N037723-003B	SAMP	5	512325.7	528382.5	96.96	PASS	70-125
N037723-004B	SAMP	1	494152.8	528382.5	93.52	PASS	70-125
N037723-004B	SAMP	5	537481.4	528382.5	101.72	PASS	70-125
N037735-001B	SAMP	1	475565.9	528382.5	90	PASS	70-125
N037735-001B	SAMP	5	524224.5	528382.5	99.21	PASS	70-125
N037756-001B	SAMP	1	492603.6	528382.5	93.23	PASS	70-125
N037756-001B	SAMP	5	522654.7	528382.5	98.92	PASS	70-125
CCV7	CCV	1	561398.4	528382.5	106.25	PASS	70-125
CCB7	CCB	1	566173.3	528382.5	107.15	PASS	70-125
ICSA3	ICSA	1	510759.6	528382.5	96.66	PASS	70-125
ICSAB3	ICSAB	1	510352.1	528382.5	96.59	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	20186.6	20186.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	20518.1	20186.6	101.64	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	20431.4	20186.6	101.21	PASS	70-125
Std3-5/50 ppb	ICAL	1	19781.7	20186.6	97.99	PASS	70-125
Std4-10/100 ppb	ICAL	1	19693.8	20186.6	97.56	PASS	70-125
Std5-20/200 ppb	ICAL	1	19282.2	20186.6	95.52	PASS	70-125
Std6-40/400 ppb	ICAL	1	18764.9	20186.6	92.96	PASS	70-125
Std7-100/1000 ppb	ICAL	1	19045.2	20186.6	94.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	18984	20186.6	94.04	PASS	70-125
ICV	ICV	1	18584.7	20186.6	92.07	PASS	70-125
ICB	ICB	1	18296.5	20186.6	90.64	PASS	70-125
LLICV	CCV1	1	18501.2	20186.6	91.65	PASS	70-125
ICSA1	ICSA	1	18251.9	20186.6	90.42	PASS	70-125
ICSAB1	ICSAB	1	19879.5	20186.6	98.48	PASS	70-125
LLICV	CCV1	1	19124.2	20186.6	94.74	PASS	70-125
MB-75562	MBLK	1	23233	20186.6	115.09	PASS	70-125
LCS-75562	LCS	1	21815.4	20186.6	108.07	PASS	70-125
CCV1	CCV	1	20799.5	20186.6	103.04	PASS	70-125
CCB1	CCB	1	20601.5	20186.6	102.06	PASS	70-125
N037709-001B	SAMP	1	19931.8	20186.6	98.74	PASS	70-125
N037709-001B	SAMP	5	22393.9	20186.6	110.93	PASS	70-125
N037709-001B-PS	PS	1	21162.3	20186.6	104.83	PASS	70-125
N037709-001B-MS	MS	1	21090	20186.6	104.48	PASS	70-125
N037709-001B-MSD	MSD	1	21442.7	20186.6	106.22	PASS	70-125
N037709-002B	SAMP	1	21207.9	20186.6	105.06	PASS	70-125
N037709-003B	SAMP	1	22046.9	20186.6	109.22	PASS	70-125
N037723-001B	SAMP	1	19234.3	20186.6	95.28	PASS	70-125
N037723-002B	SAMP	1	18727	20186.6	92.77	PASS	70-125
N037723-003B	SAMP	1	20466.9	20186.6	101.39	PASS	70-125
CCV2	CCV	1	24784.2	20186.6	122.78	PASS	70-125
CCB2	CCB	1	23478.9	20186.6	116.31	PASS	70-125
MB-75562	MBLK	1	22872.6	20186.6	113.31	PASS	70-125
N037723-004B	SAMP	1	20597.2	20186.6	102.03	PASS	70-125
N037756-001B	SAMP	1	21568.3	20186.6	106.84	PASS	70-125
N037723-002B	SAMP	1	18386.6	20186.6	91.08	PASS	70-125
N037756-001B	SAMP	1	21810.9	20186.6	108.05	PASS	70-125
CCV3	CCV	1	24009.5	20186.6	118.94	PASS	70-125
CCB3	CCB	1	22688.8	20186.6	112.4	PASS	70-125
N037723-002B	SAMP	1	18010.7	20186.6	89.22	PASS	70-125
N037723-002B	SAMP	1	17572.3	20186.6	87.05	PASS	70-125
N037723-002B	SAMP	1	17212	20186.6	85.26	PASS	70-125

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
N037723-002B	SAMP	1	17067.4	20186.6	84.55	PASS	70-125
N037723-002B	SAMP	1	17354.4	20186.6	85.97	PASS	70-125
CCV4	CCV	1	24163.2	20186.6	119.7	PASS	70-125
CCB4	CCB	1	23856.1	20186.6	118.18	PASS	70-125
ICSA2	ICSA	1	21572.9	20186.6	106.87	PASS	70-125
ICSAB2	ICSAB	1	21304.7	20186.6	105.54	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037756
Test Method: EPA 6020
Analysis Date: 09 / 11 & 14 / 2019

Matrix: Groundwater
Batch No.: 75562

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn, Mo, Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037709-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N037709-001B DT 5x	Molybdenum	Mo	µg/L	4.817372	NA	4.820541	0.07%	10
N037709-001B DT 5x	Selenium	Se	µg/L	7.237082	NA	5.803332	24.71%	10
N037709-001B DT 5x	Chromium	Cr	µg/L	149.6198	PASS	147.4822	1.45%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136915
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3533823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	83.531	0.50	100.0	0	83.5	80	120				
Molybdenum	15.886	0.50	10.00	4.821	111	80	120				

Sample ID	N037709-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136952
Client ID:	ZZZZZZ	Batch ID:	75562	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/14/2019	SeqNo:	3535823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	14.509	0.50	10.00	5.803	87.1	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037756
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037709-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136915**
Client ID:	**ZZZZZZ**	Batch ID: **75562**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3533732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	157.194	1.0	10.00	147.5	97.1	80	120				

Qualifiers:

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

MDL STUDY

Method Detection Limit

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

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

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

Method Detection Limit

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

Matrix: Water
Units: ug/L

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

October 23, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N037757

RE: PG&E Topock - PMP, 30019131

Attention: Dan Bush

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

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

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

Sincerely,

Nancy Ribucao for

Puri Romualdo
Laboratory Director

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

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

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

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N037736-001C-MS1, N037736-001C-MSD1 and N037758-011B-MS1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N037736-002C-MS2, N037736-002C-MSD2 and N037758-010C-MS2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese in QC samples N037736-001C-MS and N037736-001C-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *23-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, 30019131
Lab Order: N037757
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037757-001A	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-001B	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-001C	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-001D	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-002A	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019
N037757-002B	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019
N037757-002C	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019
N037757-002D	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191004D**	QC Batch: **R136784**			PrepDate:			Analyst: **LR**
Specific Conductance	3300	0.10	0.10		umhos/cm	1	10/4/2019 01:55 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191004D**	QC Batch: **R136784**			PrepDate:			Analyst: **LR**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	10/4/2019 01:55 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037758-004CDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136784**
Client ID:	**ZZZZZZ**	Batch ID:	**R136784**	TestNo:	**EPA 120.1**			Analysis Date:	**10/4/2019**	SeqNo:	**3526793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5670.000	0.10						5680	0.176	2	

Sample ID	**N037758-011CDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136784**
Client ID:	**ZZZZZZ**	Batch ID:	**R136784**	TestNo:	**EPA 120.1**			Analysis Date:	**10/4/2019**	SeqNo:	**3526801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5080.000	0.10						5050	0.592	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_191004C**	QC Batch: **R136780**			PrepDate:			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	10/4/2019 10:45 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	10/4/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_191004C**	QC Batch: **R136780**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	10/4/2019 10:45 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	10/4/2019 10:45 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037757-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **136780**
Client ID: **ZZZZZZ** Batch ID: **R136780** TestNo: **SM4500-H+B** Analysis Date: **10/4/2019** SeqNo: **3526647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.500	0.10						7.480	0.267	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191007D**	QC Batch: **75581**			PrepDate:	**10/7/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2000	25	25		mg/L	1	10/7/2019 01:25 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191007D**	QC Batch: **75581**			PrepDate:	**10/7/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4100	50	50		mg/L	1	10/7/2019 01:25 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	**LCS-75581**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID:	**LCSW**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	958.000	10	1000	0	95.8	80	120				

Sample ID	**MB-75581**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID:	**PBW**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530248**

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

Sample ID	**N037771-001ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/7/2019**	RunNo: **136830**
Client ID:	**ZZZZZZ**	Batch ID: **75581**	TestNo: **SM2540C**		Analysis Date: **10/7/2019**	SeqNo: **3530255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	13380.000	200						13300	0.600	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037757
Project: PG&E Topock - PMP, 30019131
Lab ID: N037757-001

Client Sample ID: PE-01-1019
Collection Date: 10/3/2019 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_191004B**	QC Batch: **75564**			PrepDate:	**10/4/2019**		Analyst: **DJ**
Calcium	130000	85	500		µg/L	1	10/4/2019 10:53 PM
Iron	1100	18	20		µg/L	1	10/7/2019 07:51 PM
Magnesium	32000	48	100		µg/L	1	10/4/2019 10:53 PM
Sodium	300000	2400	12000		µg/L	25	10/10/2019 04:33 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_191004B**	QC Batch: **75564**			PrepDate:	**10/4/2019**		Analyst: **DJ**
Calcium	200000	85	500		µg/L	1	10/4/2019 10:59 PM
Iron	ND	18	20		µg/L	1	10/7/2019 07:56 PM
Magnesium	25000	48	100		µg/L	1	10/4/2019 10:59 PM
Sodium	1200000	4800	25000		µg/L	50	10/10/2019 04:37 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-75564**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **PBW**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527456**

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

Sample ID **LCS1-75564**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **LCSW**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9830.072	500	10000	0	98.3	85	115				
Magnesium	9768.355	100	10000	0	97.7	85	115				

Sample ID **N037736-001C-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	162832.994	500	10000	156500	63.0	75	125				S
Magnesium	26694.559	100	10000	17850	88.5	75	125				

Sample ID **N037736-001C-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527467**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	162573.962	500	10000	156500	60.4	75	125	162800	0.159	20	S
Magnesium	26584.495	100	10000	17850	87.4	75	125	26690	0.413	20	

Sample ID **N037758-011B-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/5/2019**	SeqNo: **3527490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	N037758-011B-MS1	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136789
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/5/2019	SeqNo:	3527490

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	408456.467	500	10000	355700	528	75	125				S
Magnesium	64530.101	100	10000	53080	114	75	125				

Sample ID	MB-75564	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	PBW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529523

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS1-75564	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	LCSW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529526

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	114.235	20	100.0	0	114	85	115				

Sample ID	N037736-001C-MS1	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529530

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.503	20	100.0	20.21	80.3	75	125				

Sample ID	N037736-001C-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529531

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.049	20	100.0	20.21	83.8	75	125	100.5	3.47	20	

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-75564	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	PBW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532396

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

Sample ID	LCS2-75564	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	LCSW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	18988.830	500	20000	0	94.9	85	115				

Sample ID	N037736-002C-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532469

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1396392.456	25000	20000	1183000	1070	75	125				S

Sample ID	N037736-002C-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532471

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1354688.111	25000	20000	1183000	859	75	125	1396000	3.03	20	S

Sample ID	N037758-010C-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532497

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1204674.793	25000	20000	1162000	215	75	125				S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	N037758-011B-MS1	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	137084
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/21/2019	SeqNo:	3540156

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	90.819	20	100.0	0	90.8	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037736-001C-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	163268.940	500	10000	156500	67.4	80	120				S
Magnesium	27640.882	100	10000	17850	97.9	80	120				

Sample ID **N037736-001C-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	120.697	20	100.0	20.21	100	80	120				

Sample ID **N037736-002C-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1226480.558	25000	20000	1183000	217	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_191016D**	QC Batch: **75563**			PrepDate:	**10/5/2019**		Analyst: **CEI**
Manganese	420	1.3	2.5		µg/L	5	10/16/2019 06:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_191016D**	QC Batch: **75563**			PrepDate:	**10/5/2019**		Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	10/16/2019 06:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	MB-75563	SampType:	MBLK	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	PBW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537716

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID	LCS-75563	SampType:	LCS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	LCSW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537717

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	103.275	0.50	100.0	0	103	85	115				

Sample ID	N037736-001C-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	49.121	0.50	100.0	0	49.1	75	125				S

Sample ID	N037736-001C-MSD	SampType:	MSD	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537725

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	49.088	0.50	100.0	0	49.1	75	125	49.12	0.0670	20	S

Sample ID	N037758-011B-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537744

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	77.155	0.50	100.0	0	77.2	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	**N037736-001C-PS**	SampType: **PS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID:	**ZZZZZZ**	Batch ID: **75563**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	47.898	0.50	100.0	0	47.9	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191008B**	QC Batch: **R136842**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/8/2019 10:42 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_191016C**	QC Batch: **75563**			PrepDate:	**10/5/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	10/16/2019 06:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191008B**	QC Batch: **R136842**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	410	1.7	10		µg/L	50	10/8/2019 11:01 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_191016C**	QC Batch: **75563**			PrepDate:	**10/5/2019**		Analyst: **CEI**
Chromium	430	0.65	5.0		µg/L	5	10/16/2019 06:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-75563	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	PBW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537655

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75563	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	LCSW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537656

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.261	1.0	10.00	0	103	85	115				

Sample ID	N037736-001C-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537662

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.952	1.0	10.00	0.4237	95.3	75	125				

Sample ID	N037736-001C-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537664

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.079	1.0	10.00	0.4237	96.6	75	125	9.952	1.27	20	

Sample ID	N037758-011B-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537683

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.567	1.0	10.00	11.67	99.0	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136842	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	PBW	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530730

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136842	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	LCSW	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530731

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.839	0.20	5.000	0	96.8	90	110				

Sample ID	N037801-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530733

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.091	0.20	1.000	0.09990	99.1	90	110				

Sample ID	N037801-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530735

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.931	0.20	1.000	0.9826	94.9	90	110				

Sample ID	N037801-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530737

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.6877	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037801-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530741

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.504	0.20	1.000	1.482	102	90	110				

Sample ID	N037801-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530743

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.7001	99.3	90	110				

Sample ID	N037801-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530745

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Sample ID	N037801-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530747

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.466	0.20	1.000	0.4390	103	90	110				

Sample ID	N037801-004AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530748

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.467	0.20	1.000	1.482	98.6	90	110	2.504	1.48	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037801-001ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530749

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.092	0.20						0.09990	0	20	

Sample ID	N037756-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530763

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	202.190	4.0	100.0	95.08	107	90	110				

Sample ID	N037757-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530765

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.046	0.20	1.000	0	105	90	110				

Sample ID	N037757-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530767

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	650.145	10	250.0	408.1	96.8	90	110				

Sample ID	N037772-002BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136842
Client ID:	ZZZZZZ	Batch ID:	R136842	TestNo:	EPA 218.6			Analysis Date:	10/8/2019	SeqNo:	3530769

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.982	0.20	1.000	0	98.2	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191004B**	QC Batch: **R136779**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	10/4/2019 09:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191004B**	QC Batch: **R136779**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	170	1.2	5.0		mg/L	1	10/4/2019 09:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R136779**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **LCSW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	103.037	5.0	100.0	0	103	85	115				

Sample ID **MB-R136779**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **PBW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N037758-003DDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	280.911	5.0						277.7	1.17	30	

Sample ID **N037758-005DMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	170.282	5.0	100.0	73.75	96.5	75	125				

Sample ID **N037758-005DMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	171.367	5.0	100.0	73.75	97.6	75	125	170.3	0.635	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037757
Project: PG&E Topock - PMP, 30019131
Lab ID: N037757-001

Client Sample ID: PE-01-1019
Collection Date: 10/3/2019 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_191014A** QC Batch: **R136993**				PrepDate:			Analyst: **RAB**
Chloride	800	3.5	50		mg/L	100	10/14/2019 02:36 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_191014A** QC Batch: **R136993**				PrepDate:			Analyst: **RAB**
Sulfate	290	2.0	25		mg/L	50	10/14/2019 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191014A**	QC Batch: **R136993**			PrepDate:			Analyst: **RAB**
Chloride	2000	17	250		mg/L	500	10/14/2019 02:51 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191014A**	QC Batch: **R136993**			PrepDate:			Analyst: **RAB**
Sulfate	480	2.0	25		mg/L	50	10/14/2019 03:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R136993_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	PBW	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537388

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID	LCS-R136993_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	LCSW	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537389

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.932	0.50	2.000	0	96.6	90	110				

Sample ID	N037836-002BMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537403

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	125.830	10	40.00	85.13	102	80	120				

Sample ID	N037836-002BMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537404

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	125.864	10	40.00	85.13	102	80	120	125.8	0.0270	20	

Sample ID	N037836-006BMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537405

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	127.938	10	40.00	86.86	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	**N037836-003BDUP**	SampType: **DUP**	TestCode: **300_W_CLP**	Units: **mg/L**		Prep Date:				RunNo: **136993**		
Client ID:	**ZZZZZZ**	Batch ID: **R136993**	TestNo: **EPA 300.0**			Analysis Date: **10/14/2019**				SeqNo: **3537406**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	92.138	10						93.47	1.44	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136993_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	PBW	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537411

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R136993_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	LCSW	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537412

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.959	0.50	4.000	0	99.0	90	110				

Sample ID	N037836-002BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537426

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	255.862	10	80.00	175.7	100	80	120				

Sample ID	N037836-002BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537427

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	254.600	10	80.00	175.7	98.7	80	120	255.9	0.494	20	

Sample ID	N037836-006BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537428

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	281.542	10	80.00	200.5	101	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N037836-003BDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537429

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	215.142	10						215.7	0.267	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191014D**	QC Batch: **R136950**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	10/14/2019

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191014D**	QC Batch: **R136950**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	2.8	0.16	0.25		mg/L	5	10/14/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136950	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950		
Client ID:	PBW	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535531		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050											

Sample ID	LCS-R136950	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950		
Client ID:	LCSW	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535532		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.464	0.050	0.5000	0	92.9	85	115						

Sample ID	N037613-003BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950		
Client ID:	ZZZZZZ	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535595		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.921	0.050						0.8966	2.72	20			

Sample ID	N037757-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950		
Client ID:	ZZZZZZ	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535598		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.216	0.25	2.500	2.822	95.8	75	125						

Sample ID	N037757-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950		
Client ID:	ZZZZZZ	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535674		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.531	0.25	2.500	2.822	108	75	125	5.216	5.87	20			

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

ARCUS02 C: 10/17/201 12:00 AM
FOLDER R: 10/3/2019
N037757-003A 1 of 1

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email:	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloen@nivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		
Signature: Date: 10/3/2019	Sampled By: Nara Tay		
Project Name: PG&E Topock - PMP	Signature: Date: 10/3/2019		
Project Number: 30019131			

I hereby authorize ASSET Labs to perform the tests indicated below.

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

	Y	N
1. Chilled		
2. Headspace		
3. Container Intact		
4. Seal Present		
5. IR number		
6. Method of Cooling: Ice		
Sample Temp: 2.0		
Courier: ASSET		
Tracking No.:		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly		Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn 1 L poly	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, 1 L poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 1 L poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4 125 mL poly	Tum Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037757-01	PE-01-1019	10/3/2019	8:55		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-1019	10/3/2019	8:40		X		X	X			X	X	X	X	X		X	E	4	P	BN	
3																			E	4	P	BN	
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name): Nara Tay Date/Time: 10/3/19 1605
Received by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 1605
Relinquished by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 615 pm
Received by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 615 pm
Relinquished by (Signature and Printed Name): Date/Time:
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample
6. Asset Laboratories is not responsible for samples collected using incorrect methodology
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	10/3/2019	Workorder:	N037757
Rep sample Temp (Deg C):	2.8	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 10/4/2019

Reviewed By: LG 100919

ASSET Laboratories

WORK ORDER Summary

04-Oct-19

WorkOrder: N037757

Client ID: ARCUS02

Project: PG&E Topock - PMP, 30019131 **QC Level:** Level IV **Date Received:** 10/3/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037757-001A	PE-01-1019	10/3/2019 8:55:00 AM	10/17/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037757-001B			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037757-001C			10/17/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/17/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			10/17/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/17/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/17/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037757-001D			10/17/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037757-002A	TW-03D-1019	10/3/2019 8:40:00 AM	10/17/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037757-002B			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037757-002C			10/17/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/17/2019		SM4500-H+B	pH	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

04-Oct-19

WorkOrder: N037757

Client ID: ARCUS02

Project: PG&E Topock - PMP, 30019131 **QC Level:** Level IV **Date Received:** 10/3/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037757-002C	TW-03D-1019	10/3/2019 8:40:00 AM	10/17/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/17/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/17/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037757-002D			10/17/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037757-003A	FOLDER	10/17/2019	10/17/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037757

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 23, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037757

RE: PG&E Topock - PMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 03, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, 30019131
Lab Order: N037757

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N037736-001C-MS1, N037736-001C-MSD1 and N037758-011B-MS1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N037736-002C-MS2, N037736-002C-MSD2 and N037758-010C-MS2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese in QC samples N037736-001C-MS and N037736-001C-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *23-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, 30019131
Lab Order: N037757
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037757-001A	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-001B	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-001C	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-001D	PE-01-1019	Groundwater	10/3/2019 8:55:00 AM	10/3/2019	10/23/2019
N037757-002A	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019
N037757-002B	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019
N037757-002C	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019
N037757-002D	TW-03D-1019	Groundwater	10/3/2019 8:40:00 AM	10/3/2019	10/23/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191004D**	QC Batch: **R136784**			PrepDate:			Analyst: **LR**
Specific Conductance	3300	0.10	0.10		umhos/cm	1	10/4/2019 01:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_191004D**	QC Batch: **R136784**			PrepDate:			Analyst: **LR**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	10/4/2019 01:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037758-004CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **136784**
Client ID:	**ZZZZZZ**	Batch ID: **R136784**	TestNo: **EPA 120.1**		Analysis Date: **10/4/2019**	SeqNo: **3526793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5670.000	0.10						5680	0.176	2	

Sample ID	**N037758-011CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **136784**
Client ID:	**ZZZZZZ**	Batch ID: **R136784**	TestNo: **EPA 120.1**		Analysis Date: **10/4/2019**	SeqNo: **3526801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5080.000	0.10						5050	0.592	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037757
Project: PG&E Topock - PMP, 30019131
Lab ID: N037757-001

Client Sample ID: PE-01-1019
Collection Date: 10/3/2019 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_191004C**	QC Batch: **R136780**			PrepDate:			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	10/4/2019 10:45 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	10/4/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_191004C**	QC Batch: **R136780**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	10/4/2019 10:45 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	10/4/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037757-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **136780**
Client ID: **ZZZZZZ** Batch ID: **R136780** TestNo: **SM4500-H+B** Analysis Date: **10/4/2019** SeqNo: **3526647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.500	0.10						7.480	0.267	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191007D**	QC Batch: **75581**			PrepDate:	**10/7/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2000	25	25		mg/L	1	10/7/2019 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_191007D**	QC Batch: **75581**			PrepDate:	**10/7/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4100	50	50		mg/L	1	10/7/2019 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	LCS-75581	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/7/2019	RunNo:	136830
Client ID:	LCSW	Batch ID:	75581	TestNo:	SM2540C			Analysis Date:	10/7/2019	SeqNo:	3530247

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	958.000	10	1000	0	95.8	80	120				

Sample ID	MB-75581	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/7/2019	RunNo:	136830
Client ID:	PBW	Batch ID:	75581	TestNo:	SM2540C			Analysis Date:	10/7/2019	SeqNo:	3530248

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID	N037771-001ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	10/7/2019	RunNo:	136830
Client ID:	ZZZZZZ	Batch ID:	75581	TestNo:	SM2540C			Analysis Date:	10/7/2019	SeqNo:	3530255

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	13380.000	200						13300	0.600	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037757
Project: PG&E Topock - PMP, 30019131
Lab ID: N037757-001

Client Sample ID: PE-01-1019
Collection Date: 10/3/2019 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_191004B**	QC Batch: **75564**			PrepDate:	**10/4/2019**		Analyst: **DJ**
Calcium	130000	85	500		µg/L	1	10/4/2019 10:53 PM
Iron	1100	18	20		µg/L	1	10/7/2019 07:51 PM
Magnesium	32000	48	100		µg/L	1	10/4/2019 10:53 PM
Sodium	300000	2400	12000		µg/L	25	10/10/2019 04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_191004B**	QC Batch: **75564**			PrepDate:	**10/4/2019**		Analyst: **DJ**
Calcium	200000	85	500		µg/L	1	10/4/2019 10:59 PM
Iron	ND	18	20		µg/L	1	10/7/2019 07:56 PM
Magnesium	25000	48	100		µg/L	1	10/4/2019 10:59 PM
Sodium	1200000	4800	25000		µg/L	50	10/10/2019 04:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-75564**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **PBW**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527456**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Magnesium	ND	100									

Sample ID **LCS1-75564**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **LCSW**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9830.072	500	10000	0	98.3	85	115				
Magnesium	9768.355	100	10000	0	97.7	85	115				

Sample ID **N037736-001C-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	162832.994	500	10000	156500	63.0	75	125				S
Magnesium	26694.559	100	10000	17850	88.5	75	125				

Sample ID **N037736-001C-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527467**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	162573.962	500	10000	156500	60.4	75	125	162800	0.159	20	S
Magnesium	26584.495	100	10000	17850	87.4	75	125	26690	0.413	20	

Sample ID **N037758-011B-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/5/2019**	SeqNo: **3527490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	N037758-011B-MS1	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136789
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/5/2019	SeqNo:	3527490

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	408456.467	500	10000	355700	528	75	125				S
Magnesium	64530.101	100	10000	53080	114	75	125				

Sample ID	MB-75564	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	PBW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529523

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS1-75564	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	LCSW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529526

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	114.235	20	100.0	0	114	85	115				

Sample ID	N037736-001C-MS1	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529530

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.503	20	100.0	20.21	80.3	75	125				

Sample ID	N037736-001C-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136819
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/7/2019	SeqNo:	3529531

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.049	20	100.0	20.21	83.8	75	125	100.5	3.47	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-75564	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	PBW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532396

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID	LCS2-75564	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	LCSW	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	18988.830	500	20000	0	94.9	85	115				

Sample ID	N037736-002C-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532469

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1396392.456	25000	20000	1183000	1070	75	125				S

Sample ID	N037736-002C-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532471

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1354688.111	25000	20000	1183000	859	75	125	1396000	3.03	20	S

Sample ID	N037758-010C-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	10/4/2019	RunNo:	136882
Client ID:	ZZZZZZ	Batch ID:	75564	TestNo:	EPA 200.7			Analysis Date:	10/10/2019	SeqNo:	3532497

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1204674.793	25000	20000	1162000	215	75	125				S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037758-011B-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **10/4/2019**	RunNo: **137084**				
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540156**				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	90.819	20	100.0	0	90.8	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037736-001C-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	163268.940	500	10000	156500	67.4	80	120				S
Magnesium	27640.882	100	10000	17850	97.9	80	120				

Sample ID **N037736-001C-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	120.697	20	100.0	20.21	100	80	120				

Sample ID **N037736-002C-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ZZZZZZ**	Batch ID: **75564**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1226480.558	25000	20000	1183000	217	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_191016D** QC Batch: **75563** PrepDate: **10/5/2019** Analyst: **CEI**							
Manganese	420	1.3	2.5		µg/L	5	10/16/2019 06:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_191016D** QC Batch: **75563**				PrepDate:	**10/5/2019**		Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	10/16/2019 06:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	MB-75563	SampType:	MBLK	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	PBW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537716

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID	LCS-75563	SampType:	LCS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	LCSW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537717

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	103.275	0.50	100.0	0	103	85	115				

Sample ID	N037736-001C-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	49.121	0.50	100.0	0	49.1	75	125				S

Sample ID	N037736-001C-MSD	SampType:	MSD	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537725

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	49.088	0.50	100.0	0	49.1	75	125	49.12	0.0670	20	S

Sample ID	N037758-011B-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137024
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537744

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	77.155	0.50	100.0	0	77.2	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N037736-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **137024**
Client ID: **ZZZZZZ** Batch ID: **75563** TestNo: **EPA 200.8** Analysis Date: **10/16/2019** SeqNo: **3537721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	47.898	0.50	100.0	0	47.9	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191008B**	QC Batch: **R136842**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/8/2019 10:42 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_191016C**	QC Batch: **75563**			PrepDate:	**10/5/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	10/16/2019 06:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037757
Project: PG&E Topock - PMP, 30019131
Lab ID: N037757-002

Client Sample ID: TW-03D-1019
Collection Date: 10/3/2019 8:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191008B**	QC Batch: **R136842**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	410	1.7	10		µg/L	50	10/8/2019 11:01 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_191016C**	QC Batch: **75563**			PrepDate:	**10/5/2019**		Analyst: **CEI**
Chromium	430	0.65	5.0		µg/L	5	10/16/2019 06:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-75563	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	PBW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537655

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75563	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	LCSW	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537656

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.261	1.0	10.00	0	103	85	115				

Sample ID	N037736-001C-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537662

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.952	1.0	10.00	0.4237	95.3	75	125				

Sample ID	N037736-001C-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537664

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.079	1.0	10.00	0.4237	96.6	75	125	9.952	1.27	20	

Sample ID	N037758-011B-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	10/5/2019	RunNo:	137023
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537683

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.567	1.0	10.00	11.67	99.0	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R136842**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **PBW**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R136842**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **LCSW**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.839	0.20	5.000	0	96.8	90	110				

Sample ID **N037801-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.091	0.20	1.000	0.09990	99.1	90	110				

Sample ID **N037801-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.931	0.20	1.000	0.9826	94.9	90	110				

Sample ID **N037801-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.6877	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037801-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.504	0.20	1.000	1.482	102	90	110				

Sample ID **N037801-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.693	0.20	1.000	0.7001	99.3	90	110				

Sample ID **N037801-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Sample ID **N037801-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.466	0.20	1.000	0.4390	103	90	110				

Sample ID **N037801-004AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136842**
Client ID: **ZZZZZZ** Batch ID: **R136842** TestNo: **EPA 218.6** Analysis Date: **10/8/2019** SeqNo: **3530748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.467	0.20	1.000	1.482	98.6	90	110	2.504	1.48	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037801-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.092	0.20						0.09990	0	20	

Sample ID **N037756-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	202.190	4.0	100.0	95.08	107	90	110				

Sample ID **N037757-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.046	0.20	1.000	0	105	90	110				

Sample ID **N037757-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	650.145	10	250.0	408.1	96.8	90	110				

Sample ID **N037772-002BMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.982	0.20	1.000	0	98.2	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191004B**	QC Batch: **R136779**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	10/4/2019 09:20 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_191004B**	QC Batch: **R136779**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	170	1.2	5.0		mg/L	1	10/4/2019 09:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R136779**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **LCSW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	103.037	5.0	100.0	0	103	85	115				

Sample ID **MB-R136779**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **PBW**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N037758-003DDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	280.911	5.0						277.7	1.17	30	

Sample ID **N037758-005DMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	170.282	5.0	100.0	73.75	96.5	75	125				

Sample ID **N037758-005DMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **136779**
Client ID: **ZZZZZZ**	Batch ID: **R136779**	TestNo: **SM 2320 B**		Analysis Date: **10/4/2019**	SeqNo: **3526641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	171.367	5.0	100.0	73.75	97.6	75	125	170.3	0.635	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037757
Project: PG&E Topock - PMP, 30019131
Lab ID: N037757-001

Client Sample ID: PE-01-1019
Collection Date: 10/3/2019 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_191014A** QC Batch: **R136993**				PrepDate:			Analyst: **RAB**
Chloride	800	3.5	50		mg/L	100	10/14/2019 02:36 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_191014A** QC Batch: **R136993**				PrepDate:			Analyst: **RAB**
Sulfate	290	2.0	25		mg/L	50	10/14/2019 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191014A**	QC Batch: **R136993**			PrepDate:			Analyst: **RAB**
Chloride	2000	17	250		mg/L	500	10/14/2019 02:51 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_191014A**	QC Batch: **R136993**			PrepDate:			Analyst: **RAB**
Sulfate	480	2.0	25		mg/L	50	10/14/2019 03:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R136993_CL	**MBLK**	**300_W_CLP**	**mg/L**		**136993**
Client ID: **PBW**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537388**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R136993_CL	**LCS**	**300_W_CLP**	**mg/L**		**136993**
Client ID: **LCSW**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537389**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.932	0.50	2.000	0	96.6	90	110				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037836-002BMS	**MS**	**300_W_CLP**	**mg/L**		**136993**
Client ID: **ZZZZZZ**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	125.830	10	40.00	85.13	102	80	120				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037836-002BMSD	**MSD**	**300_W_CLP**	**mg/L**		**136993**
Client ID: **ZZZZZZ**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	125.864	10	40.00	85.13	102	80	120	125.8	0.0270	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037836-006BMS	**MS**	**300_W_CLP**	**mg/L**		**136993**
Client ID: **ZZZZZZ**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	127.938	10	40.00	86.86	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **N037836-003BDUP**	SampType: **DUP**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:			RunNo: **136993**				
Client ID: **ZZZZZZ**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**			SeqNo: **3537406**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	92.138	10						93.47	1.44	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136993_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	PBW	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537411

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R136993_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	LCSW	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537412

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.959	0.50	4.000	0	99.0	90	110				

Sample ID	N037836-002BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537426

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	255.862	10	80.00	175.7	100	80	120				

Sample ID	N037836-002BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537427

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	254.600	10	80.00	175.7	98.7	80	120	255.9	0.494	20	

Sample ID	N037836-006BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136993
Client ID:	ZZZZZZ	Batch ID:	R136993	TestNo:	EPA 300.0			Analysis Date:	10/14/2019	SeqNo:	3537428

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	281.542	10	80.00	200.5	101	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **N037836-003BDUP**	SampType: **DUP**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:			RunNo: **136993**					
Client ID: **ZZZZZZ**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**			SeqNo: **3537429**					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Sulfate	215.142	10						215.7	0.267	20		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:55:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_191014D**	QC Batch: **R136950**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	10/14/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-1019
Lab Order:	N037757	**Collection Date:**	10/3/2019 8:40:00 AM
Project:	PG&E Topock - PMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037757-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191014D**	QC Batch: **R136950**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	2.8	0.16	0.25		mg/L	5	10/14/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136950	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950
Client ID:	PBW	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535531

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136950	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950
Client ID:	LCSW	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535532

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.464	0.050	0.5000	0	92.9	85	115				

Sample ID	N037613-003BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950
Client ID:	ZZZZZZ	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.921	0.050						0.8966	2.72	20	

Sample ID	N037757-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950
Client ID:	ZZZZZZ	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535598

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.216	0.25	2.500	2.822	95.8	75	125				

Sample ID	N037757-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136950
Client ID:	ZZZZZZ	Batch ID:	R136950	TestNo:	SM4500-NO3			Analysis Date:	10/14/2019	SeqNo:	3535674

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.531	0.25	2.500	2.822	108	75	125	5.216	5.87	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

ARCUS02 C: 10/17/201 12:00 AM
FOLDER R: 10/3/2019
N037757-003A 1 of 1

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email:	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloer@nivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		
Signature: Date: 10/3/2019	Sampled By: Nara Tay		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		
Project Name: PG&E Topock - PMP	Signature: Date: 10/3/2019		
Project Number: 30019131			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

	Y	N
1. Chilled		
2. Headspace		
3. Container Intact		
4. Seal Present		
5. IR number		
6. Method of Cooling: Ice		
Sample Temp: 2.0		
Courier: ASSET		
Tracking No.:		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn 1 L poly	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, 1 L poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 1 L poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037757-01	PE-01-1019	10/3/2019	8:55		X	X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-1019	10/3/2019	8:40		X	X	X			X	X	X	X	X		X	E	4	P	BN	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by (Signature and Printed Name): Nara Tay Date/Time: 10/3/19 1605
Relinquished by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 615 pm
Relinquished by (Signature and Printed Name): Date/Time:

Relinquished by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 1605
Relinquished by (Signature and Printed Name): JORDAN Date/Time: 10/3/19 615 pm
Relinquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample
6. Asset Laboratories is not responsible for samples collected using incorrect methodology
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	10/3/2019	Workorder:	N037757
Rep sample Temp (Deg C):	2.8	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YR 10/4/2019

Reviewed By: LG 100919

ASSET Laboratories

WORK ORDER Summary

04-Oct-19

WorkOrder: N037757

Client ID: ARCUS02

Project: PG&E Topock - PMP, 30019131 **QC Level:** Level IV **Date Received:** 10/3/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037757-001A	PE-01-1019	10/3/2019 8:55:00 AM	10/17/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037757-001B			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037757-001C			10/17/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/17/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			10/17/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/17/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/17/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037757-001D			10/17/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037757-002A	TW-03D-1019	10/3/2019 8:40:00 AM	10/17/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037757-002B			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			10/17/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			10/17/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037757-002C			10/17/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			10/17/2019		SM4500-H+B	pH	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

04-Oct-19

WorkOrder: N037757

Client ID: ARCUS02

Project: PG&E Topock - PMP, 30019131 **QC Level:** Level IV **Date Received:** 10/3/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037757-002C	TW-03D-1019	10/3/2019 8:40:00 AM	10/17/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			10/17/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			10/17/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			10/17/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037757-002D			10/17/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037757-003A	FOLDER	10/17/2019	10/17/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB
			10/17/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037757

NAME	TEST METHOD
Claire Ignacio	EPA 200.8_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B
Ria Abes	EPA 300.0
Hanah Glodoviza	EPA 218.6
Diane Jetajobe	EPA 200.7_Dissolved

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136784 **Analyst:** LSR

ASSET #: N037757 **Date Analyzed:** 4-Oct

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 10/7/2019

2nd Level Reviewer: Mary 10/22/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 10/4/19 1355
Analyst: LSR

	Standard	Std ID	Reading	Comments
	9.98 uS/cm	CINV-190724B	10.19 @20.9°C	% Rec: (90-110%)
	1410	D	14.13 @20.9°C	
	9985	F	9930 @20.9°C	
	100033	CINV-190904A	100200 @20.8°C	

	Sample ID	Matrix	Reading	Comments
1	NB37756-1C	H_2O	5460 @20.9°C	*MB = 035
2	NB37757-1C		3260 @20.7°C	
3	1 2C		7080 @20.4°C	
4	NB37758-1D		7460 @20.2°C	
5	2D		7480 @20.4°C	7440 um-10/9
6	3D		7480 @20.3°C	
7	4C		5680 @20.4°C	
8	4CDUP		5670 @20.5°C	
9	5D		7230 @20.4°C	
10	6D		7380 @20.6°C	
Dup	7C		3490 @20.6°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 10/7/2019

Date:
Analyst: CONTD

	Standard	Std ID	Reading	Comments
	1413 uS/cm	CINV-190724A	1438 @21.5°C	% Rec: (90-110%)
	10000	190724G	10290 @21.9°C	
	99999	190524A	100800 @22.0°C	

	Sample ID	Matrix	Reading	Comments
1	NB37758-8D	H_2O	7270 @20.5°C	
2	9D		7260 @20.6°C	
3	10D		7280 @20.7°C	
4	11C		5050 @20.8°C	
5	11CDUP		5080 @20.5°C	
6				
7				
8				
9				
10	1413 uS/cm	CINV-190726A	1444 @21.7°C	
Dup	10000	190724G	10330 @21.0°C	RPD Criteria: 2%
	Std Chk: 99999	190524A	101100 @22.2°C	% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136780 **Instrument ID:** pH meter

ASSET #: N037757 **Analyst:** LSR

Date Analyzed: 4-Oct

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?			X			
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 10/8/2019

2nd Level Reviewer: [illegible] 10/22/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 10/4/19 1045
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CNW-190724H	7.02 @25C	
Buffer 4	1 J	4.01 @25C	4.01 LSR 10/4
Buffer 10	CNW-190801A	10.02 @25C	
Slope		97.7%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	N037757-1C	H2O	7.48 @25°C	
2	1 1CDUP	1	7.50 @25°C	
3	1 2C	1	7.25 @25°C	
4				
5				
6				
7				
8				
9				
10				
up				Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CNW-190724K	7.03 @25°C	Accept: +/-0.05 pH units from expected value

Date: 10/8/19 1110
Analyst: LSR

Julia Ramit 10/8/2019

Standard	Std ID	pH	Comments
Buffer 7	CNW-190724H	7.02 @25°C	
Buffer 4	1 J	4.02 @25°C	
Buffer 10	CNW-190801A	10.02 @25°C	
Slope		97.9%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	N037785-1A	Soil	11.92 @25°C	
2	1 1APDP	1	11.89 @25°C	
3	N037786-1A	1	9.47 @25°C	
4	N037787-1A	1	9.59 @25°C	
5				
6				
7				
8				
9				
10				
up				Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CNW-190724K	6.96 @25°C	Accept: +/-0.05 pH units from expected value

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SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75581 **Analyst:** LSR

ASSET #: N037757 **Date Analyzed:** 7-Oct

Method: EPA 160.1 / SM 2540C

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 10/9/2019

2nd Level Reviewer: 10/22/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N037757-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(49.3918 - 49.3134)*1000000}{40}$$

$$= 1960 \text{ mg/L}$$

Reporting result in two significant figures,

TDS=2000 mg/L

Sujita Ramit 10/9/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/7/2019 1:25:04 P**
Prep End Date: **10/8/2019 11:55:00**
Reviewed/ Date: 10/22/2019
Initials/ Date: Lilia Ramit 10/9/2019
Prep Batch **75581** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75581	Water		100	☐	100	1.000		
MB-75581	Water		100	☐	100	1.000		
N037756-001C	Groundwater		20	☐	100	5.000		
N037757-001C	Groundwater		40	☐	100	2.500		
N037757-002C	Groundwater		20	☐	100	5.000		
N037758-011C	Groundwater		20	☐	100	5.000		
N037767-001A	Drinking Water		100	☐	100	1.000		
N037771-001A	Groundwater		5	☐	100	20.000		
N037771-001A-DU	Groundwater		5	☐	100	20.000		
N037771-002A	Groundwater		10	☐	100	10.000		
N037771-003A	Groundwater		20	☐	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10419	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST191001A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/7/2019 1:25:04 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 10/9/2019

Prep Batch **75581** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75581	Water	WSTI9I0 01A	100	☐	100	1.000		
MB-75581	Water		100	☐	100	1.000		
N037756-001C	Groundwater	5460	100 /20	☐	100	1.000		
N037757-001C	Groundwater	32100	100 /40	☐	100	1.000		
N037757-002C	Groundwater	7080	100 /20	☐	100	1.000		
N037758-011C	Groundwater	5050	100 /20	☐	100	1.000		
N037767-001A	Drinking Water	396	✓100	☐	100	1.000		
N037771-001A	Groundwater	22800	100 /5	☐	100	1.000		
N037771-001A-DU	Groundwater		100 /5	☐	100	1.000		
N037771-002A	Groundwater	19380	100 /10	☐	100	1.000		
N037771-003A	Groundwater	8220	100 /20	☐	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10/9

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/7/19 BJS KK	MB 75581	100	70.0652 70.0659	70.0661 70.0660	
NN	LCS 75581	100	69.7226 69.7224	69.8181 69.8182	
IJ	NM7756-1C	20	61.4839 low wt 61.4835 61.4739	61.5392 61.5392	
D	NM7757 1C	40	49.3131 49.3134	49.3918 49.3918	
K	" 2C	20	60.5760 60.5765	60.6576 60.6580	1
M	NM7758-11C	20	48.8901 48.8904	48.9625 48.9630	
CC	NM7767-1A	100	69.6921 69.6923	69.7163 69.7161	
KJ	NM7771-1A	5	47.9764 47.9766	48.0433 48.0431	
V	" 1A DUP	5	48.8479 48.8483	48.9153 48.9152	
Q	" 2A	10	50.6242 50.6246	50.7414 50.7416	

Julia Ramit 10/9/2019

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SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/7/18 1x	NB,7771-3A	20	60.4168 60.4168	60.5127 60.5119	
					1
	Julia Ramit	10/9/2019			
	180°C TIME IN 8:20 TIME OUT 11:10		1155 49.9998	1140 10/8/19	

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TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
10/8/2019									
MB-75581	100	70.0659	70.066	1	1	1			MBLK
LCS-75581	100	69.7224	69.8182	958	1	958			LCS
N037756-001C	20	61.4731	61.5392	661	5	3305	5460	0.605	SAMP
N037757-001C	40	49.3134	49.3918	784	2.5	1960	3260	0.601	SAMP
N037757-002C	20	60.5765	60.658	815	5	4075	7080	0.576	SAMP
N037758-011C	20	48.8904	48.963	726	5	3630	5050	0.719	SAMP
N037767-001A	100	69.6923	69.7161	238	1	238	396	0.601	SAMP
N037771-001A	5	47.9766	48.0431	665	20	13300	22800	0.583	SAMP
N037771-001ADUP	5	48.8483	48.9152	669	20	13380	22800	0.587	DUP
N037771-002A	10	50.6246	50.7416	1170	10	11700	19380	0.604	SAMP
N037771-003A	20	60.4168	60.5119	951	5	4755	8220	0.578	SAMP

Divia Ramit 10/9/2019

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75564
ASSET #: N037757
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 10/4/2019

Method: DISSOLVED

- [X] EPA 6010B / 200.7
- [ ] EPA 6020 / 200.8
- [ ] EPA 7470A / 7471A/245.1
- [ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X	X	
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.		X			X	
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Fe in LCS failed, high bias. For rerun.
% Rec of Ca in N037736-001C-PS/MS/MSD failed, low bias. However, LCS passed criteria.
Detect of Fe in several CCBs are either > RL or > 1/2 RL. Fe not reported on this run.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer DBJ Date: 10/23/2019

2nd Level Reviewer NS 10/23/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75564
ASSET #: N037757
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 10/7/2019

Method: DISSOLVED

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Fe rerun

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer DBJ Date: 10/23/2019

2nd Level Reviewer NS 10/23/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75564
ASSET #: N037757
Instrument ID: ICP-02
Analyst: DBJ
Date Analyzed: 10/10/2019

Method: DISSOLVED

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

K and Na run
% Rec of Na in N037736-002C-PS/MS/MSD failed, high bias. However, LCS pased criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer DBJ Date: 10/23/2019

2nd Level Reviewer NS 10/23/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75564
ASSET #: N037757
Instrument ID: ICP-02
Analyst: DBJ
Date Analyzed: 10/21/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Fe rerun for N037758-011B-MS.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer DBJ Date: 10/23/2019

2nd Level Reviewer NS 10/23/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Magnesium concentration, in ug/L , in the original sample as follows:

Magnesium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N037757-001B** , the concentration ir ug/L is calculated as follows:

Magnesium , ug/L = 32.119 * 1 *(25/25) * 1000

Magnesium , ug/L = 32119

Reporting results in two significant figures,

Magnesium , ug/L = 32000

% RSD SUMMARY

RSD SUMMARY: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Al	0	4.17	15	PASS
Standard1	ICAL	1	Al	0.05	6.92	15	PASS
Standard2	ICAL	1	Al	1	1.16	15	PASS
Standard3	ICAL	1	Al	2	0.16	15	PASS
Standard4	ICAL	1	Al	5	0.15	15	PASS
Standard5	ICAL	1	Al	7.5	0.28	15	PASS
Standard6	ICAL	1	Al	10	0.26	15	PASS
Standard7	ICAL	1	Al	20	0.1	15	PASS
ICV	ICV	1	Al	10.37	0.16	15	PASS
ICB	ICB	1	Al	0	39.78	15	<PQL
LLICV	CCV1	1	Al	0.05	3.36	20	PASS
LLICV	CCV1	1	Al	0.05	5.03	20	PASS
LLICV	CCV1	1	Al	0.04	3.51	20	PASS
CalBlk	IBLK	1	Al	0	5.89	15	PASS
Standard1	ICAL	1	Al	0.05	4.18	15	PASS
Standard2	ICAL	1	Al	1	0.26	15	PASS
Standard3	ICAL	1	Al	2	0.12	15	PASS
Standard4	ICAL	1	Al	5	0.05	15	PASS
Standard5	ICAL	1	Al	7.5	0.2	15	PASS
Standard6	ICAL	1	Al	10	0.28	15	PASS
Standard7	ICAL	1	Al	20	0.04	15	PASS
ICV	ICV	1	Al	10.36	0.23	15	PASS
ICB	ICB	1	Al	0	80.37	15	<PQL
LLICV	CCV1	1	Al	0.06	8.69	20	PASS
LLICV	CCV1	1	Al	0.14	3.56	20	PASS
LLICV	CCV1	1	Al	0.11	4.6	20	PASS
CalBlk	IBLK	1	Al	0	9.74	15	PASS
Standard1	ICAL	1	Al	0.05	4.77	15	PASS
Standard2	ICAL	1	Al	1	0.61	15	PASS
Standard3	ICAL	1	Al	2	0.17	15	PASS
Standard4	ICAL	1	Al	5	0.32	15	PASS
Standard5	ICAL	1	Al	7.5	0.1	15	PASS
Standard6	ICAL	1	Al	10	0.5	15	PASS
Standard7	ICAL	1	Al	20	0.03	15	PASS
ICV	ICV	1	Al	10.35	0.35	15	PASS
ICB	ICB	1	Al	0	168.78	15	<PQL
ICB	ICB	1	Al	0	146.52	15	<PQL
LLICV	CCV1	1	Al	0.09	4.17	20	PASS
LLICV	CCV1	1	Al	0.05	7.49	20	PASS
CalBlk	IBLK	1	Al	0	12.63	15	PASS
Standard1	ICAL	1	Al	0.05	2.01	15	PASS
Standard2	ICAL	1	Al	1	0.17	15	PASS

RSD SUMMARY: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
Standard3	ICAL	1	Al	2	0.33	15	PASS
Standard4	ICAL	1	Al	5	0.07	15	PASS
Standard5	ICAL	1	Al	7.5	0.16	15	PASS
Standard6	ICAL	1	Al	10	0.52	15	PASS
Standard7	ICAL	1	Al	20	0.27	15	PASS
ICV	ICV	1	Al	10.01	0.23	15	PASS
ICB	ICB	1	Al	0	148.6	15	<PQL
LLICV	CCV1	1	Al	0.05	4.13	20	PASS
LLICV	CCV1	1	Al	0.05	1.53	20	PASS
ICSA1	ICSA	1	Al	465.54	0.08	15	PASS
ICSAB1	ICSAB	1	Al	524.46	0.73	15	PASS
CCV1	CCV	1	Al	10.14	0.46	15	PASS
CCB1	CCB	1	Al	0.01	39.11	15	<PQL
CCV2	CCV	1	Al	9.68	0.26	15	PASS
CCB2	CCB	1	Al	0.01	5.57	15	PASS
CCV3	CCV	1	Al	9.61	0.77	15	PASS
CCB3	CCB	1	Al	0.01	5.57	15	PASS
ICSA2	ICSA	1	Al	476.36	0.29	15	PASS
ICSAB2	ICSAB	1	Al	531.32	0.01	15	PASS
CCV4	CCV	1	Al	9.63	0.57	15	PASS
CCB4	CCB	1	Al	0.02	9.26	15	PASS
CCV5	CCV	1	Al	9.63	0.47	15	PASS
CCB5	CCB	1	Al	0.01	8.54	15	PASS
CCB5	CCB	1	Al	0.01	14.02	15	PASS
CCB5	CCB	1	Al	0.01	19.53	15	<PQL
MB-75564	MBLK	1	Al	0.01	17.38	15	<PQL
LCS1-75564	LCS	1	Al	9.82	0.53	15	PASS
CCV6	CCV	1	Al	9.68	0.33	15	PASS
CCB6	CCB	1	Al	0.01	31.48	15	<PQL
CCB6	CCB	1	Al	0.02	20.13	15	<PQL
ICSA3	ICSA	1	Al	493.69	0.5	15	PASS
ICSAB3	ICSAB	1	Al	538.62	0.07	15	PASS
N037736-001C	SAMP	1	Al	0.05	24.26	15	NR!
N037736-001C	SAMP	5	Al	0.02	8.37	15	PASS
N037736-001C-PS	PS	1	Al	11.16	0.14	15	PASS
N037736-001C-MS1	MS	1	Al	9.88	0.54	15	PASS
N037736-001C-MSD1	MSD	1	Al	9.91	0.39	15	PASS
N037736-002C	SAMP	1	Al	0.02	17.66	15	<PQL
N037736-003C	SAMP	1	Al	0.09	2.41	15	PASS
N037736-004C	SAMP	1	Al	0.02	8.64	15	PASS
N037736-005C	SAMP	1	Al	0.08	3.66	15	PASS
N037736-006C	SAMP	1	Al	0.02	13.84	15	PASS

RSD SUMMARY: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV7	CCV	1	Al	9.62	0.75	15	PASS
CCB7	CCB	1	Al	0.02	21.6	15	<PQL
N037736-007C	SAMP	1	Al	0.05	5.31	15	PASS
N037757-001B	SAMP	1	Al	0.01	41.43	15	<PQL
N037757-002B	SAMP	1	Al	0.02	18.09	15	<PQL
N037758-001C	SAMP	1	Al	0.02	10.61	15	PASS
N037758-002C	SAMP	1	Al	0.02	10.63	15	PASS
N037758-003C	SAMP	1	Al	0.02	26.3	15	<PQL
N037758-004B	SAMP	1	Al	0.03	12.66	15	PASS
N037758-005C	SAMP	1	Al	0.05	3.18	15	PASS
N037758-006C	SAMP	1	Al	0.02	2.7	15	PASS
N037758-007B	SAMP	1	Al	0.02	8.3	15	PASS
CCV8	CCV	1	Al	9.69	0.75	15	PASS
CCB8	CCB	1	Al	0.02	33.08	15	<PQL
N037758-008C	SAMP	1	Al	0.02	4.41	15	PASS
N037758-009C	SAMP	1	Al	0.02	9.68	15	PASS
N037758-010C	SAMP	1	Al	0.02	12.49	15	PASS
N037758-011B	SAMP	1	Al	0.02	9.79	15	PASS
N037758-011B-MS1	MS	1	Al	10.15	0.72	15	PASS
CCV9	CCV	1	Al	9.68	0.39	15	PASS
CCB9	CCB	1	Al	0.01	29.84	15	<PQL
ICSA4	ICSA	1	Al	490.04	0.8	15	PASS
ICSAB4	ICSAB	1	Al	524.34	0.56	15	PASS
CCV10	CCV	1	Al	9.91	0.13	15	PASS
CCB10	CCB	1	Al	0.02	14.48	15	PASS
ICSA5	ICSA	1	Al	489.57	0.19	15	PASS
ICSAB5	ICSAB	1	Al	537.06	0.04	15	PASS
CalBlk	IBLK	1	B	0	0.28	15	PASS
Standard1	ICAL	1	B	0.1	0.29	15	PASS
Standard3	ICAL	1	B	1	0.5	15	PASS
Standard4	ICAL	1	B	2.5	0.43	15	PASS
Standard5	ICAL	1	B	3.75	0.48	15	PASS
Standard6	ICAL	1	B	5	0.46	15	PASS
Standard7	ICAL	1	B	10	0.47	15	PASS
ICV	ICV	1	B	5.12	0.59	15	PASS
ICB	ICB	1	B	0.04	5.48	15	PASS
LLICV	CCV1	1	B	0.12	0.53	20	PASS
LLICV	CCV1	1	B	0.12	0.97	20	PASS
LLICV	CCV1	1	B	0.13	9.65	20	PASS
CalBlk	IBLK	1	B	0	0.73	15	PASS
Standard1	ICAL	1	B	0.1	2.91	15	PASS
Standard3	ICAL	1	B	1	0.43	15	PASS

RSD SUMMARY: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
Standard4	ICAL	1	B	2.5	0.31	15	PASS
Standard5	ICAL	1	B	3.75	0.2	15	PASS
Standard6	ICAL	1	B	5	0.17	15	PASS
Standard7	ICAL	1	B	10	0.46	15	PASS
ICV	ICV	1	B	5.12	0.16	15	PASS
ICB	ICB	1	B	0.03	8.51	15	PASS
LLICV	CCV1	1	B	0.11	3.05	20	PASS
LLICV	CCV1	1	B	0.1	0.68	20	PASS
LLICV	CCV1	1	B	0.09	1.01	20	PASS
CalBlk	IBLK	1	B	0	0.67	15	PASS
Standard1	ICAL	1	B	0.1	0.72	15	PASS
Standard3	ICAL	1	B	1	0.49	15	PASS
Standard4	ICAL	1	B	2.5	0.13	15	PASS
Standard5	ICAL	1	B	3.75	0.21	15	PASS
Standard6	ICAL	1	B	5	0.21	15	PASS
Standard7	ICAL	1	B	10	0.38	15	PASS
ICV	ICV	1	B	5.09	0.34	15	PASS
ICB	ICB	1	B	0.06	2.51	15	PASS
ICB	ICB	1	B	0.05	3.48	15	PASS
LLICV	CCV1	1	B	0.18	0.96	20	PASS
LLICV	CCV1	1	B	0.18	8.19	20	PASS
CalBlk	IBLK	1	B	0	0.89	15	PASS
Standard1	ICAL	1	B	0.1	1.36	15	PASS
Standard3	ICAL	1	B	1	0.3	15	PASS
Standard4	ICAL	1	B	2.5	0.29	15	PASS
Standard5	ICAL	1	B	3.75	0.08	15	PASS
Standard6	ICAL	1	B	5	0.15	15	PASS
Standard7	ICAL	1	B	10	0.22	15	PASS
ICV	ICV	1	B	5.11	0.17	15	PASS
ICB	ICB	1	B	0.04	6.8	15	PASS
LLICV	CCV1	1	B	0.12	1.85	20	PASS
LLICV	CCV1	1	B	0.11	2.69	20	PASS
ICSA1	ICSA	1	B	0.03	7	15	PASS
ICSAB1	ICSAB	1	B	1.11	0.11	15	PASS
CCV1	CCV	1	B	5.01	0.3	15	PASS
CCB1	CCB	1	B	0.02	6.06	15	PASS
CCV2	CCV	1	B	4.79	0.24	15	PASS
CCB2	CCB	1	B	0	729.89	15	<PQL
CCV3	CCV	1	B	4.75	0.3	15	PASS
CCB3	CCB	1	B	0.01	12.66	15	PASS
ICSA2	ICSA	1	B	0.05	1.55	15	PASS
ICSAB2	ICSAB	1	B	1.12	0.19	15	PASS

RSD SUMMARY: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV4	CCV	1	B	4.74	0.12	15	PASS
CCB4	CCB	1	B	-0.01	0.75	15	PASS
CCV5	CCV	1	B	4.73	0.25	15	PASS
CCB5	CCB	1	B	0	21.16	15	<PQL
CCB5	CCB	1	B	-0.01	12.45	15	PASS
CCB5	CCB	1	B	-0.02	4.67	15	PASS
MB-75564	MBLK	1	B	-0.01	12.37	15	PASS
LCS1-75564	LCS	1	B	4.94	0.66	15	PASS
CCV6	CCV	1	B	4.85	0.11	15	PASS
CCB6	CCB	1	B	-0.01	13.48	15	PASS
CCB6	CCB	1	B	-0.02	2.7	15	PASS
ICSA3	ICSA	1	B	0.03	5.36	15	PASS
ICSAB3	ICSAB	1	B	1.11	0.14	15	PASS
N037736-001C	SAMP	1	B	0.91	0.44	15	PASS
N037736-001C	SAMP	5	B	0.18	1.15	15	PASS
N037736-001C-PS	PS	1	B	6.4	0.22	15	PASS
N037736-001C-MS1	MS	1	B	5.77	0.38	15	PASS
N037736-001C-MSD1	MSD	1	B	5.77	0.37	15	PASS
N037736-002C	SAMP	1	B	1	0.14	15	PASS
N037736-003C	SAMP	1	B	0.99	0.18	15	PASS
N037736-004C	SAMP	1	B	1.1	0.23	15	PASS
N037736-005C	SAMP	1	B	0.97	0.25	15	PASS
N037736-006C	SAMP	1	B	0.93	0.27	15	PASS
CCV7	CCV	1	B	4.76	0.23	15	PASS
CCB7	CCB	1	B	0	28.23	15	<PQL
N037736-007C	SAMP	1	B	1.13	0.25	15	PASS
N037757-001B	SAMP	1	B	0.28	0.31	15	PASS
N037757-002B	SAMP	1	B	0.99	0.24	15	PASS
N037758-001C	SAMP	1	B	0.94	0.19	15	PASS
N037758-002C	SAMP	1	B	0.97	0.33	15	PASS
N037758-003C	SAMP	1	B	1.27	0.3	15	PASS
N037758-004B	SAMP	1	B	0.79	0.16	15	PASS
N037758-005C	SAMP	1	B	0.95	0.24	15	PASS
N037758-006C	SAMP	1	B	1.1	0.25	15	PASS
N037758-007B	SAMP	1	B	0.58	1.01	15	PASS
CCV8	CCV	1	B	4.78	0.16	15	PASS
CCB8	CCB	1	B	-0.01	21.53	15	<PQL
N037758-008C	SAMP	1	B	0.93	0.26	15	PASS
N037758-009C	SAMP	1	B	1.01	0.29	15	PASS
N037758-010C	SAMP	1	B	1.03	0.31	15	PASS
N037758-011B	SAMP	1	B	0.34	0.3	15	PASS
N037758-011B-MS1	MS	1	B	5.41	0.31	15	PASS

RSD SUMMARY: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV9	CCV	1	B	4.66	0.25	15	PASS
CCB9	CCB	1	B	0.01	7.59	15	PASS
ICSA4	ICSA	1	B	0.06	2.98	15	PASS
ICSAB4	ICSAB	1	B	1.08	0.33	15	PASS
CCV10	CCV	1	B	4.79	0.33	15	PASS
CCB10	CCB	1	B	0	88.09	15	<PQL
ICSA5	ICSA	1	B	0.04	1.19	15	PASS
ICSAB5	ICSAB	1	B	1.11	0.31	15	PASS
CalBlk	IBLK	1	Ca	0	5.65	15	PASS
Standard1	ICAL	1	Ca	0.2	4.93	15	PASS
Standard2	ICAL	1	Ca	1	5.2	15	PASS
Standard3	ICAL	1	Ca	2	1.62	15	PASS
Standard4	ICAL	1	Ca	5	1.26	15	PASS
Standard5	ICAL	1	Ca	7.5	0.28	15	PASS
Standard6	ICAL	1	Ca	10	0.66	15	PASS
Standard7	ICAL	1	Ca	20	0.17	15	PASS
ICV	ICV	1	Ca	10.18	0.1	15	PASS
ICB	ICB	1	Ca	0	2120.88	15	<PQL
LLICV	CCV1	1	Ca	0.19	5.81	20	PASS
LLICV	CCV1	1	Ca	0.21	19.21	20	PASS
LLICV	CCV1	1	Ca	0.28	11.58	20	PASS
CalBlk	IBLK	1	Ca	0	7.8	15	PASS
Standard1	ICAL	1	Ca	0.2	16.66	15	<PQL
Standard2	ICAL	1	Ca	1	3.51	15	PASS
Standard3	ICAL	1	Ca	2	2.07	15	PASS
Standard4	ICAL	1	Ca	5	0.25	15	PASS
Standard5	ICAL	1	Ca	7.5	0.24	15	PASS
Standard6	ICAL	1	Ca	10	0.38	15	PASS
Standard7	ICAL	1	Ca	20	0.04	15	PASS
ICV	ICV	1	Ca	10.15	0.45	15	PASS
ICB	ICB	1	Ca	-0.01	357.96	15	<PQL
LLICV	CCV1	1	Ca	0.21	13.87	20	PASS
LLICV	CCV1	1	Ca	0.3	8.79	20	PASS
LLICV	CCV1	1	Ca	0.25	15.32	20	PASS
CalBlk	IBLK	1	Ca	0	5.24	15	PASS
Standard1	ICAL	1	Ca	0.2	8.51	15	PASS
Standard2	ICAL	1	Ca	1	3.68	15	PASS
Standard3	ICAL	1	Ca	2	1.23	15	PASS
Standard4	ICAL	1	Ca	5	0.48	15	PASS
Standard5	ICAL	1	Ca	7.5	0.45	15	PASS
Standard6	ICAL	1	Ca	10	0.12	15	PASS
Standard7	ICAL	1	Ca	20	0.12	15	PASS

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICV	ICV	1	Ca	10.19	0.72	15	PASS
ICB	ICB	1	Ca	0	3295.81	15	<PQL
ICB	ICB	1	Ca	-0.03	109.67	15	<PQL
LLICV	CCV1	1	Ca	0.31	5.23	20	PASS
LLICV	CCV1	1	Ca	0.24	19.25	20	PASS
CalBlk	IBLK	1	Ca	0	11.73	15	PASS
Standard1	ICAL	1	Ca	0.2	11.59	15	PASS
Standard2	ICAL	1	Ca	1	6.69	15	PASS
Standard3	ICAL	1	Ca	2	2.87	15	PASS
Standard4	ICAL	1	Ca	5	0.64	15	PASS
Standard5	ICAL	1	Ca	7.5	0.61	15	PASS
Standard6	ICAL	1	Ca	10	0.72	15	PASS
Standard7	ICAL	1	Ca	20	0.56	15	PASS
ICV	ICV	1	Ca	10.11	0.81	15	PASS
ICB	ICB	1	Ca	-0.06	85.51	15	<PQL
LLICV	CCV1	1	Ca	0.12	13.69	20	PASS
LLICV	CCV1	1	Ca	0.2	5.75	20	PASS
ICSA1	ICSA	1	Ca	477.45	0.06	15	PASS
ICSAB1	ICSAB	1	Ca	533.18	0.08	15	PASS
CCV1	CCV	1	Ca	10.22	0.45	15	PASS
CCB1	CCB	1	Ca	-0.07	59.28	15	<PQL
CCV2	CCV	1	Ca	9.73	0.33	15	PASS
CCB2	CCB	1	Ca	-0.12	34.31	15	<PQL
CCV3	CCV	1	Ca	9.63	0.89	15	PASS
CCB3	CCB	1	Ca	-0.14	26.87	15	<PQL
ICSA2	ICSA	1	Ca	509.69	0.05	15	PASS
ICSAB2	ICSAB	1	Ca	545.23	0.06	15	PASS
CCV4	CCV	1	Ca	9.73	0.27	15	PASS
CCB4	CCB	1	Ca	-0.13	18.79	15	<PQL
CCV5	CCV	1	Ca	9.69	0.99	15	PASS
CCB5	CCB	1	Ca	-0.14	20.52	15	<PQL
CCB5	CCB	1	Ca	-0.1	45.29	15	<PQL
CCB5	CCB	1	Ca	-0.09	12.56	15	PASS
MB-75564	MBLK	1	Ca	-0.09	7.73	15	PASS
LCS1-75564	LCS	1	Ca	9.83	0.97	15	PASS
CCV6	CCV	1	Ca	9.7	0.49	15	PASS
CCB6	CCB	1	Ca	-0.13	36.43	15	<PQL
CCB6	CCB	1	Ca	-0.1	16.89	15	<PQL
ICSA3	ICSA	1	Ca	526.23	0.38	15	PASS
ICSAB3	ICSAB	1	Ca	551.48	0.09	15	PASS
N037736-001C	SAMP	1	Ca	156.53	0.16	15	PASS
N037736-001C	SAMP	5	Ca	29.72	0.39	15	PASS

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037736-001C-PS	PS	1	Ca	163.27	0.1	15	PASS
N037736-001C-MS1	MS	1	Ca	162.83	0.52	15	PASS
N037736-001C-MSD1	MSD	1	Ca	162.57	0.46	15	PASS
N037736-002C	SAMP	1	Ca	167.62	0.41	15	PASS
N037736-003C	SAMP	1	Ca	87.48	0.16	15	PASS
N037736-004C	SAMP	1	Ca	139.16	0.29	15	PASS
N037736-005C	SAMP	1	Ca	86.46	0.31	15	PASS
N037736-006C	SAMP	1	Ca	65.09	0.55	15	PASS
CCV7	CCV	1	Ca	9.71	0.97	15	PASS
CCB7	CCB	1	Ca	-0.08	17.61	15	<PQL
N037736-007C	SAMP	1	Ca	165.79	0.32	15	PASS
N037757-001B	SAMP	1	Ca	130.35	0.33	15	PASS
N037757-002B	SAMP	1	Ca	203.94	0.44	15	PASS
N037758-001C	SAMP	1	Ca	159.81	0.54	15	PASS
N037758-002C	SAMP	1	Ca	166.13	0.32	15	PASS
N037758-003C	SAMP	1	Ca	176.65	0.64	15	PASS
N037758-004B	SAMP	1	Ca	290.13	0.09	15	PASS
N037758-005C	SAMP	1	Ca	143.61	0.16	15	PASS
N037758-006C	SAMP	1	Ca	166.81	0.67	15	PASS
N037758-007B	SAMP	1	Ca	114.16	0.8	15	PASS
CCV8	CCV	1	Ca	9.76	1	15	PASS
CCB8	CCB	1	Ca	-0.11	28.75	15	<PQL
N037758-008C	SAMP	1	Ca	122.99	0.43	15	PASS
N037758-009C	SAMP	1	Ca	138.87	0.32	15	PASS
N037758-010C	SAMP	1	Ca	142.08	0.79	15	PASS
N037758-011B	SAMP	1	Ca	355.68	0.12	15	PASS
N037758-011B-MS1	MS	1	Ca	408.46	0.73	15	PASS
CCV9	CCV	1	Ca	9.62	0.95	15	PASS
CCB9	CCB	1	Ca	-0.05	81.61	15	<PQL
ICSA4	ICSA	1	Ca	514.48	0.87	15	PASS
ICSAB4	ICSAB	1	Ca	528.48	0.03	15	PASS
CCV10	CCV	1	Ca	9.89	0.19	15	PASS
CCB10	CCB	1	Ca	-0.09	54.64	15	<PQL
ICSA5	ICSA	1	Ca	521.86	0.49	15	PASS
ICSAB5	ICSAB	1	Ca	546.9	0.04	15	PASS
CalBlk	IBLK	1	Fe	0	5.21	15	PASS
Standard1	ICAL	1	Fe	0.02	12.79	15	PASS
Standard2	ICAL	1	Fe	0.05	3.25	15	PASS
Standard3	ICAL	1	Fe	2	0.09	15	PASS
Standard4	ICAL	1	Fe	5	0.07	15	PASS
Standard5	ICAL	1	Fe	7.5	0.06	15	PASS
Standard6	ICAL	1	Fe	10	0.04	15	PASS

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
Standard7	ICAL	1	Fe	20	0.18	15	PASS
ICV	ICV	1	Fe	10.39	0.22	15	PASS
ICB	ICB	1	Fe	0	84.67	15	<PQL
LLICV	CCV1	1	Fe	0.02	4.38	20	PASS
LLICV	CCV1	1	Fe	0.02	1.42	20	PASS
LLICV	CCV1	1	Fe	0.02	1.67	20	PASS
CalBlk	IBLK	1	Fe	0	684.57	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.09	15	PASS
Standard2	ICAL	1	Fe	0.05	0.17	15	PASS
Standard3	ICAL	1	Fe	2	0.07	15	PASS
Standard4	ICAL	1	Fe	5	0.22	15	PASS
Standard5	ICAL	1	Fe	7.5	0.23	15	PASS
Standard6	ICAL	1	Fe	10	0.39	15	PASS
Standard7	ICAL	1	Fe	20	0.08	15	PASS
ICV	ICV	1	Fe	10.25	0.02	15	PASS
ICB	ICB	1	Fe	0	883.72	15	<PQL
LLICV	CCV1	1	Fe	0.03	3.46	20	PASS
LLICV	CCV1	1	Fe	0.07	5.35	20	PASS
LLICV	CCV1	1	Fe	0.05	5.1	20	PASS
CalBlk	IBLK	1	Fe	0	9888.33	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.2	15	PASS
Standard2	ICAL	1	Fe	0.05	0.32	15	PASS
Standard3	ICAL	1	Fe	2	0.09	15	PASS
Standard4	ICAL	1	Fe	5	0.1	15	PASS
Standard5	ICAL	1	Fe	7.5	0.07	15	PASS
Standard6	ICAL	1	Fe	10	0.13	15	PASS
Standard7	ICAL	1	Fe	20	0.13	15	PASS
ICV	ICV	1	Fe	10.28	0.05	15	PASS
ICB	ICB	1	Fe	0	36.35	15	<PQL
ICB	ICB	1	Fe	0	133.76	15	<PQL
LLICV	CCV1	1	Fe	0.04	1.19	20	PASS
LLICV	CCV1	1	Fe	0.02	10.36	20	PASS
CalBlk	IBLK	1	Fe	0	33.95	15	<PQL
Standard1	ICAL	1	Fe	0.02	5.69	15	PASS
Standard2	ICAL	1	Fe	0.05	1.91	15	PASS
Standard3	ICAL	1	Fe	2	0.32	15	PASS
Standard4	ICAL	1	Fe	5	0.05	15	PASS
Standard5	ICAL	1	Fe	7.5	0.09	15	PASS
Standard6	ICAL	1	Fe	10	0.01	15	PASS
Standard7	ICAL	1	Fe	20	0.09	15	PASS
ICV	ICV	1	Fe	10.29	0.03	15	PASS
ICB	ICB	1	Fe	0	53.56	15	<PQL

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
LLICV	CCV1	1	Fe	0.02	6.51	20	PASS
LLICV	CCV1	1	Fe	0.02	6.97	20	PASS
ICSA1	ICSA	1	Fe	181.14	0.25	15	PASS
ICSAB1	ICSAB	1	Fe	183.7	0.63	15	PASS
CCV1	CCV	1	Fe	10.09	0.12	15	PASS
CCB1	CCB	1	Fe	0.02	11.63	15	PASS
CCV2	CCV	1	Fe	9.63	0.04	15	PASS
CCB2	CCB	1	Fe	0.01	8.93	15	PASS
CCV3	CCV	1	Fe	9.52	0.09	15	PASS
CCB3	CCB	1	Fe	0.01	7.41	15	PASS
ICSA2	ICSA	1	Fe	200.36	0.3	15	PASS
ICSAB2	ICSAB	1	Fe	183.4	0.29	15	PASS
CCV4	CCV	1	Fe	9.53	0.06	15	PASS
CCB4	CCB	1	Fe	0.01	5.51	15	PASS
CCV5	CCV	1	Fe	9.53	0.07	15	PASS
CCB5	CCB	1	Fe	0.01	10.49	15	PASS
CCB5	CCB	1	Fe	0.01	4.27	15	PASS
CCB5	CCB	1	Fe	0.01	11.42	15	PASS
MB-75564	MBLK	1	Fe	0	12.92	15	PASS
LCS1-75564	LCS	1	Fe	0.12	4.37	15	PASS
CCV6	CCV	1	Fe	9.72	0.15	15	PASS
CCB6	CCB	1	Fe	0.03	6.8	15	PASS
CCB6	CCB	1	Fe	0.03	11.5	15	PASS
ICSA3	ICSA	1	Fe	206.02	0.46	15	PASS
ICSAB3	ICSAB	1	Fe	184.88	0.35	15	PASS
N037736-001C	SAMP	1	Fe	0.04	4.12	15	PASS
N037736-001C	SAMP	5	Fe	0.04	12.84	15	PASS
N037736-001C-PS	PS	1	Fe	0.13	8.28	15	PASS
N037736-001C-MS1	MS	1	Fe	0.1	2.1	15	PASS
N037736-001C-MSD1	MSD	1	Fe	0.11	5.54	15	PASS
N037736-002C	SAMP	1	Fe	0.02	12.81	15	PASS
N037736-003C	SAMP	1	Fe	0.11	0.43	15	PASS
N037736-004C	SAMP	1	Fe	0.02	9.25	15	PASS
N037736-005C	SAMP	1	Fe	0.09	1.92	15	PASS
N037736-006C	SAMP	1	Fe	0.02	2.05	15	PASS
CCV7	CCV	1	Fe	9.57	0.09	15	PASS
CCB7	CCB	1	Fe	0.03	35.36	15	NR!
N037736-007C	SAMP	1	Fe	0.07	1.63	15	PASS
N037757-001B	SAMP	1	Fe	1.08	0.31	15	PASS
N037757-002B	SAMP	1	Fe	0.02	6.11	15	PASS
N037758-001C	SAMP	1	Fe	0.02	14.42	15	PASS
N037758-002C	SAMP	1	Fe	0.03	6.52	15	PASS

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037758-003C	SAMP	1	Fe	0.03	6.61	15	PASS
N037758-004B	SAMP	1	Fe	0.09	3.44	15	PASS
N037758-005C	SAMP	1	Fe	0.06	0.42	15	PASS
N037758-006C	SAMP	1	Fe	0.02	9.51	15	PASS
N037758-007B	SAMP	1	Fe	0.03	4.49	15	PASS
CCV8	CCV	1	Fe	9.59	0.06	15	PASS
CCB8	CCB	1	Fe	0.03	15.38	15	NR!
N037758-008C	SAMP	1	Fe	0.02	10.77	15	PASS
N037758-009C	SAMP	1	Fe	0.02	0.72	15	PASS
N037758-010C	SAMP	1	Fe	0.02	5.45	15	PASS
N037758-011B	SAMP	1	Fe	0.03	9.29	15	PASS
N037758-011B-MS1	MS	1	Fe	0.12	2.58	15	PASS
CCV9	CCV	1	Fe	9.79	0.02	15	PASS
CCB9	CCB	1	Fe	0.06	16.53	15	NR!
ICSA4	ICSA	1	Fe	209.87	0.75	15	PASS
ICSAB4	ICSAB	1	Fe	182.83	0.96	15	PASS
CCV10	CCV	1	Fe	9.85	0.1	15	PASS
CCB10	CCB	1	Fe	0.05	13.96	15	PASS
ICSA5	ICSA	1	Fe	206.94	0.22	15	PASS
ICSAB5	ICSAB	1	Fe	185.91	0.14	15	PASS
CalBlk	IBLK	1	Mg	0	2.24	15	PASS
Standard1	ICAL	1	Mg	0.1	3.14	15	PASS
Standard2	ICAL	1	Mg	1	0.71	15	PASS
Standard3	ICAL	1	Mg	2	0.33	15	PASS
Standard4	ICAL	1	Mg	5	0.07	15	PASS
Standard5	ICAL	1	Mg	7.5	0.07	15	PASS
Standard6	ICAL	1	Mg	10	0.06	15	PASS
Standard7	ICAL	1	Mg	20	0.3	15	PASS
ICV	ICV	1	Mg	10.67	0.52	15	PASS
ICB	ICB	1	Mg	0.01	10.79	15	PASS
LLICV	CCV1	1	Mg	0.1	0.49	20	PASS
LLICV	CCV1	1	Mg	0.1	0.71	20	PASS
LLICV	CCV1	1	Mg	0.11	6.01	20	PASS
CalBlk	IBLK	1	Mg	0	1.98	15	PASS
Standard1	ICAL	1	Mg	0.1	0.79	15	PASS
Standard2	ICAL	1	Mg	1	1.3	15	PASS
Standard3	ICAL	1	Mg	2	0.57	15	PASS
Standard4	ICAL	1	Mg	5	0.44	15	PASS
Standard5	ICAL	1	Mg	7.5	0.39	15	PASS
Standard6	ICAL	1	Mg	10	0.86	15	PASS
Standard7	ICAL	1	Mg	20	0.18	15	PASS
ICV	ICV	1	Mg	10.4	0.1	15	PASS

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICB	ICB	1	Mg	0	23.83	15	<PQL
LLICV	CCV1	1	Mg	0.11	1.68	20	PASS
LLICV	CCV1	1	Mg	0.21	3.08	20	PASS
LLICV	CCV1	1	Mg	0.16	3	20	PASS
CalBlk	IBLK	1	Mg	0	1.36	15	PASS
Standard1	ICAL	1	Mg	0.1	1.1	15	PASS
Standard2	ICAL	1	Mg	1	0.37	15	PASS
Standard3	ICAL	1	Mg	2	0.4	15	PASS
Standard4	ICAL	1	Mg	5	0.31	15	PASS
Standard5	ICAL	1	Mg	7.5	0.14	15	PASS
Standard6	ICAL	1	Mg	10	0.2	15	PASS
Standard7	ICAL	1	Mg	20	0.29	15	PASS
ICV	ICV	1	Mg	10.45	0.04	15	PASS
ICB	ICB	1	Mg	0	30.05	15	<PQL
ICB	ICB	1	Mg	0	38.07	15	<PQL
LLICV	CCV1	1	Mg	0.16	0.75	20	PASS
LLICV	CCV1	1	Mg	0.1	6.46	20	PASS
CalBlk	IBLK	1	Mg	0	1.01	15	PASS
Standard1	ICAL	1	Mg	0.1	0.8	15	PASS
Standard2	ICAL	1	Mg	1	0.18	15	PASS
Standard3	ICAL	1	Mg	2	0.86	15	PASS
Standard4	ICAL	1	Mg	5	0.17	15	PASS
Standard5	ICAL	1	Mg	7.5	0.12	15	PASS
Standard6	ICAL	1	Mg	10	0.06	15	PASS
Standard7	ICAL	1	Mg	20	0.12	15	PASS
ICV	ICV	1	Mg	10.37	0.05	15	PASS
ICB	ICB	1	Mg	0	13.72	15	PASS
LLICV	CCV1	1	Mg	0.1	0.45	20	PASS
LLICV	CCV1	1	Mg	0.1	0.61	20	PASS
ICSA1	ICSA	1	Mg	435.29	0.32	15	PASS
ICSAB1	ICSAB	1	Mg	493.52	0.71	15	PASS
CCV1	CCV	1	Mg	9.94	0.17	15	PASS
CCB1	CCB	1	Mg	-0.01	15.35	15	<PQL
CCV2	CCV	1	Mg	9.51	0.03	15	PASS
CCB2	CCB	1	Mg	-0.01	7.26	15	PASS
CCV3	CCV	1	Mg	9.35	0.1	15	PASS
CCB3	CCB	1	Mg	-0.01	7.49	15	PASS
ICSA2	ICSA	1	Mg	452.01	0.36	15	PASS
ICSAB2	ICSAB	1	Mg	491.22	0.25	15	PASS
CCV4	CCV	1	Mg	9.37	0.14	15	PASS
CCB4	CCB	1	Mg	0	15.66	15	<PQL
CCV5	CCV	1	Mg	9.39	0.16	15	PASS

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB5	CCB	1	Mg	-0.01	2.85	15	PASS
CCB5	CCB	1	Mg	-0.01	8.68	15	PASS
CCB5	CCB	1	Mg	-0.01	8.92	15	PASS
MB-75564	MBLK	1	Mg	-0.01	9.18	15	PASS
LCS1-75564	LCS	1	Mg	9.77	0.88	15	PASS
CCV6	CCV	1	Mg	9.74	0.21	15	PASS
CCB6	CCB	1	Mg	-0.01	11.18	15	PASS
CCB6	CCB	1	Mg	-0.01	20.03	15	<PQL
ICSA3	ICSA	1	Mg	466.39	0.52	15	PASS
ICSAB3	ICSAB	1	Mg	495.18	0.32	15	PASS
N037736-001C	SAMP	1	Mg	17.85	0.31	15	PASS
N037736-001C	SAMP	5	Mg	3.79	0.17	15	PASS
N037736-001C-PS	PS	1	Mg	27.64	0.08	15	PASS
N037736-001C-MS1	MS	1	Mg	26.7	0.2	15	PASS
N037736-001C-MSD1	MSD	1	Mg	26.58	0.26	15	PASS
N037736-002C	SAMP	1	Mg	12.45	0.13	15	PASS
N037736-003C	SAMP	1	Mg	4.01	0.14	15	PASS
N037736-004C	SAMP	1	Mg	8.6	0.05	15	PASS
N037736-005C	SAMP	1	Mg	3.99	0.12	15	PASS
N037736-006C	SAMP	1	Mg	4.19	0.18	15	PASS
CCV7	CCV	1	Mg	9.5	0.04	15	PASS
CCB7	CCB	1	Mg	-0.01	39.51	15	<PQL
N037736-007C	SAMP	1	Mg	10.9	0.21	15	PASS
N037757-001B	SAMP	1	Mg	32.12	0.09	15	PASS
N037757-002B	SAMP	1	Mg	25.25	0.22	15	PASS
N037758-001C	SAMP	1	Mg	22.85	0.12	15	PASS
N037758-002C	SAMP	1	Mg	23.62	0.22	15	PASS
N037758-003C	SAMP	1	Mg	27.7	0.22	15	PASS
N037758-004B	SAMP	1	Mg	46.03	0.06	15	PASS
N037758-005C	SAMP	1	Mg	24.05	0.16	15	PASS
N037758-006C	SAMP	1	Mg	27.1	0.09	15	PASS
N037758-007B	SAMP	1	Mg	13.57	0.21	15	PASS
CCV8	CCV	1	Mg	9.46	0.06	15	PASS
CCB8	CCB	1	Mg	-0.01	9.79	15	PASS
N037758-008C	SAMP	1	Mg	22.77	0.19	15	PASS
N037758-009C	SAMP	1	Mg	22.16	0.19	15	PASS
N037758-010C	SAMP	1	Mg	22.62	0.15	15	PASS
N037758-011B	SAMP	1	Mg	53.08	0.2	15	PASS
N037758-011B-MS1	MS	1	Mg	64.53	0.14	15	PASS
CCV9	CCV	1	Mg	9.37	0.13	15	PASS
CCB9	CCB	1	Mg	0	91.69	15	<PQL
ICSA4	ICSA	1	Mg	459.52	0.76	15	PASS

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Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSAB4	ICSAB	1	Mg	473.98	1.08	15	PASS
CCV10	CCV	1	Mg	9.57	0.12	15	PASS
CCB10	CCB	1	Mg	0	136.79	15	<PQL
ICSA5	ICSA	1	Mg	463.15	0.34	15	PASS
ICSAB5	ICSAB	1	Mg	495	0.18	15	PASS

RSD SUMMARY: 191007B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Al	0	4.7	15	PASS
Standard1	ICAL	1	Al	0.05	5.18	15	PASS
CalBlk	IBLK	1	Al	0	7.13	15	PASS
Standard1	ICAL	1	Al	0.05	1.67	15	PASS
Standard2	ICAL	1	Al	1	0.41	15	PASS
Standard3	ICAL	1	Al	2	0.3	15	PASS
Standard4	ICAL	1	Al	5	0.5	15	PASS
Standard5	ICAL	1	Al	7.5	0.6	15	PASS
Standard6	ICAL	1	Al	10	0.41	15	PASS
Standard7	ICAL	1	Al	20	0.62	15	PASS
ICV	ICV	1	Al	10.1	0.45	15	PASS
ICB	ICB	1	Al	0.01	12.46	15	PASS
LLICV	CCV1	1	Al	0.06	5.01	20	PASS
ICSA1	ICSA	1	Al	525.1	0.4	15	PASS
ICSAB1	ICSAB	1	Al	524.83	0.23	15	PASS
CCV1	CCV	1	Al	9.78	0.66	15	PASS
CCB1	CCB	1	Al	0.01	12.96	15	PASS
MB-75564	MBLK	1	Al	0.02	3.5	15	PASS
CCV2	CCV	1	Al	9.73	0.56	15	PASS
CCB2	CCB	1	Al	0.01	10.24	15	PASS
LCS1-75564	LCS	1	Al	9.75	1.93	15	PASS
N037736-001C	SAMP	1	Al	0.04	4.32	15	PASS
N037736-001C	SAMP	5	Al	0.02	13.78	15	PASS
N037736-001C-PS	PS	1	Al	11.43	0.49	15	PASS
N037736-001C-MS1	MS	1	Al	10.22	0.08	15	PASS
N037736-001C-MSD1	MSD	1	Al	10.21	0.53	15	PASS
N037736-002C	SAMP	1	Al	0.03	15.61	15	<PQL
N037736-003C	SAMP	1	Al	0.1	2.1	15	PASS
N037736-004C	SAMP	1	Al	0.03	1.95	15	PASS
CCV3	CCV	1	Al	9.73	0.86	15	PASS
CCB3	CCB	1	Al	0.01	12.92	15	PASS
ICSA2	ICSA	1	Al	531.01	0.55	15	PASS
ICSAB2	ICSAB	1	Al	540	0.06	15	PASS
N037736-006C	SAMP	1	Al	0.04	2.3	15	PASS
N037736-007C	SAMP	1	Al	0.06	3.23	15	PASS
N037757-001B	SAMP	1	Al	0.01	32.09	15	<PQL
N037757-002B	SAMP	1	Al	0.02	14.76	15	PASS
N037758-001C	SAMP	1	Al	0.03	6.88	15	PASS
N037758-002C	SAMP	1	Al	0.03	8.24	15	PASS
N037758-003C	SAMP	1	Al	0.03	7.04	15	PASS
N037758-004B	SAMP	1	Al	0.04	4.49	15	PASS
N037758-005C	SAMP	1	Al	0.06	2.38	15	PASS

RSD SUMMARY: 191007B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037758-006C	SAMP	1	Al	0.03	5.45	15	PASS
CCV4	CCV	1	Al	9.67	1.36	15	PASS
CCB4	CCB	1	Al	0.01	28.48	15	<PQL
N037758-008C	SAMP	1	Al	0.03	5.63	15	PASS
N037758-009C	SAMP	1	Al	0.03	6.83	15	PASS
N037758-010C	SAMP	1	Al	0.03	4.89	15	PASS
CCV5	CCV	1	Al	9.61	0.78	15	PASS
CCB5	CCB	1	Al	0.01	24.24	15	<PQL
CCV6	CCV	1	Al	9.66	0.38	15	PASS
CCB6	CCB	1	Al	0.02	3.99	15	PASS
ICSA3	ICSA	1	Al	528.23	0.65	15	PASS
ICSAB3	ICSAB	1	Al	518.25	0.3	15	PASS
N037736-005C	SAMP	5	Al	48.47	3.76	15	PASS
N037736-005C	SAMP	1	Al	0.06	1.1	15	PASS
CCV7	CCV	1	Al	9.65	0.6	15	PASS
CCB7	CCB	1	Al	0.01	38.59	15	<PQL
ICSA4	ICSA	1	Al	530.65	0.52	15	PASS
ICSAB4	ICSAB	1	Al	540.24	0.07	15	PASS
CalBlk	IBLK	1	Fe	0	28.97	15	<PQL
Standard1	ICAL	1	Fe	0.02	5.39	15	PASS
CalBlk	IBLK	1	Fe	0	11.99	15	PASS
Standard1	ICAL	1	Fe	0.02	1.19	15	PASS
Standard2	ICAL	1	Fe	0.05	0.49	15	PASS
Standard3	ICAL	1	Fe	2	0.12	15	PASS
Standard4	ICAL	1	Fe	5	0.13	15	PASS
Standard5	ICAL	1	Fe	7.5	0.07	15	PASS
Standard6	ICAL	1	Fe	10	0.08	15	PASS
Standard7	ICAL	1	Fe	20	0.12	15	PASS
ICV	ICV	1	Fe	10.33	0.05	15	PASS
ICB	ICB	1	Fe	0	42.68	15	<PQL
LLICV	CCV1	1	Fe	0.02	2.95	20	PASS
ICSA1	ICSA	1	Fe	225.15	0.11	15	PASS
ICSAB1	ICSAB	1	Fe	190.75	0.21	15	PASS
CCV1	CCV	1	Fe	9.8	0.12	15	PASS
CCB1	CCB	1	Fe	0	51.58	15	<PQL
MB-75564	MBLK	1	Fe	0	15.41	15	<PQL
CCV2	CCV	1	Fe	9.56	0.11	15	PASS
CCB2	CCB	1	Fe	0	62.61	15	<PQL
LCS1-75564	LCS	1	Fe	0.11	2.12	15	PASS
N037736-001C	SAMP	1	Fe	0.02	2.44	15	PASS
N037736-001C	SAMP	5	Fe	0.02	1.55	15	PASS
N037736-001C-PS	PS	1	Fe	0.12	1.85	15	PASS

RSD SUMMARY: 191007B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037736-001C-MS1	MS	1	Fe	0.1	0.67	15	PASS
N037736-001C-MSD1	MSD	1	Fe	0.1	0.48	15	PASS
N037736-002C	SAMP	1	Fe	0.02	0.67	15	PASS
N037736-003C	SAMP	1	Fe	0.11	0.34	15	PASS
N037736-004C	SAMP	1	Fe	0.02	1.95	15	PASS
CCV3	CCV	1	Fe	9.91	0.14	15	PASS
CCB3	CCB	1	Fe	0	82.72	15	<PQL
ICSA2	ICSA	1	Fe	227.24	0.44	15	PASS
ICSAB2	ICSAB	1	Fe	187.66	0.17	15	PASS
N037736-006C	SAMP	1	Fe	0.03	5.34	15	PASS
N037736-007C	SAMP	1	Fe	0.07	0.75	15	PASS
N037757-001B	SAMP	1	Fe	1.12	0.77	15	PASS
N037757-002B	SAMP	1	Fe	0.02	4.38	15	PASS
N037758-001C	SAMP	1	Fe	0.02	1.76	15	PASS
N037758-002C	SAMP	1	Fe	0.02	2.79	15	PASS
N037758-003C	SAMP	1	Fe	0.02	3.39	15	PASS
N037758-004B	SAMP	1	Fe	0.08	1.55	15	PASS
N037758-005C	SAMP	1	Fe	0.06	0.27	15	PASS
N037758-006C	SAMP	1	Fe	0.02	2.13	15	PASS
CCV4	CCV	1	Fe	9.6	0.08	15	PASS
CCB4	CCB	1	Fe	0	23.42	15	<PQL
N037758-008C	SAMP	1	Fe	0.02	0.52	15	PASS
N037758-009C	SAMP	1	Fe	0.02	2.8	15	PASS
N037758-010C	SAMP	1	Fe	0.02	1.7	15	PASS
CCV5	CCV	1	Fe	9.61	0.05	15	PASS
CCB5	CCB	1	Fe	0	40.72	15	<PQL
CCV6	CCV	1	Fe	9.65	0.08	15	PASS
CCB6	CCB	1	Fe	0	33.86	15	<PQL
ICSA3	ICSA	1	Fe	225.62	0.44	15	PASS
ICSAB3	ICSAB	1	Fe	187.55	0.26	15	PASS
N037736-005C	SAMP	5	Fe	6.06	28.19	15	NR!
N037736-005C	SAMP	1	Fe	0.07	0.54	15	PASS
CCV7	CCV	1	Fe	9.98	0.18	15	PASS
CCB7	CCB	1	Fe	0	7.8	15	PASS
ICSA4	ICSA	1	Fe	232.19	0.58	15	PASS
ICSAB4	ICSAB	1	Fe	197.29	0.13	15	PASS

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	K	0	1.89	15	PASS
Standard1	ICAL	1	K	0.1	10	15	PASS
Standard2	ICAL	1	K	1	2.25	15	PASS
Standard3	ICAL	1	K	5	0.48	15	PASS
Standard4	ICAL	1	K	10	0.09	15	PASS
Standard5	ICAL	1	K	20	0.23	15	PASS
Standard6	ICAL	1	K	40	0.2	15	PASS
ICV	ICV	1	K	9.77	0.1	15	PASS
ICB	ICB	1	K	0.07	19.1	15	<PQL
LLICV	CCV	1	K	0.19	4.62	20	PASS
LLICV	CCV	1	K	0.16	3.6	20	PASS
CalBlk	IBLK	1	K	0	2.11	15	PASS
Standard1	ICAL	1	K	0.1	6.76	15	PASS
Standard2	ICAL	1	K	1	1.14	15	PASS
Standard3	ICAL	1	K	5	0.17	15	PASS
Standard4	ICAL	1	K	10	0.15	15	PASS
Standard5	ICAL	1	K	20	1.52	15	PASS
Standard6	ICAL	1	K	40	0.19	15	PASS
ICV	ICV	1	K	9.75	0.11	15	PASS
ICB	ICB	1	K	0.01	334.23	15	<PQL
LLICV	CCV	1	K	0.12	7.27	20	PASS
LLICV	CCV	1	K	0.12	12.6	20	PASS
ICSA1	ICSA	1	K	0.02	59.82	15	<PQL
ICSAB1	ICSAB	1	K	9.9	0.11	15	PASS
CCV1	CCV	1	K	10.2	0.08	15	PASS
CCB1	CCB	1	K	-0.01	108.5	15	<PQL
MB-75564	MBLK	1	K	0.01	169.65	15	<PQL
LCS2-75564	LCS	1	K	18.39	0.11	15	PASS
N037736-001C	SAMP	5	K	2.47	0.11	15	PASS
N037736-002C	SAMP	5	K	2.15	0.61	15	PASS
N037736-003C	SAMP	5	K	2.14	0.8	15	PASS
N037736-004C	SAMP	5	K	2.25	0.3	15	PASS
N037736-005C	SAMP	5	K	2.14	0.74	15	PASS
N037736-006C	SAMP	5	K	2.2	3.31	15	PASS
CCV2	CCV	1	K	10.14	0.11	15	PASS
CCB2	CCB	1	K	-0.02	50.12	15	<PQL
N037736-007C	SAMP	5	K	1.8	1.09	15	PASS
N037757-001B	SAMP	5	K	1.38	1.22	15	PASS
N037757-002B	SAMP	5	K	2.89	0.65	15	PASS
N037758-001C	SAMP	5	K	2.4	0.72	15	PASS
N037758-002C	SAMP	5	K	2.45	0.95	15	PASS
N037758-003C	SAMP	5	K	2.59	0.61	15	PASS

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037758-004B	SAMP	5	K	2.52	0.67	15	PASS
N037758-005C	SAMP	5	K	2.76	0.41	15	PASS
N037758-006C	SAMP	5	K	2.18	0.77	15	PASS
N037758-007B	SAMP	5	K	-15.19	195.6	15	<PQL
CCV3	CCV	1	K	10.02	0.25	15	PASS
CCB3	CCB	1	K	-0.01	106.49	15	<PQL
N037758-008C	SAMP	5	K	2.69	0.52	15	PASS
N037758-009C	SAMP	5	K	2.55	0.44	15	PASS
N037758-010C	SAMP	5	K	2.18	0.09	15	PASS
N037758-011B	SAMP	5	K	2.71	0.38	15	PASS
CCV4	CCV	1	K	9.93	0.1	15	PASS
CCB4	CCB	1	K	-0.01	52.29	15	<PQL
ICSA2	ICSA	1	K	-0.02	45.06	15	<PQL
ICSAB2	ICSAB	1	K	9.79	0.22	15	PASS
CCV5	CCV	1	K	9.94	0.03	15	PASS
CCB5	CCB	1	K	0	193.94	15	<PQL
CCV6	CCV	1	K	9.92	0.18	15	PASS
CCB6	CCB	1	K	0	373.04	15	<PQL
N037736-001C	SAMP	50	K	0.24	6.43	15	PASS
N037736-002C	SAMP	25	K	0.41	3.17	15	PASS
N037736-002C	SAMP	50	K	0.18	10.75	15	PASS
N037736-002C	SAMP	250	K	0.04	8.45	15	PASS
N037736-002C-PS	PS	5	K	2.2	0.94	15	PASS
N037736-002C-PS	PS	50	K	0.19	5.65	15	PASS
N037736-002C-MS2	MS	5	K	6.79	0.1	15	PASS
CCV7	CCV	1	K	9.88	1.35	15	PASS
CCV7	CCV	1	K	9.86	0.16	15	PASS
CCB7	CCB	1	K	0	4351.36	15	<PQL
N037736-002C-MS2	MS	50	K	0.58	1.49	15	PASS
N037736-002C-MSD2	MSD	5	K	6.88	0.28	15	PASS
N037736-002C-MSD2	MSD	50	K	0.57	4.06	15	PASS
N037736-003C	SAMP	50	K	0.18	2.92	15	PASS
N037736-004C	SAMP	50	K	0.19	3.51	15	PASS
N037736-005C	SAMP	50	K	0.16	3.58	15	PASS
N037736-006C	SAMP	50	K	0.17	3.34	15	PASS
N037736-007C	SAMP	50	K	0.14	6.21	15	PASS
N037757-001B	SAMP	25	K	0.27	0.91	15	PASS
N037757-002B	SAMP	50	K	0.22	11.48	15	PASS
CCV8	CCV	1	K	10.05	0.28	15	PASS
CCB8	CCB	1	K	-0.06	41.85	15	<PQL
ICSA3	ICSA	1	K	-0.06	4.67	15	PASS
ICSAB3	ICSAB	1	K	9.94	0.17	15	PASS

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037758-001C	SAMP	50	K	0.14	9.03	15	PASS
N037758-002C	SAMP	50	K	0.16	4.74	15	PASS
N037758-003C	SAMP	50	K	0.2	5.3	15	PASS
N037758-004B	SAMP	50	K	0.18	2.68	15	PASS
N037758-005C	SAMP	50	K	0.2	14.43	15	PASS
N037758-006C	SAMP	50	K	0.18	14.37	15	PASS
N037758-007B	SAMP	5	K	1.92	0.6	15	PASS
N037758-007B	SAMP	50	K	0.16	3.83	15	PASS
N037758-008C	SAMP	50	K	0.23	5.71	15	PASS
N037758-009C	SAMP	50	K	0.22	3.94	15	PASS
CCV9	CCV	1	K	9.89	0.2	15	PASS
CCB9	CCB	1	K	-0.01	20.29	15	<PQL
N037758-010C	SAMP	50	K	0.18	8.04	15	PASS
N037758-010C-MS2	MS	5	K	6.29	0.29	15	PASS
N037758-010C-MS2	MS	50	K	0.53	1.4	15	PASS
N037758-011B	SAMP	50	K	0.24	11.52	15	PASS
CCV10	CCV	1	K	9.91	0.12	15	PASS
CCB10	CCB	1	K	-0.02	110.99	15	<PQL
CCV11	CCV	1	K	9.86	0.15	15	PASS
CCB11	CCB	1	K	-0.02	40.81	15	<PQL
ICSA4	ICSA	1	K	0.01	53.07	15	<PQL
ICSAB4	ICSAB	1	K	9.83	0.16	15	PASS
CalBlk	IBLK	1	Na	0	14.84	15	PASS
Standard1	ICAL	1	Na	0.1	3.05	15	PASS
Standard2	ICAL	1	Na	1	0.68	15	PASS
Standard3	ICAL	1	Na	5	0.28	15	PASS
Standard4	ICAL	1	Na	10	0.22	15	PASS
Standard5	ICAL	1	Na	20	0.07	15	PASS
Standard6	ICAL	1	Na	40	0.17	15	PASS
ICV	ICV	1	Na	10.18	0.15	15	PASS
ICB	ICB	1	Na	0.01	44.14	15	<PQL
LLICV	CCV	1	Na	0.18	2.75	20	PASS
LLICV	CCV	1	Na	0.11	1.94	20	PASS
CalBlk	IBLK	1	Na	0	9.32	15	PASS
Standard1	ICAL	1	Na	0.1	2.14	15	PASS
Standard2	ICAL	1	Na	1	0.11	15	PASS
Standard3	ICAL	1	Na	5	0.07	15	PASS
Standard4	ICAL	1	Na	10	0.11	15	PASS
Standard5	ICAL	1	Na	20	1.64	15	PASS
Standard6	ICAL	1	Na	40	0.16	15	PASS
ICV	ICV	1	Na	10.23	0.07	15	PASS
ICB	ICB	1	Na	0	101.83	15	<PQL

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
LLICV	CCV	1	Na	0.13	1.88	20	PASS
LLICV	CCV	1	Na	0.11	1.65	20	PASS
ICSA1	ICSA	1	Na	0	110.19	15	<PQL
ICSAB1	ICSAB	1	Na	10.04	0.2	15	PASS
CCV1	CCV	1	Na	10.45	0.14	15	PASS
CCB1	CCB	1	Na	0.03	20.1	15	<PQL
MB-75564	MBLK	1	Na	0.1	29.73	15	<PQL
LCS2-75564	LCS	1	Na	18.99	0.11	15	PASS
N037736-001C	SAMP	5	Na	251.41	1.13	15	PASS
N037736-002C	SAMP	5	Na	251.79	0.99	15	PASS
N037736-003C	SAMP	5	Na	293.06	0.56	15	PASS
N037736-004C	SAMP	5	Na	282.79	0.45	15	PASS
N037736-005C	SAMP	5	Na	284.86	0.17	15	PASS
N037736-006C	SAMP	5	Na	287.01	4.38	15	PASS
CCV2	CCV	1	Na	10.53	0.28	15	PASS
CCB2	CCB	1	Na	0.03	4.69	15	PASS
N037736-007C	SAMP	5	Na	226.29	0.2	15	PASS
N037757-001B	SAMP	5	Na	58.57	0.65	15	PASS
N037757-002B	SAMP	5	Na	258.38	1.16	15	PASS
N037758-001C	SAMP	5	Na	235.29	0.11	15	PASS
N037758-002C	SAMP	5	Na	241.6	1.09	15	PASS
N037758-003C	SAMP	5	Na	250.29	1.05	15	PASS
N037758-004B	SAMP	5	Na	142.5	0.44	15	PASS
N037758-005C	SAMP	5	Na	260.84	0.38	15	PASS
N037758-006C	SAMP	5	Na	212.99	0.19	15	PASS
N037758-007B	SAMP	5	Na	4917	150.07	15	NR!
CCV3	CCV	1	Na	10.26	0.1	15	PASS
CCB3	CCB	1	Na	0.04	16.83	15	<PQL
N037758-008C	SAMP	5	Na	253.49	0.39	15	PASS
N037758-009C	SAMP	5	Na	257.61	0.62	15	PASS
N037758-010C	SAMP	5	Na	222.6	0.71	15	PASS
N037758-011B	SAMP	5	Na	103.28	0.87	15	PASS
CCV4	CCV	1	Na	10.21	0.03	15	PASS
CCB4	CCB	1	Na	0.03	6.84	15	PASS
ICSA2	ICSA	1	Na	0.01	16.89	15	<PQL
ICSAB2	ICSAB	1	Na	9.99	0.04	15	PASS
CCV5	CCV	1	Na	10.23	0.05	15	PASS
CCB5	CCB	1	Na	0.03	13.5	15	PASS
CCV6	CCV	1	Na	10.2	0.06	15	PASS
CCB6	CCB	1	Na	0.03	10.43	15	PASS
N037736-001C	SAMP	50	Na	28.16	0.1	15	PASS
N037736-002C	SAMP	25	Na	52.29	0.89	15	PASS

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037736-002C	SAMP	50	Na	23.66	0.13	15	PASS
N037736-002C	SAMP	250	Na	4.58	0.11	15	PASS
N037736-002C-PS	PS	5	Na	252.85	0.39	15	PASS
N037736-002C-PS	PS	50	Na	24.53	0.1	15	PASS
N037736-002C-MS2	MS	5	Na	279.13	0.2	15	PASS
CCV7	CCV	1	Na	10.67	5.29	15	PASS
CCV7	CCV	1	Na	10.11	0.05	15	PASS
CCB7	CCB	1	Na	0.04	3.94	15	PASS
N037736-002C-MS2	MS	50	Na	27.93	0.09	15	PASS
N037736-002C-MSD2	MSD	5	Na	287.77	0.23	15	PASS
N037736-002C-MSD2	MSD	50	Na	27.09	0.04	15	PASS
N037736-003C	SAMP	50	Na	27.64	0.09	15	PASS
N037736-004C	SAMP	50	Na	26.49	0.05	15	PASS
N037736-005C	SAMP	50	Na	26.52	0.05	15	PASS
N037736-006C	SAMP	50	Na	24.61	0.08	15	PASS
N037736-007C	SAMP	50	Na	21.58	0.06	15	PASS
N037757-001B	SAMP	25	Na	12.1	0.06	15	PASS
N037757-002B	SAMP	50	Na	23.96	0.02	15	PASS
CCV8	CCV	1	Na	10.27	0.17	15	PASS
CCB8	CCB	1	Na	0.03	12.89	15	PASS
ICSA3	ICSA	1	Na	0.01	43.71	15	<PQL
ICSAB3	ICSAB	1	Na	10.13	0.14	15	PASS
N037758-001C	SAMP	50	Na	21.71	0.04	15	PASS
N037758-002C	SAMP	50	Na	22.3	0.05	15	PASS
N037758-003C	SAMP	50	Na	24.95	0.11	15	PASS
N037758-004B	SAMP	50	Na	13.6	0.11	15	PASS
N037758-005C	SAMP	50	Na	25.33	0.13	15	PASS
N037758-006C	SAMP	50	Na	21.22	0.1	15	PASS
N037758-007B	SAMP	5	Na	114.93	0.48	15	PASS
N037758-007B	SAMP	50	Na	11.12	0.04	15	PASS
N037758-008C	SAMP	50	Na	26.83	0.08	15	PASS
N037758-009C	SAMP	50	Na	27.06	0.19	15	PASS
CCV9	CCV	1	Na	10.16	0.06	15	PASS
CCB9	CCB	1	Na	0.02	12.92	15	PASS
N037758-010C	SAMP	50	Na	23.23	0.03	15	PASS
N037758-010C-MS2	MS	5	Na	249.08	0.93	15	PASS
N037758-010C-MS2	MS	50	Na	24.09	0.13	15	PASS
N037758-011B	SAMP	50	Na	10.42	0.05	15	PASS
CCV10	CCV	1	Na	10.19	0.03	15	PASS
CCB10	CCB	1	Na	0.03	8.84	15	PASS
CCV11	CCV	1	Na	10.18	0.05	15	PASS
CCB11	CCB	1	Na	0.02	15.54	15	<PQL

RSD SUMMARY: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA4	ICSA	1	Na	0.01	32.19	15	<PQL
ICSAB4	ICSAB	1	Na	10.1	0.1	15	PASS

RSD SUMMARY: 191021A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	60.52	15	<PQL
Standard1	ICAL	1	Fe	0.02	13.24	15	PASS
Standard2	ICAL	1	Fe	0.05	5.49	15	PASS
Standard3	ICAL	1	Fe	2	0.08	15	PASS
Standard4	ICAL	1	Fe	5	0.06	15	PASS
Standard5	ICAL	1	Fe	7.5	0.03	15	PASS
Standard6	ICAL	1	Fe	10	0.16	15	PASS
Standard7	ICAL	1	Fe	20	0.13	15	PASS
ICV	ICV	1	Fe	10.22	0.02	15	PASS
ICB	ICB	1	Fe	0	61.09	15	<PQL
LLICV	CCV1	1	Fe	0.02	16.51	20	PASS
ICSA1	ICSA	1	Fe	178.53	0.07	15	PASS
ICSA1	ICSA	1	Fe	181.56	0.39	15	PASS
ICSAB1	ICSAB	1	Fe	186.3	0.37	15	PASS
N037758-011B	SAMP	1	Fe	0	4.35	15	PASS
N037758-011B-MS1	MS	1	Fe	0.09	0.57	15	PASS
CCV1	CCV	1	Fe	9.85	0.04	15	PASS
CCB1	CCB	1	Fe	-0.01	4.75	15	PASS
CCV2	CCV	1	Fe	9.83	0.08	15	PASS
CCB2	CCB	1	Fe	-0.01	7.76	15	PASS
ICSA2	ICSA	1	Fe	179.51	0.54	15	PASS
ICSAB2	ICSAB	1	Fe	183.97	0.15	15	PASS
CCV3	CCV	1	Fe	9.75	0.08	15	PASS
CCB3	CCB	1	Fe	-0.01	4.12	15	PASS
ICSA3	ICSA	1	Fe	178.66	0.25	15	PASS
ICSAB3	ICSAB	1	Fe	183.56	0.33	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191004A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820D,0.5<50mL
Standard2	MWST-190820I
Standard3	MWST-190820N,5<50mL
Standard4	MWST-190820N,12.5<50mL
Standard5	MWST-190820N,15<40mL
Standard6	MWST-190820N,25<50mL
Standard7	MWST-190820N
ICV	MWST-190820S
CCV	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190820T/U
Int. Std. (Y)	MSST-190708A
PS Spike	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	10/04/2019	09:18:15 AM
2	Standard1	ICAL	1	10/04/2019	09:22:28 AM
3	Standard2	ICAL	1	10/04/2019	09:26:39 AM
4	Standard3	ICAL	1	10/04/2019	09:30:55 AM
5	Standard4	ICAL	1	10/04/2019	09:35:10 AM
6	Standard5	ICAL	1	10/04/2019	09:40:45 AM
7	Standard6	ICAL	1	10/04/2019	09:46:24 AM
8	Standard7	ICAL	1	10/04/2019	09:52:02 AM
250	ICV	ICV	1	10/04/2019	10:00:01 AM
1	ICB	ICB	1	10/04/2019	10:05:40 AM
2	LLICV	CCV1	1	10/04/2019	10:09:52 AM
2	LLICV	CCV1	1	10/04/2019	10:15:22 AM
2	LLICV	CCV1	1	10/04/2019	10:20:44 AM
1	CalBlk	IBLK	1	10/04/2019	10:24:31 AM
2	Standard1	ICAL	1	10/04/2019	10:28:42 AM
3	Standard2	ICAL	1	10/04/2019	10:32:54 AM
4	Standard3	ICAL	1	10/04/2019	10:37:07 AM
5	Standard4	ICAL	1	10/04/2019	10:41:21 AM
6	Standard5	ICAL	1	10/04/2019	10:46:56 AM
7	Standard6	ICAL	1	10/04/2019	10:52:32 AM
8	Standard7	ICAL	1	10/04/2019	10:58:08 AM
250	ICV	ICV	1	10/04/2019	11:01:02 AM
1	ICB	ICB	1	10/04/2019	11:06:40 AM
2	LLICV	CCV1	1	10/04/2019	11:10:52 AM
2	LLICV	CCV1	1	10/04/2019	11:17:22 AM
2	LLICV	CCV1	1	10/04/2019	11:22:43 AM
1	CalBlk	IBLK	1	10/04/2019	11:28:01 AM
2	Standard1	ICAL	1	10/04/2019	11:32:15 AM

NOT REPORTED



A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
3	Standard2	ICAL	1	10/04/2019	11:36:27 AM
4	Standard3	ICAL	1	10/04/2019	11:40:40 AM
5	Standard4	ICAL	1	10/04/2019	11:44:55 AM
6	Standard5	ICAL	1	10/04/2019	11:50:31 AM
7	Standard6	ICAL	1	10/04/2019	11:56:05 AM
8	Standard7	ICAL	1	10/04/2019	12:01:42 PM
250	ICV	ICV	1	10/04/2019	12:05:31 PM
1	ICB	ICB	1	10/04/2019	12:11:08 PM
1	ICB	ICB	1	10/04/2019	12:18:02 PM
2	LLICV	CCV1	1	10/04/2019	12:22:14 PM
2	LLICV	CCV1	1	10/04/2019	12:28:11 PM
1	CalBlk	IBLK	1	10/04/2019	01:16:55 PM
2	Standard1	ICAL	1	10/04/2019	01:21:10 PM
3	Standard2	ICAL	1	10/04/2019	01:25:23 PM
4	Standard3	ICAL	1	10/04/2019	01:29:35 PM
5	Standard4	ICAL	1	10/04/2019	01:33:51 PM
6	Standard5	ICAL	1	10/04/2019	01:39:27 PM
7	Standard6	ICAL	1	10/04/2019	01:45:02 PM
8	Standard7	ICAL	1	10/04/2019	01:50:37 PM
250	ICV	ICV	1	10/04/2019	01:53:23 PM
1	ICB	ICB	1	10/04/2019	01:59:00 PM
2	LLICV	CCV1	1	10/04/2019	02:03:13 PM
2	LLICV	CCV1	1	10/04/2019	02:07:19 PM
9	ICSA1	ICSA	1	10/04/2019	02:11:32 PM
10	ICSAB1	ICSAB	1	10/04/2019	02:17:51 PM
131	MB-75500	MBLK	1	10/04/2019	02:24:11 PM
132	LCS1-75500	LCS	1	10/04/2019	02:28:43 PM
133	N037665-001D	SAMP	1	10/04/2019	02:34:20 PM
134	N037665-001D	SAMP	5	10/04/2019	02:39:57 PM
135	N037665-001D-PS	PS	1	10/04/2019	02:44:13 PM
136	N037665-001D-MS1	MS	1	10/04/2019	02:47:52 PM
137	N037665-001D-MSD1	MSD	1	10/04/2019	02:53:30 PM
138	N037665-002D	SAMP	1	10/04/2019	02:59:07 PM
139	N037665-003D	SAMP	1	10/04/2019	03:04:43 PM
140	N037665-004D	SAMP	1	10/04/2019	03:10:19 PM
7	CCV1	CCV	1	10/04/2019	03:15:54 PM
1	CCB1	CCB	1	10/04/2019	03:21:35 PM
141	N037665-005D	SAMP	1	10/04/2019	03:25:48 PM
142	N037665-006D	SAMP	1	10/04/2019	03:31:24 PM
143	N037665-007D	SAMP	1	10/04/2019	03:37:00 PM
144	N037665-008D	SAMP	1	10/04/2019	03:41:02 PM
145	N037679-001D	SAMP	1	10/04/2019	03:46:36 PM
146	N037679-002D	SAMP	1	10/04/2019	03:52:11 PM
177	N037679-003D	SAMP	5	10/04/2019	03:57:47 PM
148	N037679-004D	SAMP	1	10/04/2019	04:02:03 PM
149	N037679-005D	SAMP	1	10/04/2019	04:07:37 PM

NOT REPORTED



A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
150	N037679-006D	SAMP	1	10/04/2019	04:13:13 PM
7	CCV2	CCV	1	10/04/2019	04:17:29 PM
1	CCB2	CCB	1	10/04/2019	04:23:06 PM
151	N037679-007D	SAMP	1	10/04/2019	04:27:18 PM
152	MB-75499	MBLK	1	10/04/2019	04:32:55 PM
153	LCS-75499	LCS	1	10/04/2019	04:37:09 PM
154	N037613-011E	SAMP	1	10/04/2019	04:42:44 PM
155	N037613-011E	SAMP	5	10/04/2019	04:48:18 PM
156	N037613-011E-PS	PS	1	10/04/2019	04:52:32 PM
157	N037613-011E-MS	MS	1	10/04/2019	04:58:07 PM
158	N037613-011E-MSD	MSD	1	10/04/2019	05:03:43 PM
159	N037613-012E	SAMP	1	10/04/2019	05:09:18 PM
160	N037613-013E	SAMP	1	10/04/2019	05:14:53 PM
7	CCV3	CCV	1	10/04/2019	05:19:09 PM
1	CCB3	CCB	1	10/04/2019	05:24:44 PM
9	ICSA2	ICSA	1	10/04/2019	05:28:55 PM
10	ICSAB2	ICSAB	1	10/04/2019	05:34:43 PM
161	N037613-014E	SAMP	1	10/04/2019	05:40:31 PM
162	N037665-001E	SAMP	1	10/04/2019	05:46:06 PM
163	N037665-002E	SAMP	1	10/04/2019	05:51:43 PM
164	N037665-003E	SAMP	1	10/04/2019	05:57:19 PM
165	N037665-004E	SAMP	1	10/04/2019	06:02:53 PM
166	N037665-005E	SAMP	1	10/04/2019	06:08:28 PM
167	N037665-006E	SAMP	1	10/04/2019	06:14:04 PM
168	N037665-007E	SAMP	1	10/04/2019	06:19:40 PM
169	N037665-008E	SAMP	1	10/04/2019	06:25:15 PM
170	N037679-001E	SAMP	1	10/04/2019	06:30:50 PM
7	CCV4	CCV	1	10/04/2019	06:36:38 PM
1	CCB4	CCB	1	10/04/2019	06:42:14 PM
171	N037679-002E	SAMP	1	10/04/2019	06:46:26 PM
178	N037679-003E	SAMP	5	10/04/2019	06:52:05 PM
173	N037679-004E	SAMP	1	10/04/2019	06:56:21 PM
174	N037679-005E	SAMP	1	10/04/2019	07:01:56 PM
175	N037679-006E	SAMP	1	10/04/2019	07:07:34 PM
176	N037679-007E	SAMP	1	10/04/2019	07:13:10 PM
179	MB-75559	MBLK	1	10/04/2019	07:18:47 PM
180	LCS1-75559	LCS	1	10/04/2019	07:23:02 PM
181	N037759-001A	SAMP	1	10/04/2019	07:28:39 PM
182	N037759-001A	SAMP	5	10/04/2019	07:32:55 PM
7	CCV5	CCV	1	10/04/2019	07:37:11 PM
1	CCB5	CCB	1	10/04/2019	07:42:49 PM
1	CCB5	CCB	1	10/04/2019	07:47:50 PM
1	CCB5	CCB	1	10/04/2019	07:58:09 PM
183	N037759-001A-PS	PS	1	10/04/2019	08:02:20 PM
184	N037759-001A-MS1	MS	1	10/04/2019	08:07:56 PM
185	N037759-001A-MSD1	MSD	1	10/04/2019	08:13:31 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
186	N037760-001A	SAMP	1	10/04/2019	08:19:07 PM
187	N037718-001E	SAMP	1	10/04/2019	08:23:22 PM
188	N037718-002E	SAMP	1	10/04/2019	08:28:58 PM
189	N037722-001C	SAMP	1	10/04/2019	08:34:34 PM
190	N037722-002C	SAMP	1	10/04/2019	08:40:10 PM
191	MB-75564	MBLK	1	10/04/2019	08:45:45 PM
192	LCS1-75564	LCS	1	10/04/2019	08:50:02 PM
7	CCV6	CCV	1	10/04/2019	08:55:38 PM
1	CCB6	CCB	1	10/04/2019	09:21:37 PM
1	CCB6	CCB	1	10/04/2019	09:30:49 PM
9	ICSA3	ICSA	1	10/04/2019	09:35:00 PM
10	ICSAB3	ICSAB	1	10/04/2019	09:41:32 PM
193	N037736-001C	SAMP	1	10/04/2019	09:47:19 PM
194	N037736-001C	SAMP	5	10/04/2019	09:52:56 PM
195	N037736-001C-PS	PS	1	10/04/2019	09:57:11 PM
196	N037736-001C-MS1	MS	1	10/04/2019	10:02:49 PM
197	N037736-001C-MSD1	MSD	1	10/04/2019	10:08:26 PM
198	N037736-002C	SAMP	1	10/04/2019	10:14:04 PM
199	N037736-003C	SAMP	1	10/04/2019	10:19:41 PM
200	N037736-004C	SAMP	1	10/04/2019	10:23:58 PM
201	N037736-005C	SAMP	1	10/04/2019	10:29:34 PM
202	N037736-006C	SAMP	1	10/04/2019	10:33:50 PM
7	CCV7	CCV	1	10/04/2019	10:38:08 PM
1	CCB7	CCB	1	10/04/2019	10:43:43 PM
203	N037736-007C	SAMP	1	10/04/2019	10:47:55 PM
204	N037757-001B	SAMP	1	10/04/2019	10:53:33 PM
205	N037757-002B	SAMP	1	10/04/2019	10:59:09 PM
206	N037758-001C	SAMP	1	10/04/2019	11:04:46 PM
207	N037758-002C	SAMP	1	10/04/2019	11:10:24 PM
208	N037758-003C	SAMP	1	10/04/2019	11:16:01 PM
209	N037758-004B	SAMP	1	10/04/2019	11:21:37 PM
210	N037758-005C	SAMP	1	10/04/2019	11:27:14 PM
211	N037758-006C	SAMP	1	10/04/2019	11:32:50 PM
212	N037758-007B	SAMP	1	10/04/2019	11:38:28 PM
7	CCV8	CCV	1	10/04/2019	11:44:04 PM
1	CCB8	CCB	1	10/04/2019	11:49:41 PM
213	N037758-008C	SAMP	1	10/04/2019	11:53:52 PM
214	N037758-009C	SAMP	1	10/04/2019	11:59:30 PM
215	N037758-010C	SAMP	1	10/05/2019	12:05:07 AM
216	N037758-011B	SAMP	1	10/05/2019	12:10:43 AM
217	N037758-011B-MS1	MS	1	10/05/2019	12:16:19 AM
7	CCV9	CCV	1	10/05/2019	06:30:36 AM
1	CCB9	CCB	1	10/05/2019	06:36:11 AM
9	ICSA4	ICSA	1	10/05/2019	06:40:25 AM
10	ICSAB4	ICSAB	1	10/05/2019	06:46:44 AM
171	N037679-002E	SAMP	1	10/05/2019	06:53:01 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
178	N037679-003E	SAMP	5	10/05/2019	06:58:36 AM
173	N037679-004E	SAMP	1	10/05/2019	07:02:51 AM
181	N037759-001A	SAMP	1	10/05/2019	07:08:27 AM
7	CCV10	CCV	1	10/05/2019	07:12:43 AM
1	CCB10	CCB	1	10/05/2019	07:18:21 AM
9	ICSA5	ICSA	1	10/05/2019	07:22:35 AM
10	ICSAB5	ICSAB	1	10/05/2019	07:28:53 AM

INJECTION LOG: 191007B

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820D,0.5<50mL
Standard2	MWST-190820I
Standard3	MWST-190820N,5<50mL
Standard4	MWST-190820N,12.5<50mL
Standard5	MWST-190820N,15<40mL
Standard6	MWST-190820N,25<50mL
Standard7	MWST-190820N
ICV	MWST-190820S
CCV	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190820T/U
Int. Std. (Y)	MSST-190708A
PS Spike	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time	
1	CalBlk	IBLK	1	10/07/2019	02:48:20 PM	NOT REPORTED
2	Standard1	ICAL	1	10/07/2019	02:52:33 PM	NOT REPORTED
1	CalBlk	IBLK	1	10/07/2019	03:23:35 PM	
2	Standard1	ICAL	1	10/07/2019	03:27:47 PM	
3	Standard2	ICAL	1	10/07/2019	03:32:00 PM	
4	Standard3	ICAL	1	10/07/2019	03:36:13 PM	
5	Standard4	ICAL	1	10/07/2019	03:40:26 PM	
6	Standard5	ICAL	1	10/07/2019	03:44:42 PM	
7	Standard6	ICAL	1	10/07/2019	03:48:56 PM	
8	Standard7	ICAL	1	10/07/2019	03:53:10 PM	
250	ICV	ICV	1	10/07/2019	03:56:24 PM	
1	ICB	ICB	1	10/07/2019	04:00:42 PM	
2	LLICV	CCV1	1	10/07/2019	04:04:56 PM	
9	ICSA1	ICSA	1	10/07/2019	04:09:11 PM	
10	ICSAB1	ICSAB	1	10/07/2019	04:15:40 PM	
140	N037665-004D	SAMP	1	10/07/2019	04:21:30 PM	
141	N037665-005D	SAMP	1	10/07/2019	04:27:05 PM	
145	N037679-001D	SAMP	1	10/07/2019	04:32:41 PM	
146	N037679-002D	SAMP	1	10/07/2019	04:38:17 PM	
150	N037679-006D	SAMP	1	10/07/2019	04:43:52 PM	
162	N037665-001E	SAMP	1	10/07/2019	04:49:28 PM	
166	N037665-005E	SAMP	1	10/07/2019	04:55:05 PM	
173	N037679-004E	SAMP	1	10/07/2019	05:00:42 PM	
179	MB-75559	MBLK	1	10/07/2019	05:06:17 PM	
180	LCS-75559	LCS	1	10/07/2019	05:10:32 PM	
7	CCV1	CCV	1	10/07/2019	05:14:50 PM	
1	CCB1	CCB	1	10/07/2019	05:19:05 PM	
181	N037759-001A	SAMP	1	10/07/2019	05:23:17 PM	

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
182	N037759-001A	SAMP	5	10/07/2019	05:27:32 PM
183	N037759-001A-PS	PS	1	10/07/2019	05:31:48 PM
184	N037759-001A-MS1	MS	1	10/07/2019	05:36:03 PM
185	N037759-001A-MSD1	MSD	1	10/07/2019	05:40:20 PM
187	N037718-001E	SAMP	1	10/07/2019	05:44:16 PM
188	N037718-002E	SAMP	1	10/07/2019	05:49:52 PM
189	N037722-001C	SAMP	1	10/07/2019	05:55:28 PM
190	N037722-002C	SAMP	1	10/07/2019	06:01:04 PM
191	MB-75564	MBLK	1	10/07/2019	06:06:39 PM
7	CCV2	CCV	1	10/07/2019	06:10:56 PM
1	CCB2	CCB	1	10/07/2019	06:15:11 PM
192	LCS1-75564	LCS	1	10/07/2019	06:19:24 PM
193	N037736-001C	SAMP	1	10/07/2019	06:23:40 PM
194	N037736-001C	SAMP	5	10/07/2019	06:29:17 PM
195	N037736-001C-PS	PS	1	10/07/2019	06:33:35 PM
196	N037736-001C-MS1	MS	1	10/07/2019	06:39:10 PM
197	N037736-001C-MSD1	MSD	1	10/07/2019	06:44:46 PM
198	N037736-002C	SAMP	1	10/07/2019	06:50:23 PM
199	N037736-003C	SAMP	1	10/07/2019	06:55:59 PM
200	N037736-004C	SAMP	1	10/07/2019	07:00:15 PM
7	CCV3	CCV	1	10/07/2019	07:20:24 PM
1	CCB3	CCB	1	10/07/2019	07:24:40 PM
9	ICSA2	ICSA	1	10/07/2019	07:29:03 PM
10	ICSAB2	ICSAB	1	10/07/2019	07:35:32 PM
202	N037736-006C	SAMP	1	10/07/2019	07:41:18 PM
203	N037736-007C	SAMP	1	10/07/2019	07:45:33 PM
204	N037757-001B	SAMP	1	10/07/2019	07:51:11 PM
205	N037757-002B	SAMP	1	10/07/2019	07:56:50 PM
206	N037758-001C	SAMP	1	10/07/2019	08:02:27 PM
207	N037758-002C	SAMP	1	10/07/2019	08:08:04 PM
208	N037758-003C	SAMP	1	10/07/2019	08:13:41 PM
209	N037758-004B	SAMP	1	10/07/2019	08:19:17 PM
210	N037758-005C	SAMP	1	10/07/2019	08:24:55 PM
211	N037758-006C	SAMP	1	10/07/2019	08:30:32 PM
7	CCV4	CCV	1	10/07/2019	08:36:09 PM
1	CCB4	CCB	1	10/07/2019	08:40:26 PM
213	N037758-008C	SAMP	1	10/07/2019	08:44:38 PM
214	N037758-009C	SAMP	1	10/07/2019	08:50:14 PM
215	N037758-010C	SAMP	1	10/07/2019	08:55:49 PM
24	MB-75575	MBLK	1	10/07/2019	09:01:28 PM
25	LCS-75575	LCS	1	10/07/2019	09:05:40 PM
26	N037722-001F	SAMP	1	10/07/2019	09:09:52 PM
27	N037722-001F	SAMP	5	10/07/2019	09:15:24 PM
28	N037722-001F-PS	PS	1	10/07/2019	09:19:37 PM
29	N037722-001F-MS	MS	1	10/07/2019	09:25:10 PM
30	N037722-001F-MSD	MSD	1	10/07/2019	09:30:43 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
7	CCV5	CCV	1	10/07/2019	09:36:18 PM
1	CCB5	CCB	1	10/07/2019	09:40:34 PM
31	N037722-002F	SAMP	1	10/07/2019	09:44:47 PM
32	N037736-001F	SAMP	1	10/07/2019	09:50:21 PM
33	N037736-002F	SAMP	1	10/07/2019	09:55:55 PM
34	N037736-003F	SAMP	1	10/07/2019	10:01:29 PM
35	N037736-004F	SAMP	1	10/07/2019	10:07:03 PM
36	N037736-005F	SAMP	1	10/07/2019	10:12:35 PM
37	N037736-006F	SAMP	1	10/07/2019	10:16:46 PM
38	N037736-007F	SAMP	1	10/07/2019	10:20:59 PM
39	N037758-001F	SAMP	1	10/07/2019	10:26:31 PM
40	N037758-002F	SAMP	1	10/07/2019	10:32:04 PM
7	CCV6	CCV	1	10/07/2019	10:37:37 PM
1	CCB6	CCB	1	10/07/2019	10:41:52 PM
9	ICSA3	ICSA	1	10/07/2019	10:46:05 PM
10	ICSAB3	ICSAB	1	10/07/2019	10:52:35 PM
41	N037758-003F	SAMP	1	10/07/2019	10:58:23 PM
42	N037758-005F	SAMP	1	10/07/2019	11:03:58 PM
43	N037758-006F	SAMP	1	10/07/2019	11:09:33 PM
44	N037758-008F	SAMP	1	10/07/2019	11:15:07 PM
45	N037758-009F	SAMP	1	10/07/2019	11:20:42 PM
46	N037758-010F	SAMP	1	10/07/2019	11:26:16 PM
47	N037736-005C	SAMP	5	10/07/2019	11:31:51 PM
201	N037736-005C	SAMP	1	10/07/2019	11:36:03 PM
7	CCV7	CCV	1	10/07/2019	11:40:19 PM
1	CCB7	CCB	1	10/07/2019	11:44:34 PM
9	ICSA4	ICSA	1	10/07/2019	11:48:47 PM
10	ICSAB4	ICSAB	1	10/07/2019	11:55:16 PM

INJECTION LOG: 191010A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820V,0.025<50mL
Standard2	MWST-190820V,0.25<50mL
Standard3	MWST-190820V,1.25<50mL
Standard4	MWST-190820V,2.5<50mL
Standard5	MWST-190820V,5<50mL
Standard6	MWST-190820V,10<50mL
ICV	MWST-190820W
CCV	MWST-190820V,2.5<50mL
ICSA/ICSAB	MWST-190820T/MWST-190820X
Int. Std. (Sc):	MSST-190708B
PS Spike	MSST-140120B/ -180608B/A

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	10/10/2019	08:51:46 AM
11	Standard1	ICAL	1	10/10/2019	08:54:59 AM
12	Standard2	ICAL	1	10/10/2019	08:58:11 AM
13	Standard3	ICAL	1	10/10/2019	09:01:53 AM
14	Standard4	ICAL	1	10/10/2019	09:05:39 AM
15	Standard5	ICAL	1	10/10/2019	09:09:24 AM
16	Standard6	ICAL	1	10/10/2019	09:13:14 AM
17	ICV	ICV	1	10/10/2019	09:18:03 AM
1	ICB	ICB	1	10/10/2019	09:21:56 AM
11	LLICV	CCV	1	10/10/2019	09:25:07 AM
11	LLICV	CCV	1	10/10/2019	09:30:54 AM
1	CalBlk	IBLK	1	10/10/2019	09:38:33 AM
11	Standard1	ICAL	1	10/10/2019	09:41:43 AM
12	Standard2	ICAL	1	10/10/2019	09:44:54 AM
13	Standard3	ICAL	1	10/10/2019	09:48:36 AM
14	Standard4	ICAL	1	10/10/2019	09:52:21 AM
15	Standard5	ICAL	1	10/10/2019	09:56:06 AM
16	Standard6	ICAL	1	10/10/2019	10:00:04 AM
17	ICV	ICV	1	10/10/2019	10:03:13 AM
1	ICB	ICB	1	10/10/2019	10:07:03 AM
11	LLICV	CCV	1	10/10/2019	10:10:13 AM
11	LLICV	CCV	1	10/10/2019	10:14:41 AM
18	ICSA1	ICSA	1	10/10/2019	10:17:52 AM
19	ICSAB1	ICSAB	1	10/10/2019	10:21:05 AM
23	MB-75559	MBLK	1	10/10/2019	10:24:53 AM
24	LCS2-75559	LCS	1	10/10/2019	10:28:03 AM
26	N037722-001C	SAMP	5	10/10/2019	10:32:00 AM
27	N037722-002C	SAMP	5	10/10/2019	10:36:46 AM
28	MB-75609	MBLK	1	10/10/2019	10:41:31 AM

NOT REPORTED



A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
29	LCS2-75609	LCS	1	10/10/2019	10:44:43 AM
30	N037709-001B	SAMP	5	10/10/2019	10:48:43 AM
31	N037709-002B	SAMP	5	10/10/2019	10:52:28 AM
32	N037709-003B	SAMP	5	10/10/2019	10:56:12 AM
33	N037771-001D	SAMP	5	10/10/2019	10:59:55 AM
14	CCV1	CCV	1	10/10/2019	11:05:17 AM
1	CCB1	CCB	1	10/10/2019	11:09:07 AM
34	N037771-002D	SAMP	5	10/10/2019	11:12:19 AM
35	N037771-003D	SAMP	5	10/10/2019	11:17:12 AM
36	MB-75564	MBLK	1	10/10/2019	11:21:58 AM
37	LCS2-75564	LCS	1	10/10/2019	11:25:08 AM
38	N037736-001C	SAMP	5	10/10/2019	11:29:05 AM
39	N037736-002C	SAMP	5	10/10/2019	11:33:51 AM
40	N037736-003C	SAMP	5	10/10/2019	11:38:37 AM
41	N037736-004C	SAMP	5	10/10/2019	11:43:24 AM
42	N037736-005C	SAMP	5	10/10/2019	11:48:13 AM
43	N037736-006C	SAMP	5	10/10/2019	11:53:00 AM
14	CCV2	CCV	1	10/10/2019	11:57:53 AM
1	CCB2	CCB	1	10/10/2019	12:01:43 PM
44	N037736-007C	SAMP	5	10/10/2019	12:04:55 PM
45	N037757-001B	SAMP	5	10/10/2019	12:09:40 PM
46	N037757-002B	SAMP	5	10/10/2019	12:13:29 PM
47	N037758-001C	SAMP	5	10/10/2019	12:18:18 PM
48	N037758-002C	SAMP	5	10/10/2019	12:23:04 PM
49	N037758-003C	SAMP	5	10/10/2019	12:27:50 PM
50	N037758-004B	SAMP	5	10/10/2019	12:32:36 PM
51	N037758-005C	SAMP	5	10/10/2019	12:37:23 PM
52	N037758-006C	SAMP	5	10/10/2019	12:42:11 PM
53	N037758-007B	SAMP	5	10/10/2019	12:46:59 PM
14	CCV3	CCV	1	10/10/2019	12:51:44 PM
1	CCB3	CCB	1	10/10/2019	12:55:34 PM
54	N037758-008C	SAMP	5	10/10/2019	12:58:46 PM
55	N037758-009C	SAMP	5	10/10/2019	01:03:34 PM
56	N037758-010C	SAMP	5	10/10/2019	01:08:21 PM
57	N037758-011B	SAMP	5	10/10/2019	01:13:10 PM
58	MB-75608	MBLK	1	10/10/2019	01:17:10 PM
59	LCS2-75608	LCS	1	10/10/2019	01:20:25 PM
60	N037772-002A	SAMP	5	10/10/2019	01:24:22 PM
61	MB-75596	MBLK	1	10/10/2019	01:27:34 PM
62	LCS2-75596	LCS	1	10/10/2019	01:30:46 PM
63	N037772-001A	SAMP	5	10/10/2019	01:34:33 PM
14	CCV4	CCV	1	10/10/2019	01:37:46 PM
1	CCB4	CCB	1	10/10/2019	01:41:35 PM
18	ICSA2	ICSA	1	10/10/2019	01:44:54 PM
19	ICSAB2	ICSAB	1	10/10/2019	01:48:08 PM
64	N037722-001C	SAMP	25	10/10/2019	01:51:59 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
65	N037722-001C	SAMP	50	10/10/2019	01:55:42 PM
66	N037722-001C	SAMP	250	10/10/2019	01:58:54 PM
67	N037722-001C-PS	PS	5	10/10/2019	02:02:08 PM
68	N037722-001C-PS	PS	50	10/10/2019	02:06:55 PM
69	N037722-001C-MS2	MS	5	10/10/2019	02:10:09 PM
70	N037722-001C-MS2	MS	50	10/10/2019	02:14:58 PM
71	N037722-001C-MSD2	MSD	5	10/10/2019	02:18:42 PM
72	N037722-001C-MSD2	MSD	50	10/10/2019	02:23:29 PM
73	N037722-002C	SAMP	50	10/10/2019	02:26:42 PM
14	CCV5	CCV	1	10/10/2019	02:29:54 PM
1	CCB5	CCB	1	10/10/2019	02:33:43 PM
74	N037709-001B	SAMP	25	10/10/2019	02:36:55 PM
75	N037709-002B	SAMP	25	10/10/2019	02:40:07 PM
76	N037709-002B	SAMP	125	10/10/2019	02:43:19 PM
77	N037709-002B-PS	PS	5	10/10/2019	02:46:47 PM
78	N037709-002B-PS	PS	25	10/10/2019	02:50:32 PM
79	N037709-002B-MS2	MS	5	10/10/2019	02:53:44 PM
80	N037709-002B-MS2	MS	25	10/10/2019	02:57:31 PM
81	N037709-002B-MSD2	MSD	5	10/10/2019	03:01:15 PM
82	N037709-002B-MSD2	MSD	25	10/10/2019	03:05:03 PM
83	N037709-003B	SAMP	25	10/10/2019	03:08:48 PM
14	CCV6	CCV	1	10/10/2019	03:12:00 PM
1	CCB6	CCB	1	10/10/2019	03:15:49 PM
84	N037771-001D	SAMP	250	10/10/2019	03:18:59 PM
85	N037771-002D	SAMP	250	10/10/2019	03:22:11 PM
86	N037771-003D	SAMP	50	10/10/2019	03:25:23 PM
87	N037736-001C	SAMP	50	10/10/2019	03:28:37 PM
88	N037736-002C	SAMP	25	10/10/2019	03:31:52 PM
89	N037736-002C	SAMP	50	10/10/2019	03:35:36 PM
90	N037736-002C	SAMP	250	10/10/2019	03:38:50 PM
91	N037736-002C-PS	PS	5	10/10/2019	03:42:04 PM
92	N037736-002C-PS	PS	50	10/10/2019	03:46:50 PM
93	N037736-002C-MS2	MS	5	10/10/2019	03:50:05 PM
14	CCV7	CCV	1	10/10/2019	03:54:58 PM
14	CCV7	CCV	1	10/10/2019	03:58:58 PM
1	CCB7	CCB	1	10/10/2019	04:02:47 PM
94	N037736-002C-MS2	MS	50	10/10/2019	04:05:58 PM
95	N037736-002C-MSD2	MSD	5	10/10/2019	04:09:43 PM
96	N037736-002C-MSD2	MSD	50	10/10/2019	04:14:34 PM
97	N037736-003C	SAMP	50	10/10/2019	04:17:47 PM
98	N037736-004C	SAMP	50	10/10/2019	04:21:00 PM
99	N037736-005C	SAMP	50	10/10/2019	04:24:12 PM
100	N037736-006C	SAMP	50	10/10/2019	04:27:25 PM
101	N037736-007C	SAMP	50	10/10/2019	04:30:39 PM
102	N037757-001B	SAMP	25	10/10/2019	04:33:51 PM
103	N037757-002B	SAMP	50	10/10/2019	04:37:04 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
14	CCV8	CCV	1	10/10/2019	04:40:18 PM
1	CCB8	CCB	1	10/10/2019	04:44:03 PM
18	ICSA3	ICSA	1	10/10/2019	04:47:15 PM
19	ICSAB3	ICSAB	1	10/10/2019	04:50:33 PM
104	N037758-001C	SAMP	50	10/10/2019	04:54:19 PM
105	N037758-002C	SAMP	50	10/10/2019	04:57:32 PM
106	N037758-003C	SAMP	50	10/10/2019	05:00:46 PM
107	N037758-004B	SAMP	50	10/10/2019	05:04:00 PM
108	N037758-005C	SAMP	50	10/10/2019	05:07:12 PM
109	N037758-006C	SAMP	50	10/10/2019	05:10:25 PM
53	N037758-007B	SAMP	5	10/10/2019	05:13:37 PM
110	N037758-007B	SAMP	50	10/10/2019	05:18:22 PM
111	N037758-008C	SAMP	50	10/10/2019	05:21:36 PM
112	N037758-009C	SAMP	50	10/10/2019	05:24:49 PM
14	CCV9	CCV	1	10/10/2019	05:28:02 PM
1	CCB9	CCB	1	10/10/2019	05:31:50 PM
113	N037758-010C	SAMP	50	10/10/2019	05:35:01 PM
114	N037758-010C-MS2	MS	5	10/10/2019	05:38:15 PM
115	N037758-010C-MS2	MS	50	10/10/2019	05:43:04 PM
116	N037758-011B	SAMP	50	10/10/2019	05:46:16 PM
117	N037772-002A	SAMP	1	10/10/2019	05:50:00 PM
118	N037772-002A-PS	PS	1	10/10/2019	05:53:14 PM
119	N037772-002A-MS2	MS	1	10/10/2019	05:56:27 PM
120	N037772-002A-MSD2	MSD	1	10/10/2019	06:00:26 PM
121	N037772-001A	SAMP	1	10/10/2019	06:04:26 PM
122	N037772-001A-PS	PS	1	10/10/2019	06:08:13 PM
14	CCV10	CCV	1	10/10/2019	06:12:14 PM
1	CCB10	CCB	1	10/10/2019	06:16:04 PM
123	N037772-001A-MS2	MS	1	10/10/2019	06:19:15 PM
124	N037772-001A-MSD2	MSD	1	10/10/2019	06:23:36 PM
70	N037722-001C-MS2	MS	50	10/10/2019	06:27:27 PM
70	N037722-001C-MS2	MS	50	10/10/2019	06:30:40 PM
14	CCV11	CCV	1	10/10/2019	06:33:55 PM
1	CCB11	CCB	1	10/10/2019	06:37:44 PM
18	ICSA4	ICSA	1	10/10/2019	06:40:55 PM
19	ICSAB4	ICSAB	1	10/10/2019	06:44:08 PM

INJECTION LOG: 191021A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820D,0.5<50mL
Standard2	MWST-190820I
Standard3	MWST-190820N,5<50mL
Standard4	MWST-190820N,12.5<50mL
Standard5	MWST-190820N,15<40mL
Standard6	MWST-190820N,25<50mL
Standard7	MWST-190820N
ICV	MWST-190820S
CCV	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190820T/U
Int. Std. (Y)	MSST-190708A
PS Spike	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	10/21/2019	10:39:33 AM
2	Standard1	ICAL	1	10/21/2019	10:43:47 AM
3	Standard2	ICAL	1	10/21/2019	10:47:58 AM
4	Standard3	ICAL	1	10/21/2019	10:52:10 AM
5	Standard4	ICAL	1	10/21/2019	10:56:23 AM
6	Standard5	ICAL	1	10/21/2019	11:01:59 AM
7	Standard6	ICAL	1	10/21/2019	11:07:35 AM
8	Standard7	ICAL	1	10/21/2019	11:13:12 AM
250	ICV	ICV	1	10/21/2019	11:16:50 AM
1	ICB	ICB	1	10/21/2019	11:22:28 AM
2	LLICV	CCV1	1	10/21/2019	11:27:08 AM
9	ICSA1	ICSA	1	10/21/2019	11:31:50 AM
9	ICSA1	ICSA	1	10/21/2019	11:38:37 AM
10	ICSAB1	ICSAB	1	10/21/2019	11:44:24 AM
131	N037758-011B	SAMP	1	10/21/2019	11:50:11 AM
132	N037758-011B-MS1	MS	1	10/21/2019	11:55:48 AM
133	MB-75728	MBLK	1	10/21/2019	12:01:25 PM
134	LCS-75728	LCS	1	10/21/2019	12:06:08 PM
135	N037916-008B	SAMP	1	10/21/2019	12:11:43 PM
136	N037916-008B	SAMP	5	10/21/2019	12:17:19 PM
137	N037916-008B-PS	PS	1	10/21/2019	12:21:33 PM
138	N037916-008B-MS	MS	1	10/21/2019	12:27:09 PM
139	N037916-008B-MSD	MSD	1	10/21/2019	12:32:45 PM
140	N037916-001B	SAMP	1	10/21/2019	12:38:19 PM
7	CCV1	CCV	1	10/21/2019	12:43:53 PM
1	CCB1	CCB	1	10/21/2019	12:49:30 PM
141	N037916-002B	SAMP	1	10/21/2019	12:54:12 PM
142	N037916-005B	SAMP	1	10/21/2019	12:59:47 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
143	N037916-006B	SAMP	1	10/21/2019	01:05:21 PM
144	N037916-007B	SAMP	1	10/21/2019	01:10:56 PM
7	CCV2	CCV	1	10/21/2019	01:16:30 PM
1	CCB2	CCB	1	10/21/2019	01:22:06 PM
9	ICSA2	ICSA	1	10/21/2019	01:26:46 PM
10	ICSAB2	ICSAB	1	10/21/2019	01:32:34 PM
134	LCS-75728	LCS	1	10/21/2019	02:18:36 PM
7	CCV3	CCV	1	10/21/2019	02:24:11 PM
1	CCB3	CCB	1	10/21/2019	02:29:46 PM
9	ICSA3	ICSA	1	10/21/2019	02:34:28 PM
10	ICSAB3	ICSAB	1	10/21/2019	02:40:15 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/4/2019 8:37:42 A**
Prep End Date: **10/4/2019 1:00:00 P**
Prep Batch **75564** Prep Code: **200.7_PR**

Reviewed/ Date: DBJ 10/4/2019
Initials/ Date: CEI 10/4/2019
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.6**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-75564	Aqueous		25	☐	25	1.000		
LCS2-75564	Aqueous		25	☐	25	1.000		
MB-75564	Aqueous		25	☐	25	1.000		
N037736-001C	Groundwater	<2	25	☐	25	1.000		
N037736-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037736-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037736-002C	Groundwater	<2	25	☐	25	1.000		
N037736-002C-MS	Groundwater	<2	25	☐	25	1.000		
N037736-002C-MS	Groundwater	<2	25	☐	25	1.000		
N037736-003C	Groundwater	<2	25	☐	25	1.000		
N037736-004C	Groundwater	<2	25	☐	25	1.000		
N037736-005C	Groundwater	<2	25	☐	25	1.000		
N037736-006C	Groundwater	<2	25	☐	25	1.000		
N037736-007C	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11334	HYDROCHLORIC ACID
11430	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

F G H

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/4/2019 8:37:42 A**
Prep End Date: **10/4/2019 1:00:00 P**
Prep Batch **75564** Prep Code: **200.7_PR**

Reviewed/ Date: DBJ 10/4/2019
Initials/ Date: CEI 10/4/2019
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.6**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037757-001B	Groundwater	<2	25	☐	25	1.000		
N037757-002B	Groundwater	<2	25	☐	25	1.000		
N037758-001C	Groundwater	<2	25	☐	25	1.000		
N037758-002C	Groundwater	<2	25	☐	25	1.000		
N037758-003C	Groundwater	<2	25	☐	25	1.000		
N037758-004B	Groundwater	<2	25	☐	25	1.000		
N037758-005C	Groundwater	<2	25	☐	25	1.000		
N037758-006C	Groundwater	<2	25	☐	25	1.000		
N037758-007B	Groundwater	<2	25	☐	25	1.000		
N037758-008C	Groundwater	<2	25	☐	25	1.000		
N037758-009C	Groundwater	<2	25	☐	25	1.000		
N037758-010C	Groundwater	<2	25	☐	25	1.000		
N037758-010C-MS	Groundwater	<2	25	☐	25	1.000		
N037758-011B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11334	HYDROCHLORIC ACID
11430	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820A F	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A G	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A H	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/4/2019 8:37:42 A**
Prep End Date: **10/4/2019 1:00:00 P**
Prep Batch **75564** Prep Code: **200.7_PR**

Reviewed/ Date: DBJ 10/4/2019
Initials/ Date: CEI 10/4/2019
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.6**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037758-011B-MS	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11334	HYDROCHLORIC ACID
11430	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820A F	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A G	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A H	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191004A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Boron								
CalBlk	10/04/2019	01:16:55 PM	B	249.677	10447	0.00	mg/L	
Standard1	10/04/2019	01:21:10 PM	B	249.677	4523	0.1000	mg/L	
Standard3	10/04/2019	01:29:35 PM	B	249.677	46054	1.000	mg/L	
Standard4	10/04/2019	01:33:51 PM	B	249.677	115118	2.500	mg/L	
Standard5	10/04/2019	01:39:27 PM	B	249.677	174786	3.750	mg/L	
Standard6	10/04/2019	01:45:02 PM	B	249.677	234932	5.000	mg/L	
Standard7	10/04/2019	01:50:37 PM	B	249.677	469298	10.000	mg/L	1.0000
Magnesium								
CalBlk	10/04/2019	01:16:55 PM	Mg	279.077	1018	0.00	mg/L	
Standard1	10/04/2019	01:21:10 PM	Mg	279.077	1951	0.1000	mg/L	
Standard2	10/04/2019	01:25:23 PM	Mg	279.077	20242	1.000	mg/L	
Standard3	10/04/2019	01:29:35 PM	Mg	279.077	40568	2.000	mg/L	
Standard4	10/04/2019	01:33:51 PM	Mg	279.077	92935	5.000	mg/L	
Standard5	10/04/2019	01:39:27 PM	Mg	279.077	140898	7.500	mg/L	
Standard6	10/04/2019	01:45:02 PM	Mg	279.077	187531	10.000	mg/L	
Standard7	10/04/2019	01:50:37 PM	Mg	279.077	367746	20.000	mg/L	0.9999
Aluminum								
CalBlk	10/04/2019	01:16:55 PM	Al	237.312	-360	0.00	mg/L	
Standard1	10/04/2019	01:21:10 PM	Al	237.312	363	0.0500	mg/L	
Standard2	10/04/2019	01:25:23 PM	Al	237.312	7635	1.000	mg/L	
Standard3	10/04/2019	01:29:35 PM	Al	237.312	15342	2.000	mg/L	
Standard4	10/04/2019	01:33:51 PM	Al	237.312	37783	5.000	mg/L	
Standard5	10/04/2019	01:39:27 PM	Al	237.312	55971	7.500	mg/L	
Standard6	10/04/2019	01:45:02 PM	Al	237.312	74809	10.000	mg/L	
Standard7	10/04/2019	01:50:37 PM	Al	237.312	152168	20.000	mg/L	1.0000
Calcium								
CalBlk	10/04/2019	01:16:55 PM	Ca	227.546	212	0.00	mg/L	
Standard1	10/04/2019	01:21:10 PM	Ca	227.546	80	0.2000	mg/L	
Standard2	10/04/2019	01:25:23 PM	Ca	227.546	426	1.000	mg/L	
Standard3	10/04/2019	01:29:35 PM	Ca	227.546	860	2.000	mg/L	
Standard4	10/04/2019	01:33:51 PM	Ca	227.546	2108	5.000	mg/L	
Standard5	10/04/2019	01:39:27 PM	Ca	227.546	3193	7.500	mg/L	
Standard6	10/04/2019	01:45:02 PM	Ca	227.546	4250	10.000	mg/L	
Standard7	10/04/2019	01:50:37 PM	Ca	227.546	8530	20.000	mg/L	1.0000
Iron								
CalBlk	10/04/2019	01:16:55 PM	Fe	273.953	40	0.00	mg/L	
Standard1	10/04/2019	01:21:10 PM	Fe	273.953	741	0.0200	mg/L	
Standard2	10/04/2019	01:25:23 PM	Fe	273.953	3453	0.050	mg/L	
Standard3	10/04/2019	01:29:35 PM	Fe	273.953	75665	2.000	mg/L	
Standard4	10/04/2019	01:33:51 PM	Fe	273.953	183747	5.000	mg/L	
Standard5	10/04/2019	01:39:27 PM	Fe	273.953	278584	7.500	mg/L	
Standard6	10/04/2019	01:45:02 PM	Fe	273.953	371567	10.000	mg/L	
Standard7	10/04/2019	01:50:37 PM	Fe	273.953	732268	20.000	mg/L	1.0000

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 191007B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Aluminum								
CalBlk	10/07/2019	02:48:20 PM	Al	237.312	-318	0.00	mg/L	
CalBlk	10/07/2019	03:23:35 PM	Al	237.312	-413	0.00	mg/L	
Standard1	10/07/2019	02:52:33 PM	Al	237.312	309	0.0500	mg/L	
Standard1	10/07/2019	03:27:47 PM	Al	237.312	395	0.0500	mg/L	
Standard2	10/07/2019	03:32:00 PM	Al	237.312	8017	1.000	mg/L	
Standard3	10/07/2019	03:36:13 PM	Al	237.312	15456	2.000	mg/L	
Standard4	10/07/2019	03:40:26 PM	Al	237.312	39088	5.000	mg/L	
Standard5	10/07/2019	03:44:42 PM	Al	237.312	57608	7.500	mg/L	
Standard6	10/07/2019	03:48:56 PM	Al	237.312	76744	10.000	mg/L	
Standard7	10/07/2019	03:53:10 PM	Al	237.312	159668	20.000	mg/L	0.9999
Iron								
CalBlk	10/07/2019	03:23:35 PM	Fe	273.953	-59	0.00	mg/L	
CalBlk	10/07/2019	02:48:20 PM	Fe	273.953	-89	0.00	mg/L	
Standard1	10/07/2019	02:52:33 PM	Fe	273.953	959	0.0200	mg/L	
Standard1	10/07/2019	03:27:47 PM	Fe	273.953	797	0.0200	mg/L	
Standard2	10/07/2019	03:32:00 PM	Fe	273.953	3575	0.050	mg/L	
Standard3	10/07/2019	03:36:13 PM	Fe	273.953	77371	2.000	mg/L	
Standard4	10/07/2019	03:40:26 PM	Fe	273.953	192407	5.000	mg/L	
Standard5	10/07/2019	03:44:42 PM	Fe	273.953	288121	7.500	mg/L	
Standard6	10/07/2019	03:48:56 PM	Fe	273.953	383218	10.000	mg/L	
Standard7	10/07/2019	03:53:10 PM	Fe	273.953	778517	20.000	mg/L	1.0000

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 191010A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	10/10/2019	09:38:33 AM	Na	589.62	-413	0.00	mg/L	
Standard1	10/10/2019	09:41:43 AM	Na	589.62	1234	0.1000	mg/L	
Standard2	10/10/2019	09:44:54 AM	Na	589.62	9557	1.000	mg/L	
Standard3	10/10/2019	09:48:36 AM	Na	589.62	47690	5.000	mg/L	
Standard4	10/10/2019	09:52:21 AM	Na	589.62	93345	10.000	mg/L	
Standard5	10/10/2019	09:56:06 AM	Na	589.62	187669	20.000	mg/L	
Standard6	10/10/2019	10:00:04 AM	Na	589.62	367192	40.000	mg/L	1.0000
Potassium								
CalBlk	10/10/2019	09:38:33 AM	K	766.489	-1377	0.00	mg/L	
Standard1	10/10/2019	09:41:43 AM	K	766.489	384	0.1000	mg/L	
Standard2	10/10/2019	09:44:54 AM	K	766.489	3582	1.000	mg/L	
Standard3	10/10/2019	09:48:36 AM	K	766.489	17918	5.000	mg/L	
Standard4	10/10/2019	09:52:21 AM	K	766.489	35294	10.000	mg/L	
Standard5	10/10/2019	09:56:06 AM	K	766.489	71290	20.000	mg/L	
Standard6	10/10/2019	10:00:04 AM	K	766.489	140961	40.000	mg/L	1.0000

INITIAL CALIBRATION SUMMARY: 191021A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	10/21/2019	10:39:33 AM	Fe	273.953	425	0.00	mg/L	
Standard1	10/21/2019	10:43:47 AM	Fe	273.953	735	0.0200	mg/L	
Standard2	10/21/2019	10:47:58 AM	Fe	273.953	2289	0.050	mg/L	
Standard3	10/21/2019	10:52:10 AM	Fe	273.953	75076	2.000	mg/L	
Standard4	10/21/2019	10:56:23 AM	Fe	273.953	187163	5.000	mg/L	
Standard5	10/21/2019	11:01:59 AM	Fe	273.953	281689	7.500	mg/L	
Standard6	10/21/2019	11:07:35 AM	Fe	273.953	376130	10.000	mg/L	
Standard7	10/21/2019	11:13:12 AM	Fe	273.953	754046	20.000	mg/L	1.0000

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10108.187	500	10000	0	101	90	110				
Iron	10294.561	20	10000	0	103	90	110				
Magnesium	10370.825	100	10000	0	104	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ZZZZZZ** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	199.719	500	200.0	0	99.9	80	120				
Iron	20.705	20	20.00	0	104	80	120				
Magnesium	96.605	100	100.0	0	96.6	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10215.681	500	10000	0	102	90	110				
Iron	10093.542	20	10000	0	101	90	110				
Magnesium	9937.073	100	10000	0	99.4	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9725.677	500	10000	0	97.3	90	110				
Iron	9630.710	20	10000	0	96.3	90	110				
Magnesium	9513.978	100	10000	0	95.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV3** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527418**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9630.357	500	10000	0	96.3	90	110				
Iron	9522.366	20	10000	0	95.2	90	110				
Magnesium	9347.853	100	10000	0	93.5	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527432**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9728.886	500	10000	0	97.3	90	110				
Iron	9530.405	20	10000	0	95.3	90	110				
Magnesium	9366.830	100	10000	0	93.7	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9691.274	500	10000	0	96.9	90	110				
Iron	9528.631	20	10000	0	95.3	90	110				
Magnesium	9394.619	100	10000	0	93.9	90	110				

Sample ID **CCV6** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527458**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9696.415	500	10000	0	97.0	90	110				
Iron	9722.578	20	10000	0	97.2	90	110				
Magnesium	9744.976	100	10000	0	97.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV7** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527473**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9710.016	500	10000	0	97.1	90	110				
Iron	9567.135	20	10000	0	95.7	90	110				
Magnesium	9502.202	100	10000	0	95.0	90	110				

Sample ID **CCV8** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9755.008	500	10000	0	97.6	90	110				
Iron	9594.594	20	10000	0	95.9	90	110				
Magnesium	9461.390	100	10000	0	94.6	90	110				

Sample ID **CCV9** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/5/2019** SeqNo: **3527491**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9624.905	500	10000	0	96.2	90	110				
Iron	9785.777	20	10000	0	97.9	90	110				
Magnesium	9365.455	100	10000	0	93.7	90	110				

Sample ID **CCV10** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **CCV** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/5/2019** SeqNo: **3527499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9886.880	500	10000	0	98.9	90	110				
Iron	9850.920	20	10000	0	98.5	90	110				
Magnesium	9565.533	100	10000	0	95.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529497**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10334.299	20	10000	0	103	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ZZZZZZ**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	19.772	20	20.00	0	98.9	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9804.550	20	10000	0	98.0	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9556.314	20	10000	0	95.6	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9913.164	20	10000	0	99.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9597.382	20	10000	0	96.0	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9610.686	20	10000	0	96.1	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9653.116	20	10000	0	96.5	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9983.263	20	10000	0	99.8	90	110				

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICV**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529905**

not reported

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10334.299	20	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10233.956	500	10000	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	109.855	500	100.0	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10452.571	500	10000	0	105	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10532.998	500	10000	0	105	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532416**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10263.452	500	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10206.691	500	10000	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532442**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10226.118	500	10000	0	102	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10200.258	500	10000	0	102	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532467**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10111.411	500	10000	0	101	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532479**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10266.658	500	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV9**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10162.798	500	10000	0	102	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10193.119	500	10000	0	102	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCV**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10181.004	500	10000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **137084**
Client ID: **ICV**	Batch ID: **R137084**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10223.088	20	10000	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **137084**
Client ID: **ZZZZZZ**	Batch ID: **R137084**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.910	20	20.00	0	105	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **137084**
Client ID: **CCV**	Batch ID: **R137084**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9850.715	20	10000	0	98.5	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **137084**
Client ID: **CCV**	Batch ID: **R137084**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9829.002	20	10000	0	98.3	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **ICB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-63.962756	500									
Iron	2.403	20									
Magnesium	-4.338435	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527395**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-71.679072	500									
Iron	14.632	20									
Magnesium	-5.180288	100									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-115.43463	500									
Iron	9.366	20									
Magnesium	-6.020031	100									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527419**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-144.134906	500									
Iron	6.357	20									
Magnesium	-9.32906	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detect of Fe in several CCBs are either > RL or > 1/2 RL. Fe not reported on this run. JRB 10/23/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-125.856083	500									
Iron	12.928	20									
Magnesium	-4.142505	100									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527447**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-91.593308	500									
Iron	9.787	20									
Magnesium	-7.074825	100									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527460**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-102.546231	500									
Iron	34.439	20									
Magnesium	-6.291025	100									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-76.239274	500									
Iron	29.758	20									
Magnesium	-6.195814	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB8**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-112.558617	500									
Iron	32.481	20									
Magnesium	-7.495587	100									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/5/2019**	SeqNo: **3527492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-48.062788	500									
Iron	55.936	20									
Magnesium	1.797	100									

Sample ID **CCB10**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **CCB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/5/2019**	SeqNo: **3527500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-87.826189	500									
Iron	48.115	20									
Magnesium	-1.609658	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.761	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.331	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.593	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.174	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.833	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.627	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2.988	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **CCB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2.447	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4.752	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	25.759	500									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	30.004	500									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532417**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	35.324	500									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	31.427	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	31.542	500									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	33.776	500									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	38.172	500									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532480**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	32.290	500									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532494**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	22.563	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB10**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	25.184	500									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **CCB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	22.734	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **137084**
Client ID: **ICB**	Batch ID: **R137084**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.800	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **137084**
Client ID: **CCB**	Batch ID: **R137084**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-7.788361	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **137084**
Client ID: **CCB**	Batch ID: **R137084**	TestNo: **EPA 200.7**		Analysis Date: **10/21/2019**	SeqNo: **3540279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-9.016621	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICSA** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465537.465	50	500000	0	93.1	80	120				
Boron	32.647	100									
Calcium	477450.975	500	500000	0	95.5	80	120				
Iron	181136.281	20	200000	0	90.6	80	120				
Magnesium	435289.887	100	500000	0	87.1	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICSAB** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	524456.320	50	500000	0	105	80	120				
Boron	1112.751	100	1000	0	111	80	120				
Calcium	533183.704	500	500000	0	107	80	120				
Iron	183703.282	20	200000	0	91.9	80	120				
Magnesium	493515.278	100	500000	0	98.7	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICSA** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527420**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	476356.609	50	500000	0	95.3	80	120				
Boron	48.645	100									
Calcium	509686.568	500	500000	0	102	80	120				
Iron	200363.762	20	200000	0	100	80	120				
Magnesium	452006.639	100	500000	0	90.4	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **ICSAB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	531320.846	50	500000	0	106	80	120				
Boron	1122.801	100	1000	0	112	80	120				
Calcium	545227.702	500	500000	0	109	80	120				
Iron	183399.199	20	200000	0	91.7	80	120				
Magnesium	491220.833	100	500000	0	98.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **ICSA**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527461**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	493690.570	50	500000	0	98.7	80	120				
Boron	34.339	100									
Calcium	526227.119	500	500000	0	105	80	120				
Iron	206017.675	20	200000	0	103	80	120				
Magnesium	466388.116	100	500000	0	93.3	80	120				

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136789**
Client ID: **ICSAB**	Batch ID: **R136789**	TestNo: **EPA 200.7**		Analysis Date: **10/4/2019**	SeqNo: **3527462**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	538617.207	50	500000	0	108	80	120				
Boron	1114.478	100	1000	0	111	80	120				
Calcium	551476.575	500	500000	0	110	80	120				
Iron	184881.579	20	200000	0	92.4	80	120				
Magnesium	495176.553	100	500000	0	99.0	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA4** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICSA** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/5/2019** SeqNo: **3527493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	490043.072	50	500000	0	98.0	80	120				
Boron	62.791	100									
Calcium	514482.543	500	500000	0	103	80	120				
Iron	209865.810	20	200000	0	105	80	120				
Magnesium	459522.045	100	500000	0	91.9	80	120				

Sample ID **ICSAB4** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICSAB** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/5/2019** SeqNo: **3527494**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	524337.288	50	500000	0	105	80	120				
Boron	1082.027	100	1000	0	108	80	120				
Calcium	528481.596	500	500000	0	106	80	120				
Iron	182830.305	20	200000	0	91.4	80	120				
Magnesium	473983.049	100	500000	0	94.8	80	120				

Sample ID **ICSA5** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICSA** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/5/2019** SeqNo: **3527501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	489567.547	50	500000	0	97.9	80	120				
Boron	43.932	100									
Calcium	521860.093	500	500000	0	104	80	120				
Iron	206936.438	20	200000	0	103	80	120				
Magnesium	463149.059	100	500000	0	92.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detect of B in ICSA4 is > 1/2 RL. However, B is non-target analyte. JRB 10/23/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB5** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ICSAB** Batch ID: **R136789** TestNo: **EPA 200.7** Analysis Date: **10/5/2019** SeqNo: **3527502**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537062.825	50	500000	0	107	80	120				
Boron	1105.729	100	1000	0	111	80	120				
Calcium	546898.693	500	500000	0	109	80	120				
Iron	185911.742	20	200000	0	93.0	80	120				
Magnesium	495003.262	100	500000	0	99.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSA**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	525096.285	50	500000	0	105	80	120				
Calcium	549185.221	500	500000	0	110	80	120				
Iron	225146.157	20	200000	0	113	80	120				
Magnesium	495196.684	100	500000	0	99.0	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSAB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	524826.320	50	500000	0	105	80	120				
Calcium	554440.813	500	500000	0	111	80	120				
Iron	190750.051	20	200000	0	95.4	80	120				
Magnesium	516055.603	100	500000	0	103	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSA**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	531013.426	50	500000	0	106	80	120				
Calcium	556028.216	500	500000	0	111	80	120				
Iron	227241.666	20	200000	0	114	80	120				
Magnesium	494352.943	100	500000	0	98.9	80	120				

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSAB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	539999.602	50	500000	0	108	80	120				
Calcium	553123.146	500	500000	0	111	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSAB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	187659.518	20	200000	0	93.8	80	120				
Magnesium	502852.249	100	500000	0	101	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSA**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	528230.452	50	500000	0	106	80	120				
Calcium	555813.078	500	500000	0	111	80	120				
Iron	225622.318	20	200000	0	113	80	120				
Magnesium	491275.546	100	500000	0	98.3	80	120				

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSAB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	518249.608	50	500000	0	104	80	120				
Calcium	551686.544	500	500000	0	110	80	120				
Iron	187554.401	20	200000	0	93.8	80	120				
Magnesium	505848.318	100	500000	0	101	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSA**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	530654.059	50	500000	0	106	80	120				
Calcium	549812.209	500	500000	0	110	80	120				
Iron	232191.141	20	200000	0	116	80	120				
Magnesium	512941.544	100	500000	0	103	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136819**
Client ID: **ICSAB**	Batch ID: **R136819**	TestNo: **EPA 200.7**		Analysis Date: **10/7/2019**	SeqNo: **3529588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	540242.857	50	500000	0	108	80	120				
Calcium	549232.213	500	500000	0	110	80	120				
Iron	197289.794	20	200000	0	98.6	80	120				
Magnesium	514739.245	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSA**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	15.505	500									
Sodium	-3.180709	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSAB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9904.037	500	10000	0	99.0	80	120				
Sodium	10038.302	500	10000	0	100	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSA**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	-18.684824	500									
Sodium	12.288	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSAB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9794.252	500	10000	0	97.9	80	120				
Sodium	9993.598	500	10000	0	99.9	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSA**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	-57.10005	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSA**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	13.006	500									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSAB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9941.710	500	10000	0	99.4	80	120				
Sodium	10129.050	500	10000	0	101	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSA**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	14.339	500									
Sodium	12.286	500									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136882**
Client ID: **ICSAB**	Batch ID: **R136882**	TestNo: **EPA 200.7**		Analysis Date: **10/10/2019**	SeqNo: **3532800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9828.039	500	10000	0	98.3	80	120				
Sodium	10103.237	500	10000	0	101	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	**ICSA1**	SampType:	**ICSA**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**137084**
Client ID:	**ICSA**	Batch ID:	**R137084**	TestNo:	**EPA 200.7**			Analysis Date:	**10/21/2019**	SeqNo:	**3540153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	181556.767	20	200000	0	90.8	80	120				

Sample ID	**ICSAB1**	SampType:	**ICSAB**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**137084**
Client ID:	**ICSAB**	Batch ID:	**R137084**	TestNo:	**EPA 200.7**			Analysis Date:	**10/21/2019**	SeqNo:	**3540154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	186300.610	20	200000	0	93.2	80	120				

Sample ID	**ICSA2**	SampType:	**ICSA**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**137084**
Client ID:	**ICSA**	Batch ID:	**R137084**	TestNo:	**EPA 200.7**			Analysis Date:	**10/21/2019**	SeqNo:	**3540280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	179506.934	20	200000	0	89.8	80	120				

Sample ID	**ICSAB2**	SampType:	**ICSAB**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**137084**
Client ID:	**ICSAB**	Batch ID:	**R137084**	TestNo:	**EPA 200.7**			Analysis Date:	**10/21/2019**	SeqNo:	**3540281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	183967.421	20	200000	0	92.0	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.5	65-125	PASS
Standard2	ICAL	1	1.05	105.15	65-125	PASS
Standard3	ICAL	1	1.09	108.49	65-125	PASS
Standard4	ICAL	1	1.05	105.33	65-125	PASS
Standard5	ICAL	1	1.03	102.79	65-125	PASS
Standard6	ICAL	1	1.03	103.47	65-125	PASS
Standard7	ICAL	1	1.02	102.26	65-125	PASS
ICV	ICV	1	0.99	98.81	65-125	PASS
ICB	ICB	1	1	99.86	65-125	PASS
LLICV	CCV1	1	1	99.74	65-125	PASS
LLICV	CCV1	1	1	99.96	65-125	PASS
LLICV	CCV1	1	0.99	99.4	65-125	PASS
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.01	100.76	65-125	PASS
Standard2	ICAL	1	1.02	102.13	65-125	PASS
Standard3	ICAL	1	1.1	109.97	65-125	PASS
Standard4	ICAL	1	1.07	106.7	65-125	PASS
Standard5	ICAL	1	1.06	105.9	65-125	PASS
Standard6	ICAL	1	1.04	104.04	65-125	PASS
Standard7	ICAL	1	1.03	103	65-125	PASS
ICV	ICV	1	1.01	100.54	65-125	PASS
ICB	ICB	1	1.01	100.96	65-125	PASS
LLICV	CCV1	1	1.01	101.14	65-125	PASS
LLICV	CCV1	1	1.02	102.19	65-125	PASS
LLICV	CCV1	1	1.01	101.54	65-125	PASS
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	0.98	97.67	65-125	PASS
Standard2	ICAL	1	0.99	99.29	65-125	PASS
Standard3	ICAL	1	1.06	105.49	65-125	PASS
Standard4	ICAL	1	1.03	103.22	65-125	PASS
Standard5	ICAL	1	1.04	103.8	65-125	PASS
Standard6	ICAL	1	1.02	102.47	65-125	PASS
Standard7	ICAL	1	1.01	101.35	65-125	PASS
ICV	ICV	1	0.99	99	65-125	PASS
ICB	ICB	1	1	99.51	65-125	PASS
ICB	ICB	1	0.99	99.47	65-125	PASS
LLICV	CCV1	1	0.99	98.92	65-125	PASS
LLICV	CCV1	1	0.99	99.39	65-125	PASS
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	100.24	65-125	PASS

INTERNAL STANDARD: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
Standard2	ICAL	1	1.02	101.84	65-125	PASS
Standard3	ICAL	1	1.06	106.4	65-125	PASS
Standard4	ICAL	1	1.07	106.52	65-125	PASS
Standard5	ICAL	1	1.07	106.73	65-125	PASS
Standard6	ICAL	1	1.05	105.27	65-125	PASS
Standard7	ICAL	1	1.05	104.79	65-125	PASS
ICV	ICV	1	1.01	101.52	65-125	PASS
ICB	ICB	1	1.01	100.8	65-125	PASS
LLICV	CCV1	1	1.01	101.04	65-125	PASS
LLICV	CCV1	1	1.01	101.27	65-125	PASS
ICSA1	ICSA	1	1.2	120.39	65-125	PASS
ICSAB1	ICSAB	1	0.92	92.36	65-125	PASS
CCV1	CCV	1	1.04	104.13	65-125	PASS
CCB1	CCB	1	0.99	99.3	65-125	PASS
CCV2	CCV	1	1.02	102.11	65-125	PASS
CCB2	CCB	1	1.01	101.45	65-125	PASS
CCV3	CCV	1	1.03	102.82	65-125	PASS
CCB3	CCB	1	1.03	103.13	65-125	PASS
ICSA2	ICSA	1	1.12	111.72	65-125	PASS
ICSAB2	ICSAB	1	0.9	89.95	65-125	PASS
CCV4	CCV	1	1.05	105.09	65-125	PASS
CCB4	CCB	1	1.03	103.44	65-125	PASS
CCV5	CCV	1	1.04	103.74	65-125	PASS
CCB5	CCB	1	1.03	102.56	65-125	PASS
CCB5	CCB	1	1.04	103.61	65-125	PASS
CCB5	CCB	1	1.03	102.78	65-125	PASS
MB-75564	MBLK	1	1.03	103.07	65-125	PASS
LCS1-75564	LCS	1	0.96	96.34	65-125	PASS
CCV6	CCV	1	1.05	104.94	65-125	PASS
CCB6	CCB	1	1.05	104.46	65-125	PASS
CCB6	CCB	1	1.05	104.49	65-125	PASS
ICSA3	ICSA	1	1.11	111.38	65-125	PASS
ICSAB3	ICSAB	1	0.92	91.59	65-125	PASS
N037736-001C	SAMP	1	0.99	99.4	65-125	PASS
N037736-001C	SAMP	5	1	99.95	65-125	PASS
N037736-001C-PS	PS	1	0.93	93.34	65-125	PASS
N037736-001C-MS1	MS	1	0.99	99.41	65-125	PASS
N037736-001C-MSD1	MSD	1	1.01	100.78	65-125	PASS
N037736-002C	SAMP	1	0.95	94.63	65-125	PASS
N037736-003C	SAMP	1	1.01	100.92	65-125	PASS
N037736-004C	SAMP	1	1	99.74	65-125	PASS

INTERNAL STANDARD: 191004A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037736-005C	SAMP	1	1.01	101.12	65-125	PASS
N037736-006C	SAMP	1	1	100.27	65-125	PASS
CCV7	CCV	1	1.06	106.16	65-125	PASS
CCB7	CCB	1	1.06	105.78	65-125	PASS
N037736-007C	SAMP	1	1.01	100.6	65-125	PASS
N037757-001B	SAMP	1	1.08	108.21	65-125	PASS
N037757-002B	SAMP	1	1	99.93	65-125	PASS
N037758-001C	SAMP	1	1.01	100.98	65-125	PASS
N037758-002C	SAMP	1	1	100.5	65-125	PASS
N037758-003C	SAMP	1	0.99	99.02	65-125	PASS
N037758-004B	SAMP	1	1.01	101.52	65-125	PASS
N037758-005C	SAMP	1	1.01	100.72	65-125	PASS
N037758-006C	SAMP	1	1.02	101.92	65-125	PASS
N037758-007B	SAMP	1	1.05	105.38	65-125	PASS
CCV8	CCV	1	1.07	106.56	65-125	PASS
CCB8	CCB	1	1.05	105.21	65-125	PASS
N037758-008C	SAMP	1	1	100.08	65-125	PASS
N037758-009C	SAMP	1	1	99.67	65-125	PASS
N037758-010C	SAMP	1	1.02	101.87	65-125	PASS
N037758-011B	SAMP	1	1.04	103.63	65-125	PASS
N037758-011B-MS1	MS	1	1.01	100.79	65-125	PASS
CCV9	CCV	1	1.04	103.67	65-125	PASS
CCB9	CCB	1	1.01	100.7	65-125	PASS
ICSA4	ICSA	1	1.09	108.98	65-125	PASS
ICSAB4	ICSAB	1	0.93	93.02	65-125	PASS
CCV10	CCV	1	1.04	103.66	65-125	PASS
CCB10	CCB	1	1.03	102.71	65-125	PASS
ICSA5	ICSA	1	1.12	111.56	65-125	PASS
ICSAB5	ICSAB	1	0.92	92.38	65-125	PASS

INTERNAL STANDARD: 191007B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	0.93	93.09	65-125	PASS
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.01	101.54	65-125	PASS
Standard2	ICAL	1	1.05	104.77	65-125	PASS
Standard3	ICAL	1	1.02	102.01	65-125	PASS
Standard4	ICAL	1	1.02	102.15	65-125	PASS
Standard5	ICAL	1	1.02	102.48	65-125	PASS
Standard6	ICAL	1	1.02	102	65-125	PASS
Standard7	ICAL	1	1.01	101.52	65-125	PASS
ICV	ICV	1	1.04	103.98	65-125	PASS
ICB	ICB	1	1.02	102.15	65-125	PASS
LLICV	CCV1	1	1.02	102.17	65-125	PASS
ICSA1	ICSA	1	1.08	108.1	65-125	PASS
ICSAB1	ICSAB	1	0.98	97.64	65-125	PASS
CCV1	CCV	1	1.08	107.58	65-125	PASS
CCB1	CCB	1	1.07	106.98	65-125	PASS
MB-75564	MBLK	1	1.14	113.74	65-125	PASS
CCV2	CCV	1	1.08	108.01	65-125	PASS
CCB2	CCB	1	1.05	105.35	65-125	PASS
LCS1-75564	LCS	1	1.06	105.5	65-125	PASS
N037736-001C	SAMP	1	1.08	107.48	65-125	PASS
N037736-001C	SAMP	5	1.09	109.12	65-125	PASS
N037736-001C-PS	PS	1	1.04	104.09	65-125	PASS
N037736-001C-MS1	MS	1	1.11	110.56	65-125	PASS
N037736-001C-MSD1	MSD	1	1.12	112.03	65-125	PASS
N037736-002C	SAMP	1	1.06	105.6	65-125	PASS
N037736-003C	SAMP	1	1.11	110.65	65-125	PASS
N037736-004C	SAMP	1	1.08	108.3	65-125	PASS
CCV3	CCV	1	1.02	101.95	65-125	PASS
CCB3	CCB	1	1.02	101.66	65-125	PASS
ICSA2	ICSA	1	1.06	105.63	65-125	PASS
ICSAB2	ICSAB	1	0.94	94.19	65-125	PASS
N037736-006C	SAMP	1	1.08	108.36	65-125	PASS
N037736-007C	SAMP	1	1.06	105.6	65-125	PASS
N037757-001B	SAMP	1	1.12	112.42	65-125	PASS
N037757-002B	SAMP	1	1.07	106.92	65-125	PASS
N037758-001C	SAMP	1	1.05	105.21	65-125	PASS
N037758-002C	SAMP	1	1.08	108.15	65-125	PASS
N037758-003C	SAMP	1	1.07	107.32	65-125	PASS
N037758-004B	SAMP	1	1.08	107.88	65-125	PASS

INTERNAL STANDARD: 191007B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037758-005C	SAMP	1	1.1	109.94	65-125	PASS
N037758-006C	SAMP	1	1.09	108.52	65-125	PASS
CCV4	CCV	1	1.06	106.45	65-125	PASS
CCB4	CCB	1	1.04	103.87	65-125	PASS
N037758-008C	SAMP	1	1.08	108.38	65-125	PASS
N037758-009C	SAMP	1	1.09	108.89	65-125	PASS
N037758-010C	SAMP	1	1.08	107.95	65-125	PASS
CCV5	CCV	1	1.08	107.76	65-125	PASS
CCB5	CCB	1	1.05	104.77	65-125	PASS
CCV6	CCV	1	1.07	107.25	65-125	PASS
CCB6	CCB	1	1.04	104.45	65-125	PASS
ICSA3	ICSA	1	1.1	109.78	65-125	PASS
ICSAB3	ICSAB	1	0.98	97.68	65-125	PASS
N037736-005C	SAMP	5	0	-0.03	65-125	NR!
N037736-005C	SAMP	1	1.05	105.2	65-125	PASS
CCV7	CCV	1	1.06	106.14	65-125	PASS
CCB7	CCB	1	1.06	105.79	65-125	PASS
ICSA4	ICSA	1	1.09	109.06	65-125	PASS
ICSAB4	ICSAB	1	0.97	96.71	65-125	PASS

INTERNAL STANDARD: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.02	102.31	65-125	PASS
Standard2	ICAL	1	1.03	103.32	65-125	PASS
Standard3	ICAL	1	1.04	103.66	65-125	PASS
Standard4	ICAL	1	1.04	104.14	65-125	PASS
Standard5	ICAL	1	1.05	105.45	65-125	PASS
Standard6	ICAL	1	1.06	105.86	65-125	PASS
ICV	ICV	1	1.07	107.38	65-125	PASS
ICB	ICB	1	1.07	107.22	65-125	PASS
LLICV	CCV	1	1.07	107.27	65-125	PASS
LLICV	CCV	1	1.1	110.29	65-125	PASS
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.85	65-125	PASS
Standard2	ICAL	1	1.01	100.82	65-125	PASS
Standard3	ICAL	1	1.01	100.98	65-125	PASS
Standard4	ICAL	1	1.01	101.11	65-125	PASS
Standard5	ICAL	1	1.01	101.39	65-125	PASS
Standard6	ICAL	1	1.01	101.33	65-125	PASS
ICV	ICV	1	1.03	102.63	65-125	PASS
ICB	ICB	1	1.02	101.61	65-125	PASS
LLICV	CCV	1	1.01	100.75	65-125	PASS
LLICV	CCV	1	1.01	100.99	65-125	PASS
ICSA1	ICSA	1	1.01	100.91	65-125	PASS
ICSAB1	ICSAB	1	1.01	100.55	65-125	PASS
CCV1	CCV	1	0.99	99.27	65-125	PASS
CCB1	CCB	1	0.98	98.31	65-125	PASS
MB-75564	MBLK	1	1	100.18	65-125	PASS
LCS2-75564	LCS	1	1.13	112.94	65-125	PASS
N037736-001C	SAMP	5	1.17	116.86	65-125	PASS
N037736-002C	SAMP	5	1.03	102.97	65-125	PASS
N037736-003C	SAMP	5	1.03	103.16	65-125	PASS
N037736-004C	SAMP	5	1.03	102.79	65-125	PASS
N037736-005C	SAMP	5	1.03	103.25	65-125	PASS
N037736-006C	SAMP	5	1.02	102.39	65-125	PASS
CCV2	CCV	1	0.98	98	65-125	PASS
CCB2	CCB	1	0.98	97.96	65-125	PASS
N037736-007C	SAMP	5	1	100.44	65-125	PASS
N037757-001B	SAMP	5	1.01	101.06	65-125	PASS
N037757-002B	SAMP	5	1.02	101.8	65-125	PASS
N037758-001C	SAMP	5	1.02	102.01	65-125	PASS
N037758-002C	SAMP	5	1.02	101.92	65-125	PASS

INTERNAL STANDARD: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037758-003C	SAMP	5	1.02	101.72	65-125	PASS
N037758-004B	SAMP	5	1.01	101.47	65-125	PASS
N037758-005C	SAMP	5	1.03	102.94	65-125	PASS
N037758-006C	SAMP	5	1.02	102.37	65-125	PASS
N037758-007B	SAMP	5	0.02	2.09	65-125	NR!
CCV3	CCV	1	1	99.54	65-125	PASS
CCB3	CCB	1	0.98	97.96	65-125	PASS
N037758-008C	SAMP	5	1.02	102.26	65-125	PASS
N037758-009C	SAMP	5	1.02	101.97	65-125	PASS
N037758-010C	SAMP	5	1.03	102.7	65-125	PASS
N037758-011B	SAMP	5	1.02	102.21	65-125	PASS
CCV4	CCV	1	1.01	100.6	65-125	PASS
CCB4	CCB	1	1	99.82	65-125	PASS
ICSA2	ICSA	1	0.99	99.49	65-125	PASS
ICSAB2	ICSAB	1	1	100	65-125	PASS
CCV5	CCV	1	1	100.09	65-125	PASS
CCB5	CCB	1	1.01	100.73	65-125	PASS
CCV6	CCV	1	1.01	101.44	65-125	PASS
CCB6	CCB	1	1.01	101.04	65-125	PASS
N037736-001C	SAMP	50	1.03	103.02	65-125	PASS
N037736-002C	SAMP	25	1.02	101.73	65-125	PASS
N037736-002C	SAMP	50	1.02	102.52	65-125	PASS
N037736-002C	SAMP	250	1.01	101.02	65-125	PASS
N037736-002C-PS	PS	5	1.03	102.89	65-125	PASS
N037736-002C-PS	PS	50	1.02	101.95	65-125	PASS
N037736-002C-MS2	MS	5	1.04	104.32	65-125	PASS
CCV7	CCV	1	0.56	55.78	65-125	NR!
CCV7	CCV	1	1.02	102.18	65-125	PASS
CCB7	CCB	1	1.02	102	65-125	PASS
N037736-002C-MS2	MS	50	1.02	101.96	65-125	PASS
N037736-002C-MSD2	MSD	5	1.03	103.51	65-125	PASS
N037736-002C-MSD2	MSD	50	1.01	101.5	65-125	PASS
N037736-003C	SAMP	50	1.02	102.33	65-125	PASS
N037736-004C	SAMP	50	1.01	101.47	65-125	PASS
N037736-005C	SAMP	50	1.01	101.42	65-125	PASS
N037736-006C	SAMP	50	1	100.49	65-125	PASS
N037736-007C	SAMP	50	1.01	100.61	65-125	PASS
N037757-001B	SAMP	25	1.01	100.84	65-125	PASS
N037757-002B	SAMP	50	1.01	101.01	65-125	PASS
CCV8	CCV	1	0.95	94.89	65-125	PASS
CCB8	CCB	1	0.96	96.19	65-125	PASS

INTERNAL STANDARD: 191010A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
ICSA3	ICSA	1	0.96	95.69	65-125	PASS
ICSAB3	ICSAB	1	0.95	95.16	65-125	PASS
N037758-001C	SAMP	50	0.97	96.81	65-125	PASS
N037758-002C	SAMP	50	0.97	97.27	65-125	PASS
N037758-003C	SAMP	50	0.97	97.26	65-125	PASS
N037758-004B	SAMP	50	0.98	97.95	65-125	PASS
N037758-005C	SAMP	50	0.99	98.72	65-125	PASS
N037758-006C	SAMP	50	1	99.52	65-125	PASS
N037758-007B	SAMP	5	1.01	101.42	65-125	PASS
N037758-007B	SAMP	50	0.99	99.17	65-125	PASS
N037758-008C	SAMP	50	0.99	99.38	65-125	PASS
N037758-009C	SAMP	50	0.99	98.84	65-125	PASS
CCV9	CCV	1	1.01	100.68	65-125	PASS
CCB9	CCB	1	0.98	98.02	65-125	PASS
N037758-010C	SAMP	50	0.99	99.22	65-125	PASS
N037758-010C-MS2	MS	5	1.01	100.57	65-125	PASS
N037758-010C-MS2	MS	50	0.99	98.99	65-125	PASS
N037758-011B	SAMP	50	0.99	98.68	65-125	PASS
CCV10	CCV	1	1	99.66	65-125	PASS
CCB10	CCB	1	0.99	98.92	65-125	PASS
CCV11	CCV	1	1.01	100.81	65-125	PASS
CCB11	CCB	1	1	100.25	65-125	PASS
ICSA4	ICSA	1	1.01	100.63	65-125	PASS
ICSAB4	ICSAB	1	1	100.44	65-125	PASS

INTERNAL STANDARD: 191021A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	100.25	65-125	PASS
Standard2	ICAL	1	1.02	102.09	65-125	PASS
Standard3	ICAL	1	1.01	101.25	65-125	PASS
Standard4	ICAL	1	1.01	100.61	65-125	PASS
Standard5	ICAL	1	1	100.07	65-125	PASS
Standard6	ICAL	1	1	100.05	65-125	PASS
Standard7	ICAL	1	1	99.5	65-125	PASS
ICV	ICV	1	1.03	102.93	65-125	PASS
ICB	ICB	1	1.01	100.85	65-125	PASS
LLICV	CCV1	1	1.01	101.13	65-125	PASS
ICSA1	ICSA	1	1.28	128.39	65-125	NR!
ICSA1	ICSA	1	1.09	108.73	65-125	PASS
ICSAB1	ICSAB	1	0.96	96.47	65-125	PASS
N037758-011B	SAMP	1	0.97	97.17	65-125	PASS
N037758-011B-MS1	MS	1	0.97	96.88	65-125	PASS
CCV1	CCV	1	1.02	102.02	65-125	PASS
CCB1	CCB	1	1.03	102.97	65-125	PASS
CCV2	CCV	1	1.02	102.14	65-125	PASS
CCB2	CCB	1	1.03	102.81	65-125	PASS
ICSA2	ICSA	1	1.1	110.16	65-125	PASS
ICSAB2	ICSAB	1	0.98	97.6	65-125	PASS
CCV3	CCV	1	1.03	102.57	65-125	PASS
CCB3	CCB	1	1.03	103.03	65-125	PASS
ICSA3	ICSA	1	1.1	110.22	65-125	PASS
ICSAB3	ICSAB	1	0.98	97.95	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037757
Test Method: EPA 200.7
Analysis Date: 10/04,07&10/2019

Matrix: Groundwater
Batch No.: 75564

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Diane Jetajobe

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037736-001C DT 5x	Calcium	Ca	µg/L	148583.7	PASS	156533.9	5.08%	10
N037736-001C DT 5x	Magnesium	Mg	µg/L	18925.83	PASS	17845.97	6.05%	10
N037736-001C DT 5x	Iron	Fe	µg/L	98.28149	NA	20.21009	386.30%	10
N037736-002C DT 250x	Sodium	Na	µg/L	1145802	PASS	1182985	3.14%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037736-001C-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ZZZZZZ** Batch ID: **75564** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3527465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6402.641	100	5000	911.0	110	80	120				
Calcium	163268.940	500	10000	156500	67.4	80	120				S
Magnesium	27640.882	100	10000	17850	97.9	80	120				

Sample ID **N037736-001C-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136819**
Client ID: **ZZZZZZ** Batch ID: **75564** TestNo: **EPA 200.7** Analysis Date: **10/7/2019** SeqNo: **3529529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	120.697	20	100.0	20.21	100	80	120				

Sample ID **N037736-001C-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136789**
Client ID: **ZZZZZZ** Batch ID: **75564** TestNo: **EPA 200.7** Analysis Date: **10/4/2019** SeqNo: **3532098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	11161.498	50	10000	40.63	111	80	120				

Sample ID **N037736-002C-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136882**
Client ID: **ZZZZZZ** Batch ID: **75564** TestNo: **EPA 200.7** Analysis Date: **10/10/2019** SeqNo: **3532463**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	10984.304	2500	20000	10760	1.14	80	120				S

Sample ID **N037736-002C-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136882**
Client ID: **ZZZZZZ** Batch ID: **75564** TestNo: **EPA 200.7** Analysis Date: **10/10/2019** SeqNo: **3532464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1226480.558	25000	20000	1183000	217	80	120				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

K and Al are non-target analyte. JRB 10/23/2019

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

Method Detection Limit

Analytical Method: EPA 6010B / 200.7
Digestion Method: EPA 200.7
Date of Analysis: 4/26/2018,4/27/18, 4/28/18
Instrument Name: ICP2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: mg/L

Analyte	1	2	3	4	5	6	7	SD	Ave	AMT SPIKED	MDL	PQL
Potassium	0.52047	0.51468	0.50982	0.46507	0.46016	0.45873	0.49093	0.02710	0.48855	0.5000	0.08509	0.5
Sodium	0.55314	0.5464	0.5354	0.4861	0.49466	0.48423	0.49053	0.03061	0.51292	0.5000	0.09611	0.5
Strontium	0.0543	0.05418	0.05429	0.05295	0.05353	0.05251	0.05341	0.00070	0.05360	0.0250	0.00220	0.05

MBLK

Analyte	1	2	3	4	5	6	7	SD	Ave	MDL
Potassium	0.046	0.02365	0.01213	-0.00541	-0.0022	-0.00535	0.03047	0.02002	0.01418	0.0771
Sodium	0.04731	0.03661	0.02294	-0.0006	-0.00135	-0.00646	-0.00911	0.02270	0.01276	0.0841
Strontium	0.00006	-0.0006	-0.0002	0.00003	-0.00002	0.00001	0.00035	0.00029	-0.00005	0.0009

Note: MDL spike is used since its value is greater than the MDL blank.

LOD & PQL VERIFICATION

Analytical Method: EPA 6010B / 200.7
Date of Analysis: 4/30/2018
Instrument Name: ICP2
Analyst: MI

Matrix: Water
Units: mg/L

Compound	MDL	LOD		PQL		
		Spike	Recovered	Spike	Recovered	% Recovery
Potassium	0.08509	0.250	0.304	0.500	0.544	108.9
Sodium	0.09611	0.250	0.274	0.500	0.521	104.1
Strontium	0.00220	0.025	0.027	0.050	0.054	108.0

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75563
ASSET #: N037757

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/16/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Mn in N037736-001C-PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 10/18/2019

2nd Level Reviewer NS 10/18/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037757-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 84.9415 * 5 *(25 / 25)

Manganese , ug/L = 424.7075

Reporting results in two significant figures,

Manganese , ug/L = 420

% RSD SUMMARY

PERCENT RSD SUMMARY: 191016B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	21.5	15	<PQL	0.09	14.9	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.49	8.388	15	PASS	0.52	2.23	15	PASS
Std3-5/50 ppb	ICAL	1	5.06	1.246	15	PASS	5.15	3.305	15	PASS
Std4-10/100 ppb	ICAL	1	10.07	2.599	15	PASS	9.93	1.801	15	PASS
Std5-20/200 ppb	ICAL	1	19.93	2.494	15	PASS	19.57	1.769	15	PASS
Std6-40/400 ppb	ICAL	1	40.12	0.998	15	PASS	39.77	0.976	15	PASS
Std7-100/1000 ppb	ICAL	1	99.06	0.866	15	PASS	99.17	1.42	15	PASS
Std8-200/2000 ppb	ICAL	1	200.45	0.32	15	PASS	200.5	0.281	15	PASS
ICV	ICV	1	10.57	0.932	15	PASS	104.91	0.497	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.04	34.877	15	<PQL
LLICV	CCV1	1	1.01	2.359	20	PASS	0.51	8.606	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.85	0.627	15	PASS	19.03	0.608	15	PASS
LLICV	CCV1	1	1.14	6.597	20	PASS	0.54	6.445	20	PASS
MB-75563	MBLK	1	0.01	321.792	15	<PQL	<0.000	N/A	15	<PQL
LCS-75563	LCS	1	10.26	1.983	15	PASS	103.28	1.296	15	PASS
N037736-001C	SAMP	1	0.42	6.989	15	PASS	<0.000	N/A	15	<PQL
N037736-001C	SAMP	5	0.05	80.737	15	<PQL	<0.000	N/A	15	<PQL
N037736-001C	SAMP	25	0.02	94.602	15	<PQL	<0.000	N/A	15	<PQL
N037736-001C-PS	PS	1	10.02	1.916	15	PASS	47.9	0.407	15	PASS
N037736-001C-PS	PS	5	2.13	2.335	15	PASS	9.75	4.097	15	PASS
N037736-001C-MS	MS	1	9.95	1.521	15	PASS	49.12	0.996	15	PASS
N037736-001C-MS	MS	5	2.18	2.006	15	PASS	10.22	2.432	15	PASS
N037736-001C-MSD	MSD	1	10.08	1.497	15	PASS	49.09	1.975	15	PASS
CCV1	CCV	1	19.55	1.601	15	PASS	19.75	0.797	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037736-001C-MSD	MSD	5	2.16	4.387	15	PASS	9.86	3.163	15	PASS
N037736-002C	SAMP	1	0.68	11.21	15	PASS	<0.000	N/A	15	<PQL
N037736-002C	SAMP	5	0.13	20.253	15	<PQL	<0.000	N/A	15	<PQL
N037736-003C	SAMP	1	1.72	0.185	15	PASS	<0.000	N/A	15	<PQL
N037736-003C	SAMP	5	0.34	5.152	15	PASS	<0.000	N/A	15	<PQL
N037736-004C	SAMP	1	1.08	1.937	15	PASS	<0.000	N/A	15	<PQL
N037736-004C	SAMP	5	0.82	4.72	15	PASS	<0.000	N/A	15	<PQL
N037736-005C	SAMP	1	1.48	5.062	15	PASS	<0.000	N/A	15	<PQL
N037736-005C	SAMP	5	0.31	3.175	15	PASS	<0.000	N/A	15	<PQL
N037736-006C	SAMP	1	0.87	17.267	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.8	0.685	15	PASS	19.56	1.744	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037736-006C	SAMP	5	0.15	9.895	15	PASS	<0.000	N/A	15	<PQL
N037736-007C	SAMP	1	7.27	1.506	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191016B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037758-011B	SAMP	1	11.67	1.952	15	PASS	<0.000	N/A	15	<PQL
N037758-011B	SAMP	5	2.54	2.044	15	PASS	<0.000	N/A	15	<PQL
N037758-011B-MS	MS	1	21.57	1.057	15	PASS	77.15	1.593	15	PASS
N037758-011B-MS	MS	5	4.38	1.519	15	PASS	16.13	1.143	15	PASS
N037758-011B	SAMP	1	11.67	2.966	15	PASS	<0.000	N/A	15	<PQL
N037758-001C	SAMP	1	0.49	7.189	15	PASS	<0.000	N/A	15	<PQL
N037758-002C	SAMP	1	0.32	9.147	15	PASS	<0.000	N/A	15	<PQL
N037758-003C	SAMP	1	2.8	1.874	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.84	1.336	15	PASS	19.64	1.62	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.1	2.188	15	PASS	18.29	1.172	15	PASS
N037758-004B	SAMP	1	16.64	0.833	15	PASS	<0.000	N/A	15	<PQL
N037758-005C	SAMP	1	2.42	3.705	15	PASS	<0.000	N/A	15	<PQL
N037758-006C	SAMP	1	1.52	2.128	15	PASS	<0.000	N/A	15	<PQL
N037758-007B	SAMP	1	15.76	2.004	15	PASS	<0.000	N/A	15	<PQL
N037758-008C	SAMP	1	0.03	83.377	15	<PQL	<0.000	N/A	15	<PQL
N037758-009C	SAMP	1	0.31	17.856	15	<PQL	<0.000	N/A	15	<PQL
N037758-010C	SAMP	1	0.32	10.195	15	PASS	<0.000	N/A	15	<PQL
N037757-001B	SAMP	1	0.11	25.874	15	<PQL	401.13	0.634	15	PASS
N037757-001B	SAMP	5	0.01	133.867	15	<PQL	84.94	2.326	15	PASS
N037757-002B	SAMP	1	475.89	2.332	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.71	2.33	15	PASS	19.92	1.966	15	PASS
CCB4	CCB	1	0.04	50.605	15	<PQL	<0.000	N/A	15	<PQL
N037757-002B	SAMP	5	85.35	1.919	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	20.2	0.986	15	PASS	19.81	0.459	15	PASS
CCB5	CCB	1	0.01	171.248	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.91	1.829	15	PASS	18.22	2.403	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191016B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1016001.D	RINSE	RINSE	1	10/16/19 1:10 PM
B1016002.D	Cal Blank	IBLK	1	10/16/19 1:15 PM
B1016003.D	Std1-0.1/1 ppb	ICAL	1	10/16/19 1:19 PM
B1016004.D	Std2-0.5/5 ppb	ICAL	1	10/16/19 1:24 PM
B1016005.D	Std3-5/50 ppb	ICAL	1	10/16/19 1:29 PM
B1016006.D	Std4-10/100 ppb	ICAL	1	10/16/19 1:34 PM
B1016007.D	Std5-20/200 ppb	ICAL	1	10/16/19 1:39 PM
B1016008.D	Std6-40/400 ppb	ICAL	1	10/16/19 1:43 PM
B1016009.D	Std7-100/1000 ppb	ICAL	1	10/16/19 1:49 PM
B1016010.D	Std8-200/2000 ppb	ICAL	1	10/16/19 1:54 PM
B1016011.D	ICV	ICV	1	10/16/19 2:01 PM
B1016012.D	ICB	ICB	1	10/16/19 2:06 PM
B1016013.D	LLICV	CCV1	1	10/16/19 2:11 PM
B1016014.D	ICSA1	ICSA	1	10/16/19 2:15 PM
B1016015.D	ICSAB1	ICSAB	1	10/16/19 2:20 PM
B1016016.D	LLICV	CCV1	1	10/16/19 2:26 PM
B1016017.D	MB-75563	MBLK	1	10/16/19 2:31 PM
B1016018.D	LCS-75563	LCS	1	10/16/19 2:36 PM
B1016019.D	N037736-001C	SAMP	1	10/16/19 2:42 PM
B1016020.D	N037736-001C	SAMP	5	10/16/19 2:47 PM
B1016021.D	N037736-001C	SAMP	25	10/16/19 2:52 PM
B1016022.D	N037736-001C-PS	PS	1	10/16/19 2:57 PM
B1016023.D	N037736-001C-PS	PS	5	10/16/19 3:02 PM
B1016024.D	N037736-001C-MS	MS	1	10/16/19 3:07 PM
B1016025.D	N037736-001C-MS	MS	5	10/16/19 3:12 PM
B1016026.D	N037736-001C-MSD	MSD	1	10/16/19 3:17 PM
B1016027.D	CCV1	CCV	1	10/16/19 3:23 PM
B1016028.D	CCB1	CCB	1	10/16/19 3:28 PM
B1016029.D	N037736-001C-MSD	MSD	5	10/16/19 3:32 PM
B1016030.D	N037736-002C	SAMP	1	10/16/19 3:38 PM
B1016031.D	N037736-002C	SAMP	5	10/16/19 3:43 PM
B1016032.D	N037736-003C	SAMP	1	10/16/19 3:48 PM
B1016033.D	N037736-003C	SAMP	5	10/16/19 3:53 PM
B1016034.D	N037736-004C	SAMP	1	10/16/19 3:59 PM
B1016035.D	N037736-004C	SAMP	5	10/16/19 4:04 PM
B1016036.D	N037736-005C	SAMP	1	10/16/19 4:09 PM
B1016037.D	N037736-005C	SAMP	5	10/16/19 4:14 PM
B1016038.D	N037736-006C	SAMP	1	10/16/19 4:19 PM
B1016039.D	CCV2	CCV	1	10/16/19 4:25 PM
B1016040.D	CCB2	CCB	1	10/16/19 4:30 PM
B1016041.D	N037736-006C	SAMP	5	10/16/19 4:35 PM
B1016042.D	N037736-007C	SAMP	1	10/16/19 4:40 PM

INJECTION LOG: 191016B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1016043.D	N037758-011B	SAMP	1	10/16/19 4:45 PM
B1016044.D	N037758-011B	SAMP	5	10/16/19 4:50 PM
B1016045.D	N037758-011B-MS	MS	1	10/16/19 4:55 PM
B1016046.D	N037758-011B-MS	MS	5	10/16/19 5:00 PM
B1016047.D	N037758-011B	SAMP	1	10/16/19 5:06 PM
B1016048.D	N037758-001C	SAMP	1	10/16/19 5:11 PM
B1016049.D	N037758-002C	SAMP	1	10/16/19 5:16 PM
B1016050.D	N037758-003C	SAMP	1	10/16/19 5:21 PM
B1016051.D	CCV3	CCV	1	10/16/19 5:25 PM
B1016052.D	CCB3	CCB	1	10/16/19 5:31 PM
B1016053.D	ICSA2	ICSA	1	10/16/19 5:36 PM
B1016054.D	ICSAB2	ICSAB	1	10/16/19 5:41 PM
B1016055.D	N037758-004B	SAMP	1	10/16/19 5:45 PM
B1016056.D	N037758-005C	SAMP	1	10/16/19 5:51 PM
B1016057.D	N037758-006C	SAMP	1	10/16/19 5:56 PM
B1016058.D	N037758-007B	SAMP	1	10/16/19 6:01 PM
B1016059.D	N037758-008C	SAMP	1	10/16/19 6:06 PM
B1016060.D	N037758-009C	SAMP	1	10/16/19 6:11 PM
B1016061.D	N037758-010C	SAMP	1	10/16/19 6:16 PM
B1016062.D	N037757-001B	SAMP	1	10/16/19 6:22 PM
B1016063.D	N037757-001B	SAMP	5	10/16/19 6:27 PM
B1016064.D	N037757-002B	SAMP	1	10/16/19 6:32 PM
B1016065.D	CCV4	CCV	1	10/16/19 6:37 PM
B1016066.D	CCB4	CCB	1	10/16/19 6:42 PM
B1016067.D	N037757-002B	SAMP	5	10/16/19 6:46 PM
B1016068.D	CCV5	CCV	1	10/16/19 6:52 PM
B1016069.D	CCB5	CCB	1	10/16/19 6:56 PM
B1016070.D	ICSA3	ICSA	1	10/16/19 7:01 PM
B1016071.D	ICSAB3	ICSAB	1	10/16/19 7:06 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/5/2019 8:32:30 A**
Prep End Date: **10/5/2019 1:00:00 P**

Reviewed/ Date: JRB 10/23/2019
Initials/ Date: for

Prep Batch **75563** Prep Code: **200.8_DISS_P** Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.6**	**02-14**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75563	Aqueous		25	☐	25	1.000		
MB-75563	Aqueous		25	☐	25	1.000		
N037736-001C	Groundwater	<2	25	☐	25	1.000		
N037736-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037736-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037736-002C	Groundwater	<2	25	☐	25	1.000		
N037736-003C	Groundwater	<2	25	☐	25	1.000		
N037736-004C	Groundwater	<2	25	☐	25	1.000		
N037736-005C	Groundwater	<2	25	☐	25	1.000		
N037736-006C	Groundwater	<2	25	☐	25	1.000		
N037736-007C	Groundwater	<2	25	☐	25	1.000		
N037757-001B	Groundwater	<2	25	☐	25	1.000		
N037757-002B	Groundwater	<2	25	☐	25	1.000		
N037758-001C	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/5/2019 8:32:30 A**
Prep End Date: **10/5/2019 1:00:00 P**

Reviewed/ Date: JRB 10/23/2019
Initials/ Date: for

Prep Batch **75563** Prep Code: **200.8_DISS_P** Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.6**	**02-14**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037758-002C	Groundwater	<2	25	☐	25	1.000		
N037758-003C	Groundwater	<2	25	☐	25	1.000		
N037758-004B	Groundwater	<2	25	☐	25	1.000		
N037758-005C	Groundwater	<2	25	☐	25	1.000		
N037758-006C	Groundwater	<2	25	☐	25	1.000		
N037758-007B	Groundwater	<2	25	☐	25	1.000		
N037758-008C	Groundwater	<2	25	☐	25	1.000		
N037758-009C	Groundwater	<2	25	☐	25	1.000		
N037758-010C	Groundwater	<2	25	☐	25	1.000		
N037758-011B	Groundwater	<2	25	☐	25	1.000		
N037758-011B-MS	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 16 Oct 2019 10:13:11 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	90090.80	0.00	
24	Mg	203988.00	0.00	
25	Mg	26514.00	0.00	
26	Mg	30074.00	0.00	
59	Co	184861.00	0.00	
115	In	238374.00	0.00	
206	Pb	72222.90	0.00	
207	Pb	62623.70	0.00	
208	Pb	155443.00	0.00	

RSD (%)

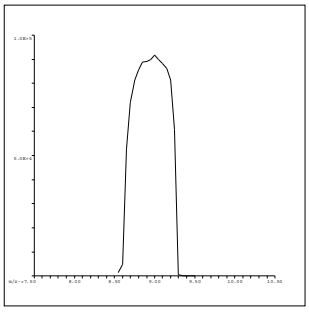
Element		Actual	Required	Flag
9	Be	1.33	5.00	
24	Mg	1.69	5.00	
25	Mg	1.33	5.00	
26	Mg	1.04	5.00	
59	Co	1.75	5.00	
115	In	1.29	5.00	
206	Pb	1.72	5.00	
207	Pb	1.73	5.00	
208	Pb	0.76	5.00	

Ion Ratio

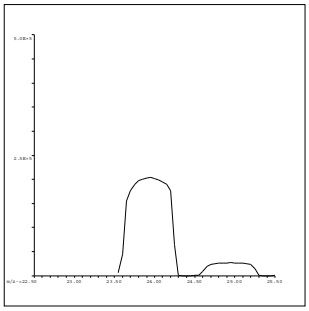
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

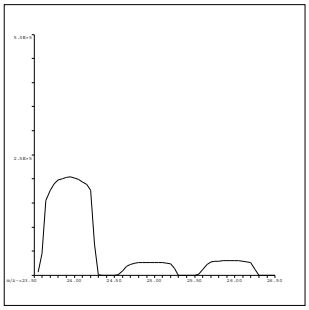
Element	Actual	Required	Flag



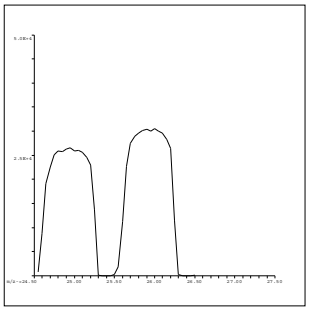
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



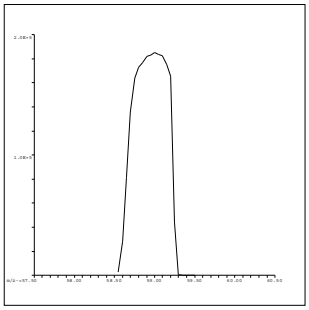
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



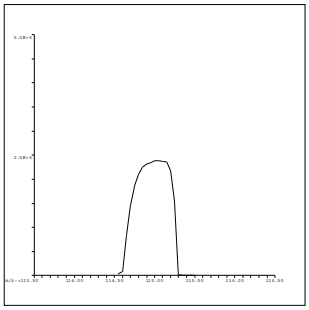
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



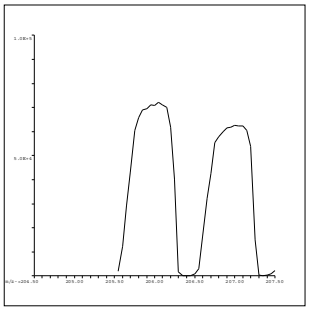
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



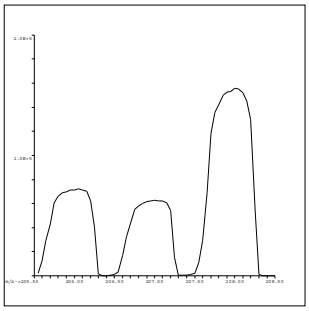
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



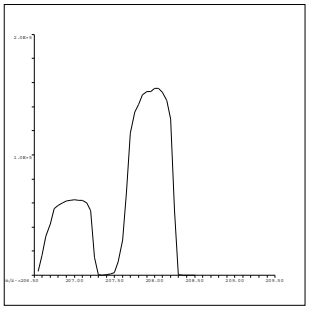
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191016B

Instrument ID: ICPMS-02

Analyte	Data File	B1016002.D	B1016004.D	B1016005.D	B1016006.D	B1016007.D	B1016008.D	B1016009.D	B1016010.D	
	Acq. Date-Time	10/16/2019 01:15 PM	10/16/2019 01:24 PM	10/16/2019 01:29 PM	10/16/2019 01:34 PM	10/16/2019 01:39 PM	10/16/2019 01:43 PM	10/16/2019 01:49 PM	10/16/2019 01:54 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	51099.4	53018.9	53058.9	53668.6	53667.5	54068.8	54182.7	52782.4	
55 Mn [2]	CPS	33.6	947.1	9087.9	17681.5	34787.5	71212.8	177895.6	350368.4	1.0000
52 Cr [2]	CPS	375.5	2029	17362.7	34511.8	67917.2	137404.6	339401.9	668634.2	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICV**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	104.909	0.50	100.0	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ZZZZZZ**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.507	0.50	0.5000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCV**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.752	0.50	20.00	0	98.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCV**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.557	0.50	20.00	0	97.8	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCV**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.643	0.50	20.00	0	98.2	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCV**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.715	1.0	20.00	0	104	90	110				
Manganese	19.918	0.50	20.00	0	99.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCV**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.810	0.50	20.00	0	99.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICV**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.568	1.0	10.00	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ZZZZZZ**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.014	1.0	1.000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCV**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.555	1.0	20.00	0	97.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCV**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.800	1.0	20.00	0	104	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCV**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.845	1.0	20.00	0	104	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCV**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.715	1.0	20.00	0	104	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCV**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.200	1.0	20.00	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.8_WDISS** Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **CCB**	Batch ID: **R137024**	TestNo: **EPA 200.8**	Analysis Date: **10/16/2019**	SeqNo: **3537768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **CCB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICSA**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICSAB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.031	0.50	20.00	0	95.2	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICSA**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICSAB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.295	0.50	20.00	0	91.5	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICSA**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **137024**
Client ID: **ICSAB**	Batch ID: **R137024**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.216	0.50	20.00	0	91.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICSA**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICSAB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.846	1.0	20.00	0	99.2	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICSA**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICSAB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537692**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.098	1.0	20.00	0	100	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICSA**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **137023**
Client ID: **ICSAB**	Batch ID: **R137023**	TestNo: **EPA 200.8**		Analysis Date: **10/16/2019**	SeqNo: **3537709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.911	1.0	20.00	0	99.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191016B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	51099.4	51099.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	52400	51099.4	102.55	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	53018.9	51099.4	103.76	PASS	70-125
Std3-5/50 ppb	ICAL	1	53058.9	51099.4	103.83	PASS	70-125
Std4-10/100 ppb	ICAL	1	53668.6	51099.4	105.03	PASS	70-125
Std5-20/200 ppb	ICAL	1	53667.5	51099.4	105.03	PASS	70-125
Std6-40/400 ppb	ICAL	1	54068.8	51099.4	105.81	PASS	70-125
Std7-100/1000 ppb	ICAL	1	54182.7	51099.4	106.03	PASS	70-125
Std8-200/2000 ppb	ICAL	1	52782.4	51099.4	103.29	PASS	70-125
ICV	ICV	1	48573	51099.4	95.06	PASS	70-125
ICB	ICB	1	49882.5	51099.4	97.62	PASS	70-125
LLICV	CCV1	1	51549.8	51099.4	100.88	PASS	70-125
ICSA1	ICSA	1	55919.1	51099.4	109.43	PASS	70-125
ICSAB1	ICSAB	1	58570.9	51099.4	114.62	PASS	70-125
LLICV	CCV1	1	50137.6	51099.4	98.12	PASS	70-125
MB-75563	MBLK	1	51854	51099.4	101.48	PASS	70-125
LCS-75563	LCS	1	52255.2	51099.4	102.26	PASS	70-125
N037736-001C	SAMP	1	48811.4	51099.4	95.52	PASS	70-125
N037736-001C	SAMP	5	54200.5	51099.4	106.07	PASS	70-125
N037736-001C	SAMP	25	54270.5	51099.4	106.21	PASS	70-125
N037736-001C-PS	PS	1	49863.4	51099.4	97.58	PASS	70-125
N037736-001C-PS	PS	5	56600.7	51099.4	110.77	PASS	70-125
N037736-001C-MS	MS	1	54605.9	51099.4	106.86	PASS	70-125
N037736-001C-MS	MS	5	58414.5	51099.4	114.32	PASS	70-125
N037736-001C-MSD	MSD	1	54384.4	51099.4	106.43	PASS	70-125
CCV1	CCV	1	60869	51099.4	119.12	PASS	70-125
CCB1	CCB	1	56909.2	51099.4	111.37	PASS	70-125
N037736-001C-MSD	MSD	5	54186.8	51099.4	106.04	PASS	70-125
N037736-002C	SAMP	1	51443.8	51099.4	100.67	PASS	70-125
N037736-002C	SAMP	5	58061.1	51099.4	113.62	PASS	70-125
N037736-003C	SAMP	1	54277	51099.4	106.22	PASS	70-125
N037736-003C	SAMP	5	60080.3	51099.4	117.58	PASS	70-125
N037736-004C	SAMP	1	57610.6	51099.4	112.74	PASS	70-125
N037736-004C	SAMP	5	60818.8	51099.4	119.02	PASS	70-125
N037736-005C	SAMP	1	56996.2	51099.4	111.54	PASS	70-125
N037736-005C	SAMP	5	61907	51099.4	121.15	PASS	70-125
N037736-006C	SAMP	1	57188.1	51099.4	111.92	PASS	70-125
CCV2	CCV	1	49132.5	51099.4	96.15	PASS	70-125
CCB2	CCB	1	58141.4	51099.4	113.78	PASS	70-125
N037736-006C	SAMP	5	55769.2	51099.4	109.14	PASS	70-125
N037736-007C	SAMP	1	54386.5	51099.4	106.43	PASS	70-125

INTERNAL STANDARD: 191016B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N037758-011B	SAMP	1	58512.3	51099.4	114.51	PASS	70-125
N037758-011B	SAMP	5	60108.3	51099.4	117.63	PASS	70-125
N037758-011B-MS	MS	1	54092.2	51099.4	105.86	PASS	70-125
N037758-011B-MS	MS	5	57786.7	51099.4	113.09	PASS	70-125
N037758-011B	SAMP	1	53641.8	51099.4	104.98	PASS	70-125
N037758-001C	SAMP	1	53546.1	51099.4	104.79	PASS	70-125
N037758-002C	SAMP	1	55967.3	51099.4	109.53	PASS	70-125
N037758-003C	SAMP	1	58142.7	51099.4	113.78	PASS	70-125
CCV3	CCV	1	50247	51099.4	98.33	PASS	70-125
CCB3	CCB	1	58559.5	51099.4	114.6	PASS	70-125
ICSA2	ICSA	1	55739.8	51099.4	109.08	PASS	70-125
ICSAB2	ICSAB	1	55997.2	51099.4	109.58	PASS	70-125
N037758-004B	SAMP	1	51045.9	51099.4	99.9	PASS	70-125
N037758-005C	SAMP	1	52154	51099.4	102.06	PASS	70-125
N037758-006C	SAMP	1	55642.9	51099.4	108.89	PASS	70-125
N037758-007B	SAMP	1	58761.2	51099.4	114.99	PASS	70-125
N037758-008C	SAMP	1	54626.3	51099.4	106.9	PASS	70-125
N037758-009C	SAMP	1	58934.1	51099.4	115.33	PASS	70-125
N037758-010C	SAMP	1	58672.1	51099.4	114.82	PASS	70-125
N037757-001B	SAMP	1	60333.8	51099.4	118.07	PASS	70-125
N037757-001B	SAMP	5	60159.6	51099.4	117.73	PASS	70-125
N037757-002B	SAMP	1	54476.8	51099.4	106.61	PASS	70-125
CCV4	CCV	1	52410.3	51099.4	102.57	PASS	70-125
CCB4	CCB	1	57257.3	51099.4	112.05	PASS	70-125
N037757-002B	SAMP	5	55042.1	51099.4	107.72	PASS	70-125
CCV5	CCV	1	58265.2	51099.4	114.02	PASS	70-125
CCB5	CCB	1	53844.8	51099.4	105.37	PASS	70-125
ICSA3	ICSA	1	53028.9	51099.4	103.78	PASS	70-125
ICSAB3	ICSAB	1	54180.2	51099.4	106.03	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037757
Test Method: EPA 6020
Analysis Date: 10/16/2019

Matrix: Groundwater
Batch No.: 75563

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn & Cr. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037736-001C DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N037736-001C DT 5x	Chromium	Cr	µg/L	0	NA	0.4237442	100.00%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N037736-001C-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **137024**
Client ID: **ZZZZZZ** Batch ID: **75563** TestNo: **EPA 200.8** Analysis Date: **10/16/2019** SeqNo: **3537721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	47.898	0.50	100.0	0	47.9	80	120				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	N037736-001C-PS	SampType:	PS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	137023
Client ID:	ZZZZZZ	Batch ID:	75563	TestNo:	EPA 200.8			Analysis Date:	10/16/2019	SeqNo:	3537660

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.021	1.0	10.00	0.4237	96.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136842
ASSET #: N037757

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 10/8/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: HSG Date: 10/14/2019

2nd Level Reviewer: NS 10/14/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037757-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 8.1628 * 50$$

$$Cr^{+6}, \mu g/L = 408.1400$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 410}$$

ANALYSIS RUN LOG

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	10/03/19 11:57 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/19 12:08 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	10/03/19 12:17 PM	Reported
13	MB-R136776	MBLK	1	Hexavalent Chromium	10/03/19 12:27 PM	Reported
14	LCS-R136776	LCS	1	Hexavalent Chromium	10/03/19 12:36 PM	Reported
15	N037721-001BMS	MS	500	Hexavalent Chromium	10/03/19 1:25 PM	Reported
16	N037722-001A	SAMP	1	Hexavalent Chromium	10/03/19 1:36 PM	Reported
17	N037722-001AMS	MS	1	Hexavalent Chromium	10/03/19 1:46 PM	Reported
18	N037722-002A	SAMP	1	Hexavalent Chromium	10/03/19 1:55 PM	Reported
19	N037722-002AMS	MS	1	Hexavalent Chromium	10/03/19 2:04 PM	Reported
20	N037721-001B	SAMP	500	Hexavalent Chromium	10/03/19 2:14 PM	Reported
21	N037721-001BMSD	MSD	500	Hexavalent Chromium	10/03/19 2:23 PM	Reported
22	N037722-002ADUP	DUP	1	Hexavalent Chromium	10/03/19 2:33 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	10/03/19 2:42 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	10/03/19 2:52 PM	Reported
25	N037723-001A	SAMP	1	Hexavalent Chromium	10/03/19 3:01 PM	Reported
26	N037723-001AMS	MS	1	Hexavalent Chromium	10/03/19 3:11 PM	Reported
27	N037723-002A	SAMP	1	Hexavalent Chromium	10/03/19 3:20 PM	Not Reported
28	N037723-002AMS	MS	1	Hexavalent Chromium	10/03/19 3:30 PM	Not Reported
29	N037723-003A	SAMP	1	Hexavalent Chromium	10/03/19 3:39 PM	Reported
30	N037723-003AMS	MS	1	Hexavalent Chromium	10/03/19 3:49 PM	Reported
31	N037723-004A	SAMP	100	Hexavalent Chromium	10/03/19 3:58 PM	Reported
32	N037723-004AMS	MS	100	Hexavalent Chromium	10/03/19 4:07 PM	Reported
33	N037723-005A	SAMP	1	Hexavalent Chromium	10/03/19 4:17 PM	Reported
34	N037723-005AMS	MS	1	Hexavalent Chromium	10/03/19 4:26 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	10/03/19 4:36 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	10/03/19 4:45 PM	Reported
37	N037723-001A	SAMP	5	Hexavalent Chromium	10/03/19 4:55 PM	Not Reported
38	N037723-001AMS	MS	5	Hexavalent Chromium	10/03/19 5:04 PM	Not Reported
39	N037723-002A	SAMP	5	Hexavalent Chromium	10/03/19 5:14 PM	Reported
40	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 5:23 PM	Reported
41	N037723-003A	SAMP	5	Hexavalent Chromium	10/03/19 5:33 PM	Not Reported
42	N037723-003AMS	MS	5	Hexavalent Chromium	10/03/19 5:42 PM	Not Reported

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037718-001C	SAMP	50	Hexavalent Chromium	10/03/19 5:52 PM	Not Reported
44	N037718-001CMS	MS	50	Hexavalent Chromium	10/03/19 6:01 PM	Not Reported
45	N037718-002C	SAMP	1	Hexavalent Chromium	10/03/19 6:10 PM	Reported
46	N037718-002CMS	MS	1	Hexavalent Chromium	10/03/19 6:20 PM	Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	10/03/19 6:29 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	10/03/19 6:39 PM	Reported
49	N037718-003B	SAMP	5	Hexavalent Chromium	10/03/19 6:48 PM	Reported
50	N037718-003BMS	MS	5	Hexavalent Chromium	10/03/19 6:58 PM	Reported
51	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 7:07 PM	Not Reported
52	CCV-4	CCV	1	Hexavalent Chromium	10/03/19 7:17 PM	Reported
53	CCB-4	CCB	1	Hexavalent Chromium	10/03/19 7:26 PM	Reported
54	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 7:36 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191003B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Oct/19 09:29:25**
No. of Injections:	**57**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1	1	1000	Unknown		10/03/2019 11:57	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	2	1000	Unknown		10/03/2019 12:08	Finished	PQL @ 0.2ppb
12	ICB,ICB,1	3	1000	Unknown		10/03/2019 12:17	Finished	CCB R190830A
13	MB-H2O,MBLK,1,	4	1000	Unknown		10/03/2019 12:27	Finished	MB R190830A
14	LCS-H2O,LCS,1,	5	1000	Unknown		10/03/2019 12:36	Finished	LCS @5ppb, IWST-190702B
15	N037721-001BMS,MS	6	1000	Unknown		10/03/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
16	N037722-001A,SAMP	7	1000	Unknown		10/03/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
17	N037722-001AMS,MS	8	1000	Unknown		10/03/2019 13:46	Finished	MS (5ppb), IWST-190702B,10
18	N037722-002A,SAMP	9	1000	Unknown		10/03/2019 13:55	Finished	MS (1ppb), IWST-190702B,10
19	N037722-002AMS,MS	10	1000	Unknown		10/03/2019 14:04	Finished	SAMP, 2>10 mL
20	N037721-001B,SAMP	11	1000	Unknown		10/03/2019 14:14	Finished	MS (1ppb), IWST-190702B,2>1
21	N037721-001BMSD,M	12	1000	Unknown		10/03/2019 14:23	Finished	
22	N037722-002ADUP,D	13	1000	Unknown		10/03/2019 14:33	Finished	
23	CCV-1,CCV1,1,	14	1000	Unknown		10/03/2019 14:42	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	15	1000	Unknown		10/03/2019 14:52	Finished	CCB R190830A
25	N037723-001A,SAMP	16	1000	Unknown		10/03/2019 15:01	Finished	
26	N037723-001AMS,MS	17	1000	Unknown		10/03/2019 15:11	Finished	
27	N037723-002A,SAMP	18	1000	Unknown		10/03/2019 15:20	Finished	
28	N037723-002AMS,MS	19	1000	Unknown		10/03/2019 15:30	Finished	
29	N037723-003A,SAMP	20	1000	Unknown		10/03/2019 15:39	Finished	
30	N037723-003AMS,MS	21	1000	Unknown		10/03/2019 15:49	Finished	
31	N037723-004A,SAMP	22	1000	Unknown		10/03/2019 15:58	Finished	
32	N037723-004AMS,MS	23	1000	Unknown		10/03/2019 16:07	Finished	
33	N037723-005A,SAMP	24	1000	Unknown		10/03/2019 16:17	Finished	
34	N037723-005AMS,MS	25	1000	Unknown		10/03/2019 16:26	Finished	
35	CCV-2,CCV,1,	26	1000	Unknown		10/03/2019 16:36	Finished	CCV @5ppb, IWST-190702A
36	CCB-2,CCB,1,	27	1000	Unknown		10/03/2019 16:45	Finished	CCB R190830A
37	N037723-001A,SAMP	28	1000	Unknown		10/03/2019 16:55	Finished	
38	N037723-001AMS,MS	29	1000	Unknown		10/03/2019 17:04	Finished	
39	N037723-002A,SAMP	30	1000	Unknown		10/03/2019 17:14	Finished	
40	N037723-002AMS,MS	31	1000	Unknown		10/03/2019 17:23	Finished	
41	N037723-003A,SAMP	32	1000	Unknown		10/03/2019 17:33	Finished	
42	N037723-003AMS,MS	33	1000	Unknown		10/03/2019 17:42	Finished	
43	N037718-001C,SAMP	34	1000	Unknown		10/03/2019 17:52	Finished	
44	N037718-001CMS,MS	35	1000	Unknown		10/03/2019 18:01	Finished	
45	N037718-002C,SAMP	36	1000	Unknown		10/03/2019 18:10	Finished	
46	N037718-002CMS,MS	37	1000	Unknown		10/03/2019 18:20	Finished	
47	CCV-3,CCV1,1,	38	1000	Unknown		10/03/2019 18:29	Finished	CCV @10ppb, IWST-190702A
48	CCB-3,CCB,1,	39	1000	Unknown		10/03/2019 18:39	Finished	CCB R190830A
49	N037718-003C,SAMP	40	1000	Unknown		10/03/2019 18:48	Finished	
50	N037718-003CMS,MS	41	1000	Unknown		10/03/2019 18:58	Finished	
51	N037723-002AMS,MS	42	1000	Unknown		10/03/2019 19:07	Finished	
52	CCV-4,CCV,1,	43	1000	Unknown		10/03/2019 19:17	Finished	CCV @5ppb, IWST-190702A
53	CCB-4,CCB,1,	44	1000	Unknown		10/03/2019 19:26	Finished	CCB R190830A
54	BLANK	45	1000	Unknown		10/03/2019 19:36	Finished	BLANK
55	SHUTDOWN	46	1000	Unknown		10/03/2019 19:45	Finished	
56	Eluent: R190930D	47	1000	Unknown		n.a.	Finished	Eluent
57	PCR: R190930E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 7:39 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	10/08/19 7:49 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/08/19 7:59 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	10/08/19 8:08 AM	Reported
14	MB-R136808	MBLK	1	Hexavalent Chromium	10/08/19 8:18 AM	Reported
15	LCS-R136808	LCS	1	Hexavalent Chromium	10/08/19 8:27 AM	Reported
16	N037770-001AMS	MS	1	Hexavalent Chromium	10/08/19 8:43 AM	Not Reported
17	N037770-001A	SAMP	5	Hexavalent Chromium	10/08/19 8:54 AM	Reported
18	N037770-001AMS	MS	5	Hexavalent Chromium	10/08/19 9:04 AM	Reported
19	N037770-002AMS	MS	1	Hexavalent Chromium	10/08/19 9:13 AM	Not Reported
20	N037770-002A	SAMP	5	Hexavalent Chromium	10/08/19 9:23 AM	Reported
21	N037770-002AMS	MS	5	Hexavalent Chromium	10/08/19 9:32 AM	Reported
22	N037770-003A	SAMP	1	Hexavalent Chromium	10/08/19 9:42 AM	Not Reported
23	N037770-003AMS	MS	1	Hexavalent Chromium	10/08/19 9:51 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	10/08/19 10:01 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	10/08/19 10:10 AM	Reported
26	N037770-004A	SAMP	1	Hexavalent Chromium	10/08/19 10:20 AM	Reported
27	N037770-004AMS	MS	1	Hexavalent Chromium	10/08/19 10:31 AM	Reported
28	N037770-005A	SAMP	1	Hexavalent Chromium	10/08/19 10:41 AM	Reported
29	N037770-005AMS	MS	1	Hexavalent Chromium	10/08/19 10:50 AM	Reported
30	N037770-005ADUP	DUP	1	Hexavalent Chromium	10/08/19 11:00 AM	Reported
31	N037770-001AMSD	MSD	5	Hexavalent Chromium	10/08/19 11:09 AM	Reported
32	N037770-003A	SAMP	5	Hexavalent Chromium	10/08/19 11:19 AM	Reported
33	N037770-003AMS	MS	5	Hexavalent Chromium	10/08/19 11:28 AM	Reported
34	N037790-001AMS	MS	1	Hexavalent Chromium	10/08/19 11:38 AM	Not Reported
35	N037790-002AMS	MS	1	Hexavalent Chromium	10/08/19 11:47 AM	Not Reported
36	CCV-3	CCV	1	Hexavalent Chromium	10/08/19 11:57 AM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	10/08/19 12:06 PM	Reported
38	N037792-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:17 PM	Reported
39	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:28 PM	Not Reported
40	N037798-001AMS	MS	1	Hexavalent Chromium	10/08/19 12:38 PM	Not Reported
41	N037798-002AMS	MS	1	Hexavalent Chromium	10/08/19 12:47 PM	Not Reported
42	N037790-001A	SAMP	50	Hexavalent Chromium	10/08/19 12:57 PM	Reported

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037790-001AMS	MS	50	Hexavalent Chromium	10/08/19 1:06 PM	Reported
44	N037790-002A	SAMP	10	Hexavalent Chromium	10/08/19 1:15 PM	Reported
45	N037790-002AMS	MS	10	Hexavalent Chromium	10/08/19 1:25 PM	Reported
46	N037792-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:34 PM	Reported
47	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:44 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	10/08/19 1:53 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	10/08/19 2:03 PM	Reported
50	N037798-001AMS	MS	5	Hexavalent Chromium	10/08/19 2:19 PM	Reported
51	N037798-002A	SAMP	10	Hexavalent Chromium	10/08/19 2:30 PM	Reported
52	N037798-002AMS	MS	10	Hexavalent Chromium	10/08/19 2:39 PM	Reported
53	N037798-001A	SAMP	5	Hexavalent Chromium	10/08/19 2:49 PM	Reported
54	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 2:58 PM	Reported
55	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 3:08 PM	Reported
56	N037736-001A	SAMP	1	Hexavalent Chromium	10/08/19 3:38 PM	Reported
57	N037736-001AMS	MS	1	Hexavalent Chromium	10/08/19 3:49 PM	Reported
58	N037736-002A	SAMP	1	Hexavalent Chromium	10/08/19 3:58 PM	Reported
59	N037736-002AMS	MS	1	Hexavalent Chromium	10/08/19 4:08 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	10/08/19 4:17 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	10/08/19 4:27 PM	Reported
62	N037736-003A	SAMP	1	Hexavalent Chromium	10/08/19 4:36 PM	Reported
63	N037736-003AMS	MS	1	Hexavalent Chromium	10/08/19 4:45 PM	Reported
64	N037736-004A	SAMP	1	Hexavalent Chromium	10/08/19 4:55 PM	Reported
65	N037736-004AMS	MS	1	Hexavalent Chromium	10/08/19 5:04 PM	Reported
66	N037736-005A	SAMP	1	Hexavalent Chromium	10/08/19 5:14 PM	Reported
67	N037736-005AMS	MS	1	Hexavalent Chromium	10/08/19 5:23 PM	Reported
68	N037736-006A	SAMP	1	Hexavalent Chromium	10/08/19 5:33 PM	Reported
69	N037736-006AMS	MS	1	Hexavalent Chromium	10/08/19 5:42 PM	Reported
70	N037736-007A	SAMP	1	Hexavalent Chromium	10/08/19 5:52 PM	Reported
71	N037736-007AMS	MS	1	Hexavalent Chromium	10/08/19 6:01 PM	Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	10/08/19 6:11 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	10/08/19 6:20 PM	Reported
74	N037736-008A	SAMP	1	Hexavalent Chromium	10/08/19 6:35 PM	Reported
75	N037736-008AMS	MS	1	Hexavalent Chromium	10/08/19 6:45 PM	Reported
76	MB-R136842	MBLK	1	Hexavalent Chromium	10/08/19 6:55 PM	Reported
77	LCS-R136842	LCS	1	Hexavalent Chromium	10/08/19 7:04 PM	Reported
78	N037801-001A	SAMP	1	Hexavalent Chromium	10/08/19 7:14 PM	Reported
79	N037801-001AMS	MS	1	Hexavalent Chromium	10/08/19 7:23 PM	Reported
80	N037801-002A	SAMP	1	Hexavalent Chromium	10/08/19 7:33 PM	Reported
81	N037801-002AMS	MS	1	Hexavalent Chromium	10/08/19 7:42 PM	Reported
82	N037801-003A	SAMP	1	Hexavalent Chromium	10/08/19 7:52 PM	Reported
83	N037801-003AMS	MS	1	Hexavalent Chromium	10/08/19 8:01 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	10/08/19 8:11 PM	Reported

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	10/08/19 8:20 PM	Reported
86	N037801-004A	SAMP	1	Hexavalent Chromium	10/08/19 8:29 PM	Reported
87	N037801-004AMS	MS	1	Hexavalent Chromium	10/08/19 8:39 PM	Reported
88	N037801-005A	SAMP	1	Hexavalent Chromium	10/08/19 8:48 PM	Reported
89	N037801-005AMS	MS	1	Hexavalent Chromium	10/08/19 8:58 PM	Reported
90	N037801-006A	SAMP	1	Hexavalent Chromium	10/08/19 9:07 PM	Reported
91	N037801-006AMS	MS	1	Hexavalent Chromium	10/08/19 9:17 PM	Reported
92	N037801-007A	SAMP	1	Hexavalent Chromium	10/08/19 9:26 PM	Reported
93	N037801-007AMS	MS	1	Hexavalent Chromium	10/08/19 9:36 PM	Reported
94	N037801-004AMSD	MSD	1	Hexavalent Chromium	10/08/19 9:45 PM	Reported
95	N037801-001ADUP	DUP	1	Hexavalent Chromium	10/08/19 9:55 PM	Reported
96	CCV-8	CCV1	1	Hexavalent Chromium	10/08/19 10:04 PM	Reported
97	CCB-8	CCB	1	Hexavalent Chromium	10/08/19 10:14 PM	Reported
98	N037756-001A	SAMP	20	Hexavalent Chromium	10/08/19 10:23 PM	Reported
99	N037756-001AMS	MS	20	Hexavalent Chromium	10/08/19 10:32 PM	Reported
100	N037757-001A	SAMP	1	Hexavalent Chromium	10/08/19 10:42 PM	Reported
101	N037757-001AMS	MS	1	Hexavalent Chromium	10/08/19 10:51 PM	Reported
102	N037757-002A	SAMP	50	Hexavalent Chromium	10/08/19 11:01 PM	Reported
103	N037757-002AMS	MS	50	Hexavalent Chromium	10/08/19 11:10 PM	Reported
104	N037772-002B	SAMP	1	Hexavalent Chromium	10/08/19 11:20 PM	Reported
105	N037772-002BMS	MS	1	Hexavalent Chromium	10/08/19 11:29 PM	Reported
106	CCV-9	CCV	1	Hexavalent Chromium	10/08/19 11:39 PM	Reported
107	CCB-9	CCB	1	Hexavalent Chromium	10/08/19 11:48 PM	Reported
108	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 11:58 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191008A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**09/Oct/19 09:51:48**
No. of Injections:	**111**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	BLANK	1	1000	Unknown		10/08/2019 07:39	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		10/08/2019 07:49	Finished	CCV @5ppb, IWST-190702A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/08/2019 07:59	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		10/08/2019 08:08	Finished	CCB R190830A
14	MB-H2O,MBLK,1,	5	1000	Unknown		10/08/2019 08:18	Finished	MB R190830A
15	LCS-H2O,LCS,1,	6	1000	Unknown		10/08/2019 08:27	Finished	LCS @5ppb, IWST-190702B
16	N037770-001AMS,MS	7	1000	Unknown		10/08/2019 08:43	Finished	MS (1ppb), IWST-190702B,10
17	N037770-001A,SAMP	8	1000	Unknown		10/08/2019 08:54	Finished	SAMP,2>10 mL
18	N037770-001AMS,MS	9	1000	Unknown		10/08/2019 09:04	Finished	MS (1ppb), IWST-190702B,2>1
19	N037770-002AMS,MS	10	1000	Unknown		10/08/2019 09:13	Finished	MS (1ppb), IWST-190702B,10
20	N037770-002A,SAMP	11	1000	Unknown		10/08/2019 09:23	Finished	SAMP,2>10 mL
21	N037770-002AMS,MS	12	1000	Unknown		10/08/2019 09:32	Finished	MS (1ppb), IWST-190702B,2>1
22	N037770-003A,SAMP	13	1000	Unknown		10/08/2019 09:42	Finished	SAMP, 10 mL
23	N037770-003AMS,MS	14	1000	Unknown		10/08/2019 09:51	Finished	MS (1ppb), IWST-190702B,10
24	CCV-2,CCV1,1,	15	1000	Unknown		10/08/2019 10:01	Finished	CCV @10ppb, IWST-190702A
25	CCB-2,CCB,1,	16	1000	Unknown		10/08/2019 10:10	Finished	CCB R190830A
26	N037770-004A,SAMP	17	1000	Unknown		10/08/2019 10:20	Finished	SAMP, 10 mL
27	N037770-004AMS,MS	18	1000	Unknown		10/08/2019 10:31	Finished	MS (1ppb), IWST-190702B,10
28	N037770-005A,SAMP	19	1000	Unknown		10/08/2019 10:41	Finished	SAMP, 10 mL
29	N037770-005AMS,MS	20	1000	Unknown		10/08/2019 10:50	Finished	MS (1ppb), IWST-190702B,10
30	N037770-005ADUP,D	21	1000	Unknown		10/08/2019 11:00	Finished	DUP, 10 mL
31	N037770-001AMSD,M	22	1000	Unknown		10/08/2019 11:09	Finished	MSD (1ppb), IWST-190702B,10
32	N037770-003A,SAMP	23	1000	Unknown		10/08/2019 11:19	Finished	MS (1ppb), IWST-190702B,10
33	N037770-003AMS,MS	24	1000	Unknown		10/08/2019 11:28	Finished	MS (1ppb), IWST-190702B,10
34	N037790-001AMS,MS	25	1000	Unknown		10/08/2019 11:38	Finished	MS (1ppb), IWST-190702B,10
35	N037790-002AMS,MS	26	1000	Unknown		10/08/2019 11:47	Finished	MS (1ppb), IWST-190702B,10
36	CCV-3,CCV,1,	27	1000	Unknown		10/08/2019 11:57	Finished	CCV @5ppb, IWST-190702A
37	CCB-3,CCB,1,	28	1000	Unknown		10/08/2019 12:06	Finished	CCB R190830A
38	N037792-001AMS,MS	29	1000	Unknown		10/08/2019 12:17	Finished	MS (5ppb), IWST-190702B,0.0
39	N037794-001AMS,MS	30	1000	Unknown		10/08/2019 12:28	Finished	MS (5ppb), IWST-190702B,0.0
40	N037798-001AMS,MS	31	1000	Unknown		10/08/2019 12:38	Finished	MS (1ppb), IWST-190702B,10
41	N037798-002AMS,MS	32	1000	Unknown		10/08/2019 12:47	Finished	MS (1ppb), IWST-190702B,10
42	N037790-001A,SAMP	33	1000	Unknown		10/08/2019 12:57	Finished	SAMP,0.2>10mL
43	N037790-001AMS,MS	34	1000	Unknown		10/08/2019 13:06	Finished	MS (5ppb), IWST-190702B,0.2
44	N037790-002A,SAMP	35	1000	Unknown		10/08/2019 13:15	Finished	SAMP,1>10mL
45	N037790-002AMS,MS	36	1000	Unknown		10/08/2019 13:25	Finished	MS (5ppb), IWST-190702B,1>1
46	N037792-001A,SAMP	37	1000	Unknown		10/08/2019 13:34	Finished	SAMP,0.05>10mL
47	N037794-001A,SAMP	38	1000	Unknown		10/08/2019 13:44	Finished	SAMP,0.05>10mL
48	CCV-4,CCV1,1,	39	1000	Unknown		10/08/2019 13:53	Finished	CCV @10ppb, IWST-190702A
49	CCB-4,CCB,1,	40	1000	Unknown		10/08/2019 14:03	Finished	CCB R190830A
50	N037798-001AMS,MS	41	1000	Unknown		10/08/2019 14:19	Finished	MS (1ppb), IWST-190702B,2>1
51	N037798-002A,SAMP	42	1000	Unknown		10/08/2019 14:30	Finished	SAMP,1>10mL
52	N037798-002AMS,MS	43	1000	Unknown		10/08/2019 14:39	Finished	MS (5ppb), IWST-190702B,1>1
53	N037798-001A,SAMP	44	1000	Unknown		10/08/2019 14:49	Finished	SAMP,2>10mL
54	N037794-001A,SAMP	45	1000	Unknown		10/08/2019 14:58	Finished	SAMP,0.05>10mL
55	N037794-001AMS,MS	46	1000	Unknown		10/08/2019 15:08	Finished	MS (5ppb), IWST-190702B,0.0
56	N037736-001A,SAMP	1	1000	Unknown		10/08/2019 15:38	Finished	SAMP, 10mL
57	N037736-001AMS,MS	2	1000	Unknown		10/08/2019 15:49	Finished	MS (1ppb), IWST-190702B,10
58	N037736-002A,SAMP	3	1000	Unknown		10/08/2019 15:58	Finished	SAMP, 10mL
59	N037736-002AMS,MS	4	1000	Unknown		10/08/2019 16:08	Finished	MS (1ppb), IWST-190702B,10
60	CCV-5,CCV,1,	5	1000	Unknown		10/08/2019 16:17	Finished	CCV @5ppb, IWST-190702A

61	CCB-5,CCB,1,	6	1000	Unknown		10/08/2019 16:27	Finished	CCB R190830A
62	N037736-003A,SAMF	7	1000	Unknown		10/08/2019 16:36	Finished	SAMP, 10mL
63	N037736-003AMS,MS	8	1000	Unknown		10/08/2019 16:45	Finished	MS (1ppb), IWST-190702B,10
64	N037736-004A,SAMF	9	1000	Unknown		10/08/2019 16:55	Finished	SAMP, 10mL
65	N037736-004AMS,MS	10	1000	Unknown		10/08/2019 17:04	Finished	MS (1ppb), IWST-190702B,10
66	N037736-005A,SAMF	11	1000	Unknown		10/08/2019 17:14	Finished	SAMP, 10mL
67	N037736-005AMS,MS	12	1000	Unknown		10/08/2019 17:23	Finished	MS (1ppb), IWST-190702B,10
68	N037736-006A,SAMF	13	1000	Unknown		10/08/2019 17:33	Finished	SAMP, 10mL
69	N037736-006AMS,MS	14	1000	Unknown		10/08/2019 17:42	Finished	MS (1ppb), IWST-190702B,10
70	N037736-007A,SAMF	15	1000	Unknown		10/08/2019 17:52	Finished	
71	N037736-007AMS,MS	16	1000	Unknown		10/08/2019 18:01	Finished	
72	CCV-6,CCV1,1,	17	1000	Unknown		10/08/2019 18:11	Finished	CCV @10ppb, IWST-190702A
73	CCB-6,CCB,1,	18	1000	Unknown		10/08/2019 18:20	Finished	CCB R190830A
74	N037736-008A,SAMF	1	1000	Unknown		10/08/2019 18:35	Finished	SAMP, 10mL
75	N037736-008AMS,MS	2	1000	Unknown		10/08/2019 18:45	Finished	MS (1ppb), IWST-190702B,10
76	MB-H2O,MBLK,1,	3	1000	Unknown		10/08/2019 18:55	Finished	MB R190830A
77	LCS-H2O,LCS,1,	4	1000	Unknown		10/08/2019 19:04	Finished	LCS @5ppb, IWST-190702B
78	N037801-001A,SAMF	5	1000	Unknown		10/08/2019 19:14	Finished	SAMP, 10mL
79	N037801-001AMS,MS	6	1000	Unknown		10/08/2019 19:23	Finished	MS (1ppb), IWST-190702B,10
80	N037801-002A,SAMF	7	1000	Unknown		10/08/2019 19:33	Finished	SAMP, 10mL
81	N037801-002AMS,MS	8	1000	Unknown		10/08/2019 19:42	Finished	MS (1ppb), IWST-190702B,10
82	N037801-003A,SAMF	9	1000	Unknown		10/08/2019 19:52	Finished	SAMP, 10mL
83	N037801-003AMS,MS	10	1000	Unknown		10/08/2019 20:01	Finished	MS (1ppb), IWST-190702B,10
84	CCV-7,CCV,1,	11	1000	Unknown		10/08/2019 20:11	Finished	CCV @5ppb, IWST-190702A
85	CCB-7,CCB,1,	12	1000	Unknown		10/08/2019 20:20	Finished	CCB R190830A
86	N037801-004A,SAMF	13	1000	Unknown		10/08/2019 20:29	Finished	SAMP, 10mL
87	N037801-004AMS,MS	14	1000	Unknown		10/08/2019 20:39	Finished	MS (1ppb), IWST-190702B,10
88	N037801-005A,SAMF	15	1000	Unknown		10/08/2019 20:48	Finished	SAMP, 10mL
89	N037801-005AMS,MS	16	1000	Unknown		10/08/2019 20:58	Finished	MS (1ppb), IWST-190702B,10
90	N037801-006A,SAMF	17	1000	Unknown		10/08/2019 21:07	Finished	SAMP, 10mL
91	N037801-006AMS,MS	18	1000	Unknown		10/08/2019 21:17	Finished	MS (1ppb), IWST-190702B,10
92	N037801-007A,SAMF	19	1000	Unknown		10/08/2019 21:26	Finished	SAMP, 10mL
93	N037801-007AMS,MS	20	1000	Unknown		10/08/2019 21:36	Finished	MS (1ppb), IWST-190702B,10
94	N037801-004AMSD,M	21	1000	Unknown		10/08/2019 21:45	Finished	MSD (1ppb), IWST-190702B,1
95	N037801-001ADUP,D	22	1000	Unknown		10/08/2019 21:55	Finished	DUP, 10mL
96	CCV-8,CCV1,1,	23	1000	Unknown		10/08/2019 22:04	Finished	CCV @10ppb, IWST-190702A
97	CCB-8,CCB,1,	24	1000	Unknown		10/08/2019 22:14	Finished	CCB R190830A
98	N037756-001A,SAMF	25	1000	Unknown		10/08/2019 22:23	Finished	SAMP, 0.5>10mL
99	N037756-001AMS,MS	26	1000	Unknown		10/08/2019 22:32	Finished	MS (5ppb), IWST-190702B,0.5
100	N037757-001A,SAMF	27	1000	Unknown		10/08/2019 22:42	Finished	SAMP, 10mL
101	N037757-001AMS,MS	28	1000	Unknown		10/08/2019 22:51	Finished	MS (1ppb), IWST-190702B,10
102	N037757-002A,SAMF	29	1000	Unknown		10/08/2019 23:01	Finished	SAMP, 0.2>10mL
103	N037757-002AMS,MS	30	1000	Unknown		10/08/2019 23:10	Finished	MS (5ppb), IWST-190702B,0.2
104	~~N037772-001A,SAMF~~ N037772-002B	31	1000	Unknown		10/08/2019 23:20	Finished	SAMP, 10mL
105	~~N037772-001AMS,MS~~ N037772-002BMS	32	1000	Unknown		10/08/2019 23:29	Finished	MS (1ppb), IWST-190702B,10
106	CCV-9,CCV,1,	33	1000	Unknown		10/08/2019 23:39	Finished	CCV @5ppb, IWST-190702A
107	CCB-9,CCB,1,	34	1000	Unknown		10/08/2019 23:48	Finished	CCB R190830A
108	BLANK	35	1000	Unknown		10/08/2019 23:58	Finished	BLANK
109	SHUTDOWN	36	1000	Unknown		10/09/2019 00:07	Finished	
110	Eluent: R191008C	37	1000	Unknown		n.a.	Finished	Eluent
111	PCR: R191007B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

MMG 10/9/2019

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 10/3/19
Time Prepared: 1410
Prepared By: HG

SLOPE: 97.1%
pH 4: 4.02
7: 7.01
10: 10.02

Reagent ID: GN NaOH : R190722A
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190930D
NH4OH + NH4SO4 buffer: R190830A, R190816D

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037735-1A	9.09	9.38	~250 mL	~250 mL	+3 drops GN	NaOH
2)	-2A	9.39	—				
3)	N037736-1A	9.37	—				
4)	-2A	9.28	9.37			+1 drop GN	NaOH
5)	-3A	9.30	—				
6)	-4A	9.38	—				
7)	-5A	9.35	—				
8)	-6A	9.49	—				
9)	-7A	9.30	—				
10)	-8A	9.51	—				
11)	N037753-10/C	7.28	9.30	~125 mL	~125 mL		LAB FILTERED/PRESERVED
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 10/4/19
Time Prepared: 1045
Prepared By: HG

SLOPE: 97.7%
pH 4: 4.01
7: 7.02
10: 10.02

Reagent ID: R190722A (GN NaOH)
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190930D
NH4OH + NH4SO4 buffer: R190830A, R190816D

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037759-1B	9.41	—	~250 mL	~250 mL		
2)	N037760-1B	9.38	—				
3)	N037756-1A	9.22	9.35			+1 drops GN	NaOH
4)	N037757-1A	9.15	9.35			+2 drops GN	NaOH
5)	-2A	9.18	9.37			+2 drops GN	NaOH
6)	N037758-1A	9.31	—				
7)	-2A	9.30	—				
8)	-3A	9.04	9.35			+4 drops GN	NaOH
9)	-4A	9.21	9.30			+1 drop GN	NaOH
10)	-5A	9.31	—				
11)	-6A	9.22	9.30				
12)	-7A	9.38	—				
13)	-8	9.43	—				
14)	-9	9.40	—				
15)	-10	9.39	—				
	-11	9.35	—				
	-12	9.37	—				
	-13	9.45	—				

Logbook No. 17

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 10/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0504	0.2845	1.2983	2.6645	4.0089	5.4295	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.033	0.20	10.00	0	100	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCV**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.913	0.20	5.000	0	98.3	95	105				

Sample ID **CCV-8**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.876	0.20	10.00	0	98.8	95	105				

Sample ID **CCV-9**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCV**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.982	0.20	5.000	0	99.6	95	105				

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ICV**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3531041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.885	0.20	5.000	0	97.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ZZZZZZ**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3531042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.217	0.20	0.2000	0	108	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-8**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-9**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **CCB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/8/2019**	SeqNo: **3530771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136842**
Client ID: **ICB**	Batch ID: **R136842**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2019**	SeqNo: **3531043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	

Average	4.716
Actual RT Window	4.636 - 4.796
Applied RT Window	4.516 - 4.916

MB-R136808	N.A.	N.A.
LCS-R136808	4.731	PASS
N037770-001AMS	N.A.	N.A.
N037770-001A	N.A.	N.A.
N037770-001AMS	4.665	PASS
N037770-002AMS	N.A.	N.A.
N037770-002A	4.665	PASS
N037770-002AMS	4.673	PASS
N037770-003A	N.A.	N.A.
N037770-003AMS	4.598	PASS
N037770-004A	N.A.	N.A.
N037770-004AMS	4.731	PASS
N037770-005A	N.A.	N.A.
N037770-005AMS	4.715	PASS
N037770-005ADUP	N.A.	N.A.
N037770-001AMSD	4.665	PASS
N037770-003A	N.A.	N.A.
N037770-003AMS	4.706	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037790-001AMS	4.698	PASS
N037790-002AMS	4.681	PASS
N037792-001AMS	4.740	PASS
N037794-001AMS	4.740	PASS
N037798-001AMS	N.A.	N.A.
N037798-002AMS	4.640	PASS
N037790-001A	4.723	PASS
N037790-001AMS	4.723	PASS
N037790-002A	4.715	PASS
N037790-002AMS	4.715	PASS
N037792-001A	4.740	PASS
N037794-001A	4.731	PASS
N037798-001AMS	4.698	PASS
N037798-002A	4.698	PASS
N037798-002AMS	4.715	PASS
N037798-001A	4.698	PASS
N037794-001A	4.723	PASS
N037794-001AMS	4.715	PASS
N037736-001A	4.606	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037736-001AMS	4.606	PASS
N037736-002A	4.606	PASS
N037736-002AMS	4.606	PASS
N037736-003A	4.606	PASS
N037736-003AMS	4.615	PASS
N037736-004A	4.615	PASS
N037736-004AMS	4.606	PASS
N037736-005A	4.606	PASS
N037736-005AMS	4.606	PASS
N037736-006A	4.606	PASS
N037736-006AMS	4.606	PASS
N037736-007A	4.598	PASS
N037736-007AMS	4.598	PASS
N037736-008A	N.A.	N.A.
N037736-008AMS	4.706	PASS
MB-R136842	N.A.	N.A.
LCS-R136842	4.706	PASS
N037801-001A	4.706	PASS
N037801-001AMS	4.715	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037801-002A	4.715	PASS
N037801-002AMS	4.715	PASS
N037801-003A	4.715	PASS
N037801-003AMS	4.715	PASS
N037801-004A	4.715	PASS
N037801-004AMS	4.706	PASS
N037801-005A	4.706	PASS
N037801-005AMS	4.706	PASS
N037801-006A	N.A.	N.A.
N037801-006AMS	4.706	PASS
N037801-007A	4.698	PASS
N037801-007AMS	4.698	PASS
N037801-004AMSD	4.706	PASS
N037801-001ADUP	4.715	PASS
N037756-001A	4.706	PASS
N037756-001AMS	4.706	PASS
N037757-001A	N.A.	N.A.
N037757-001AMS	4.690	PASS
N037757-002A	4.706	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/8/2019

Sample Name	Retention Time	Evaluation
ICV	4.881	
CCV-1	4.731	
CCV-2	4.723	
CCV-3	4.723	
CCV-4	4.723	
CCV-5	4.715	
CCV-6	4.715	
CCV-7	4.706	
CCV-8	4.706	
CCV-9	4.706	
Average	4.716	
Actual RT Window	4.636 - 4.796	
Applied RT Window	4.516 - 4.916	
N037757-002AMS	4.706	PASS
N037772-002B	N.A.	N.A.
N037772-002BMS	4.706	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	10/03/19 11:57 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/19 12:08 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	10/03/19 12:17 PM	Reported
13	MB-R136776	MBLK	1	Hexavalent Chromium	10/03/19 12:27 PM	Reported
14	LCS-R136776	LCS	1	Hexavalent Chromium	10/03/19 12:36 PM	Reported
15	N037721-001BMS	MS	500	Hexavalent Chromium	10/03/19 1:25 PM	Reported
16	N037722-001A	SAMP	1	Hexavalent Chromium	10/03/19 1:36 PM	Reported
17	N037722-001AMS	MS	1	Hexavalent Chromium	10/03/19 1:46 PM	Reported
18	N037722-002A	SAMP	1	Hexavalent Chromium	10/03/19 1:55 PM	Reported
19	N037722-002AMS	MS	1	Hexavalent Chromium	10/03/19 2:04 PM	Reported
20	N037721-001B	SAMP	500	Hexavalent Chromium	10/03/19 2:14 PM	Reported
21	N037721-001BMSD	MSD	500	Hexavalent Chromium	10/03/19 2:23 PM	Reported
22	N037722-002ADUP	DUP	1	Hexavalent Chromium	10/03/19 2:33 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	10/03/19 2:42 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	10/03/19 2:52 PM	Reported
25	N037723-001A	SAMP	1	Hexavalent Chromium	10/03/19 3:01 PM	Reported
26	N037723-001AMS	MS	1	Hexavalent Chromium	10/03/19 3:11 PM	Reported
27	N037723-002A	SAMP	1	Hexavalent Chromium	10/03/19 3:20 PM	Not Reported
28	N037723-002AMS	MS	1	Hexavalent Chromium	10/03/19 3:30 PM	Not Reported
29	N037723-003A	SAMP	1	Hexavalent Chromium	10/03/19 3:39 PM	Reported
30	N037723-003AMS	MS	1	Hexavalent Chromium	10/03/19 3:49 PM	Reported
31	N037723-004A	SAMP	100	Hexavalent Chromium	10/03/19 3:58 PM	Reported
32	N037723-004AMS	MS	100	Hexavalent Chromium	10/03/19 4:07 PM	Reported
33	N037723-005A	SAMP	1	Hexavalent Chromium	10/03/19 4:17 PM	Reported
34	N037723-005AMS	MS	1	Hexavalent Chromium	10/03/19 4:26 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	10/03/19 4:36 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	10/03/19 4:45 PM	Reported
37	N037723-001A	SAMP	5	Hexavalent Chromium	10/03/19 4:55 PM	Not Reported
38	N037723-001AMS	MS	5	Hexavalent Chromium	10/03/19 5:04 PM	Not Reported
39	N037723-002A	SAMP	5	Hexavalent Chromium	10/03/19 5:14 PM	Reported
40	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 5:23 PM	Reported
41	N037723-003A	SAMP	5	Hexavalent Chromium	10/03/19 5:33 PM	Not Reported
42	N037723-003AMS	MS	5	Hexavalent Chromium	10/03/19 5:42 PM	Not Reported

INJECTION LOG: 191003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037718-001C	SAMP	50	Hexavalent Chromium	10/03/19 5:52 PM	Not Reported
44	N037718-001CMS	MS	50	Hexavalent Chromium	10/03/19 6:01 PM	Not Reported
45	N037718-002C	SAMP	1	Hexavalent Chromium	10/03/19 6:10 PM	Reported
46	N037718-002CMS	MS	1	Hexavalent Chromium	10/03/19 6:20 PM	Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	10/03/19 6:29 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	10/03/19 6:39 PM	Reported
49	N037718-003B	SAMP	5	Hexavalent Chromium	10/03/19 6:48 PM	Reported
50	N037718-003BMS	MS	5	Hexavalent Chromium	10/03/19 6:58 PM	Reported
51	N037723-002AMS	MS	5	Hexavalent Chromium	10/03/19 7:07 PM	Not Reported
52	CCV-4	CCV	1	Hexavalent Chromium	10/03/19 7:17 PM	Reported
53	CCB-4	CCB	1	Hexavalent Chromium	10/03/19 7:26 PM	Reported
54	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 7:36 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191003B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Oct/19 09:29:25**
No. of Injections:	**57**	*Updated By:*	**ics 5000**

Injection Details

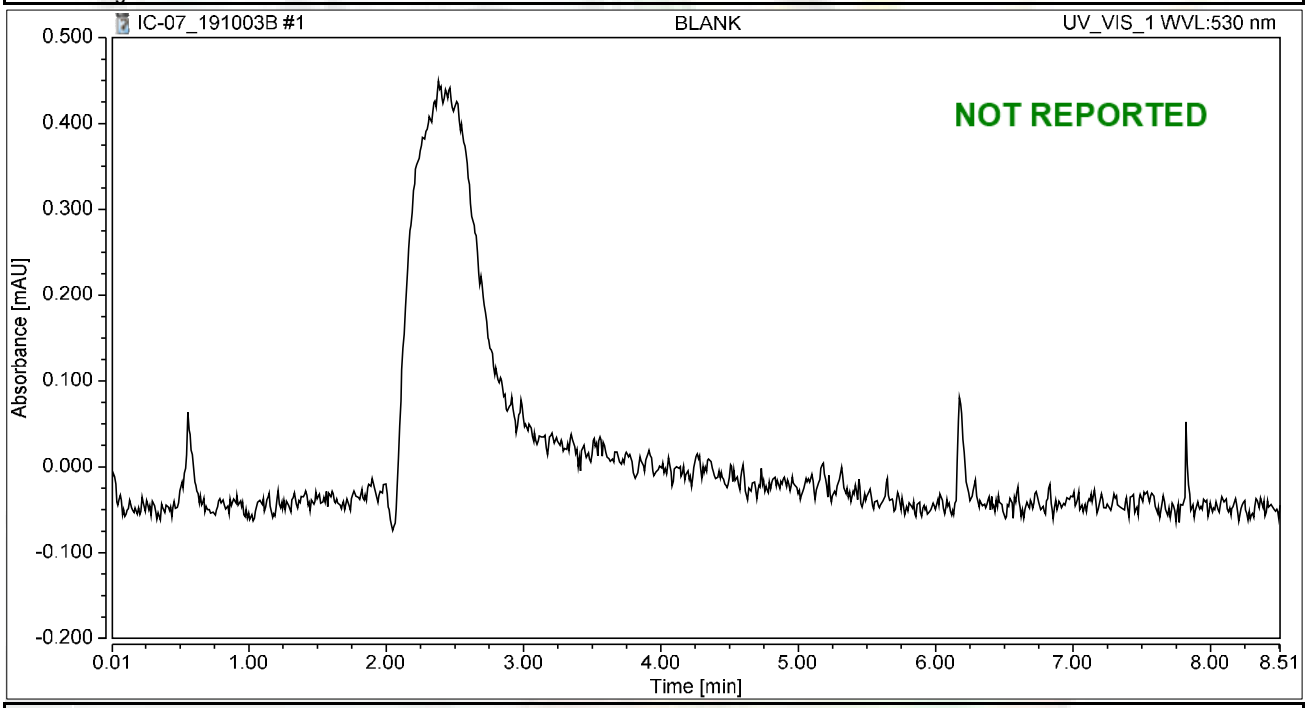
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1	1	1000	Unknown		10/03/2019 11:57	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	2	1000	Unknown		10/03/2019 12:08	Finished	PQL @ 0.2ppb
12	ICB,ICB,1	3	1000	Unknown		10/03/2019 12:17	Finished	CCB R190830A
13	MB-H2O,MBLK,1,	4	1000	Unknown		10/03/2019 12:27	Finished	MB R190830A
14	LCS-H2O,LCS,1,	5	1000	Unknown		10/03/2019 12:36	Finished	LCS @5ppb, IWST-190702B
15	N037721-001BMS,MS	6	1000	Unknown		10/03/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
16	N037722-001A,SAMF	7	1000	Unknown		10/03/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
17	N037722-001AMS,MS	8	1000	Unknown		10/03/2019 13:46	Finished	MS (5ppb), IWST-190702B,10
18	N037722-002A,SAMF	9	1000	Unknown		10/03/2019 13:55	Finished	MS (1ppb), IWST-190702B,10
19	N037722-002AMS,MS	10	1000	Unknown		10/03/2019 14:04	Finished	SAMP, 2>10 mL
20	N037721-001B,SAMF	11	1000	Unknown		10/03/2019 14:14	Finished	MS (1ppb), IWST-190702B,2>1
21	N037721-001BMSD,M	12	1000	Unknown		10/03/2019 14:23	Finished	
22	N037722-002ADUP,D	13	1000	Unknown		10/03/2019 14:33	Finished	
23	CCV-1,CCV1,1,	14	1000	Unknown		10/03/2019 14:42	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	15	1000	Unknown		10/03/2019 14:52	Finished	CCB R190830A
25	N037723-001A,SAMF	16	1000	Unknown		10/03/2019 15:01	Finished	
26	N037723-001AMS,MS	17	1000	Unknown		10/03/2019 15:11	Finished	
27	N037723-002A,SAMF	18	1000	Unknown		10/03/2019 15:20	Finished	
28	N037723-002AMS,MS	19	1000	Unknown		10/03/2019 15:30	Finished	
29	N037723-003A,SAMF	20	1000	Unknown		10/03/2019 15:39	Finished	
30	N037723-003AMS,MS	21	1000	Unknown		10/03/2019 15:49	Finished	
31	N037723-004A,SAMF	22	1000	Unknown		10/03/2019 15:58	Finished	
32	N037723-004AMS,MS	23	1000	Unknown		10/03/2019 16:07	Finished	
33	N037723-005A,SAMF	24	1000	Unknown		10/03/2019 16:17	Finished	
34	N037723-005AMS,MS	25	1000	Unknown		10/03/2019 16:26	Finished	
35	CCV-2,CCV,1,	26	1000	Unknown		10/03/2019 16:36	Finished	CCV @5ppb, IWST-190702A
36	CCB-2,CCB,1,	27	1000	Unknown		10/03/2019 16:45	Finished	CCB R190830A
37	N037723-001A,SAMF	28	1000	Unknown		10/03/2019 16:55	Finished	
38	N037723-001AMS,MS	29	1000	Unknown		10/03/2019 17:04	Finished	
39	N037723-002A,SAMF	30	1000	Unknown		10/03/2019 17:14	Finished	
40	N037723-002AMS,MS	31	1000	Unknown		10/03/2019 17:23	Finished	
41	N037723-003A,SAMF	32	1000	Unknown		10/03/2019 17:33	Finished	
42	N037723-003AMS,MS	33	1000	Unknown		10/03/2019 17:42	Finished	
43	N037718-001C,SAMF	34	1000	Unknown		10/03/2019 17:52	Finished	
44	N037718-001CMS,MS	35	1000	Unknown		10/03/2019 18:01	Finished	
45	N037718-002C,SAMF	36	1000	Unknown		10/03/2019 18:10	Finished	
46	N037718-002CMS,MS	37	1000	Unknown		10/03/2019 18:20	Finished	
47	CCV-3,CCV1,1,	38	1000	Unknown		10/03/2019 18:29	Finished	CCV @10ppb, IWST-190702A
48	CCB-3,CCB,1,	39	1000	Unknown		10/03/2019 18:39	Finished	CCB R190830A
49	N037718-003C,SAMF	40	1000	Unknown		10/03/2019 18:48	Finished	
50	N037718-003CMS,MS	41	1000	Unknown		10/03/2019 18:58	Finished	
51	N037723-002AMS,MS	42	1000	Unknown		10/03/2019 19:07	Finished	
52	CCV-4,CCV,1,	43	1000	Unknown		10/03/2019 19:17	Finished	CCV @5ppb, IWST-190702A
53	CCB-4,CCB,1,	44	1000	Unknown		10/03/2019 19:26	Finished	CCB R190830A
54	BLANK	45	1000	Unknown		10/03/2019 19:36	Finished	BLANK
55	SHUTDOWN	46	1000	Unknown		10/03/2019 19:45	Finished	
56	Eluent: R190930D	47	1000	Unknown		n.a.	Finished	Eluent
57	PCR: R190930E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

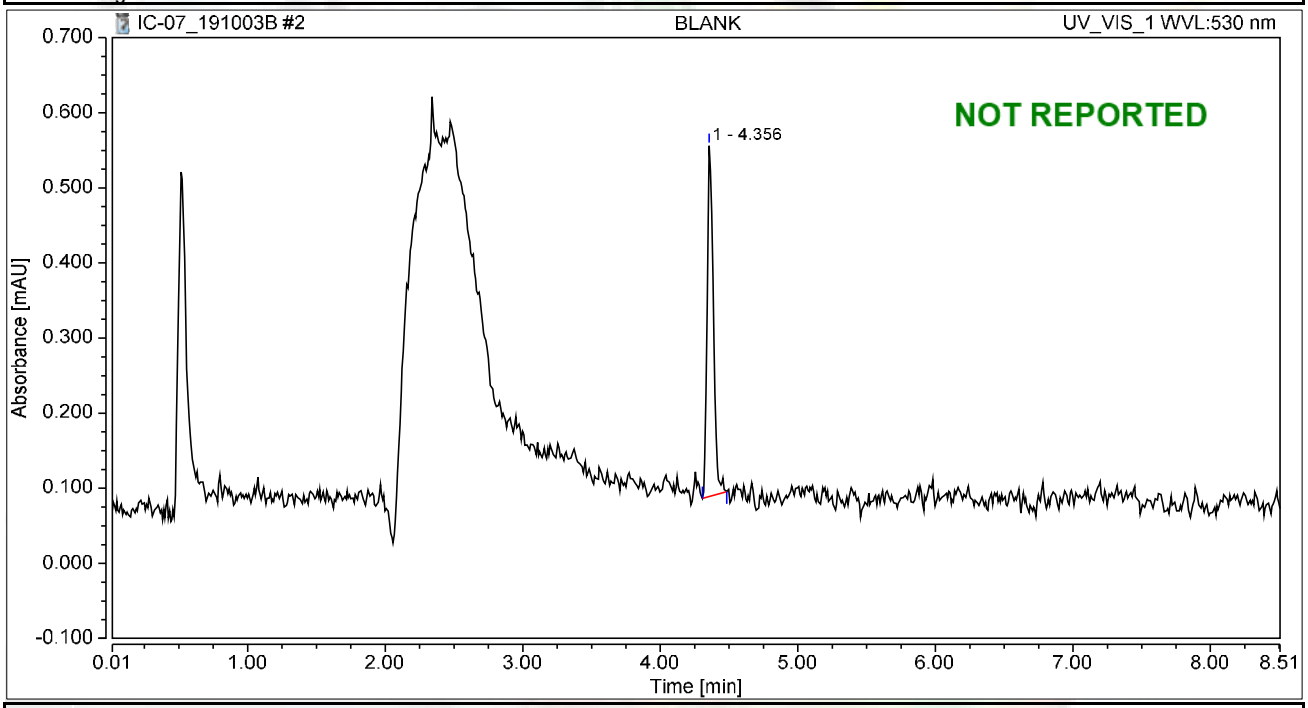
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

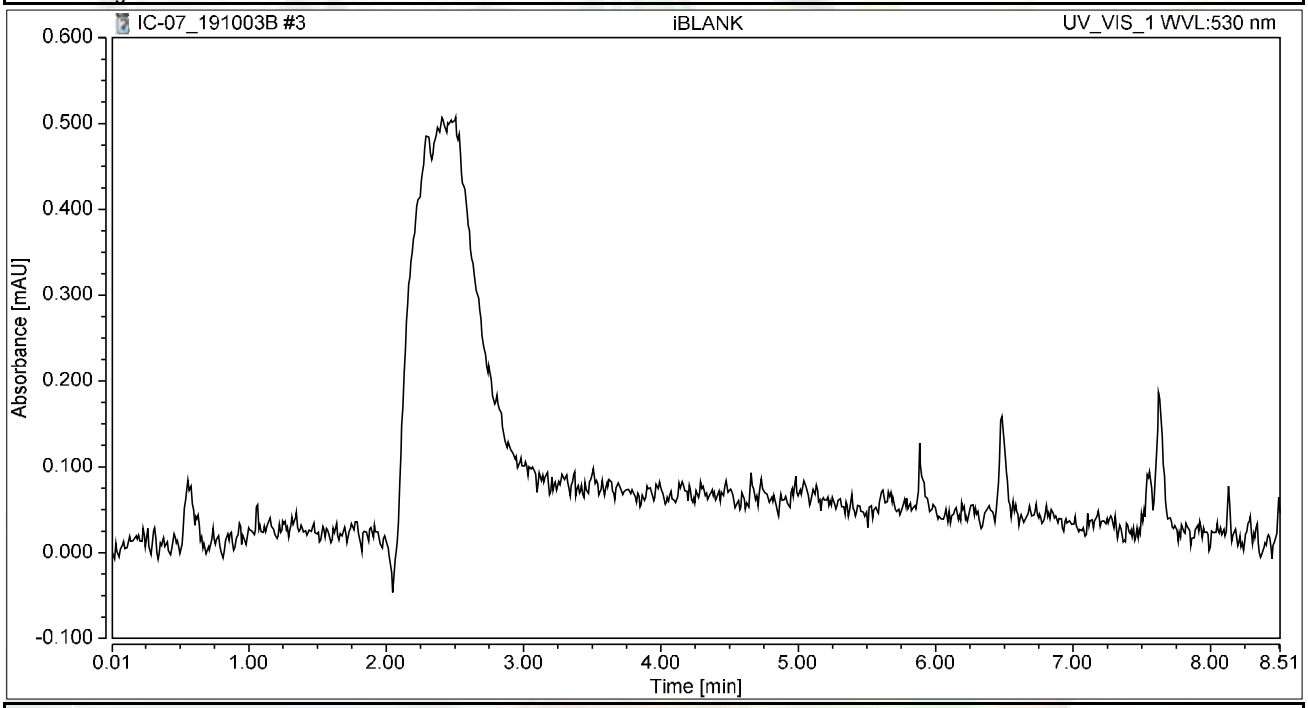
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.356	0.024	0.467	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.024**	**0.467**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

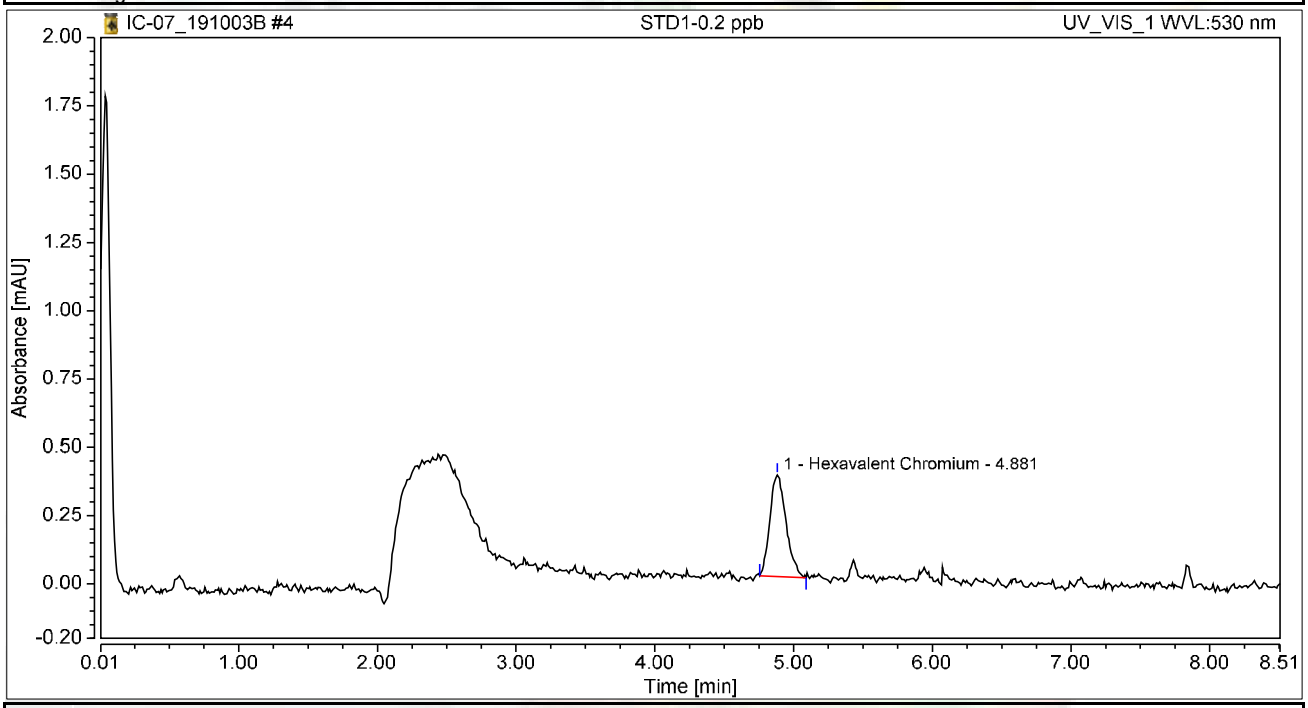
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

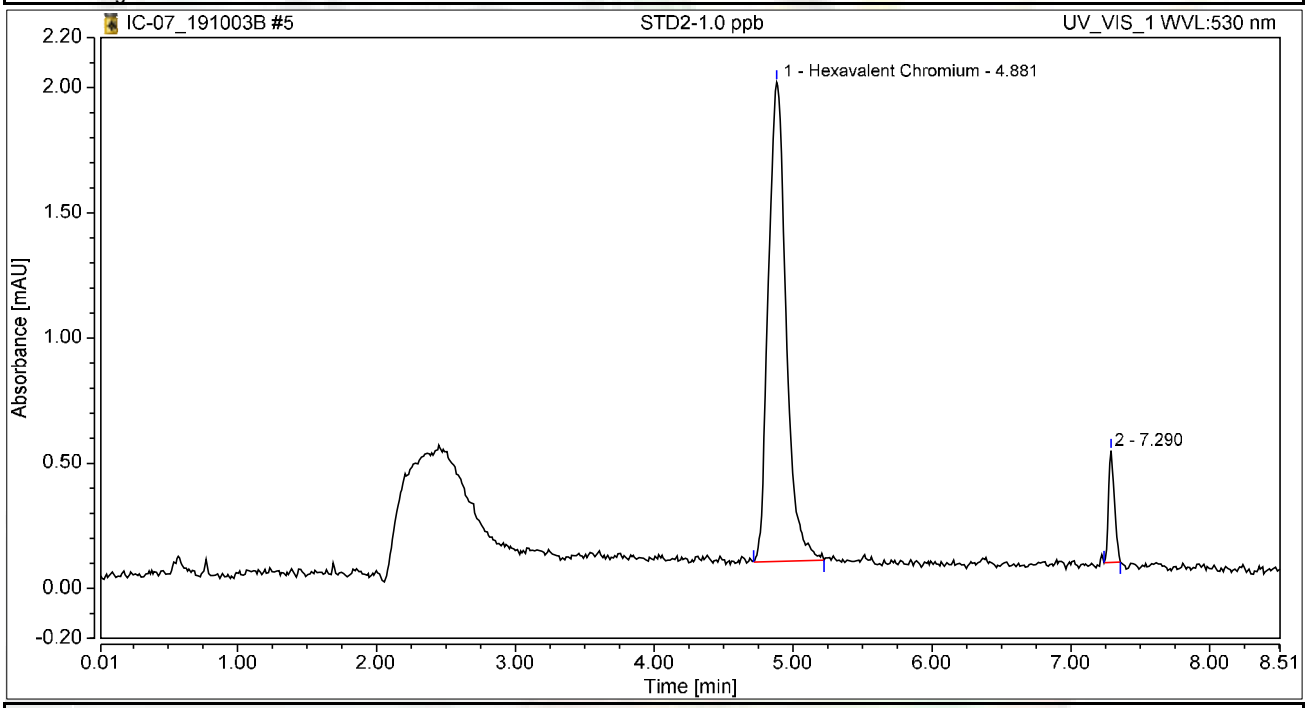
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	0.050	0.372	100.00	100.00	0.1873
Total:			**0.050**	**0.372**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

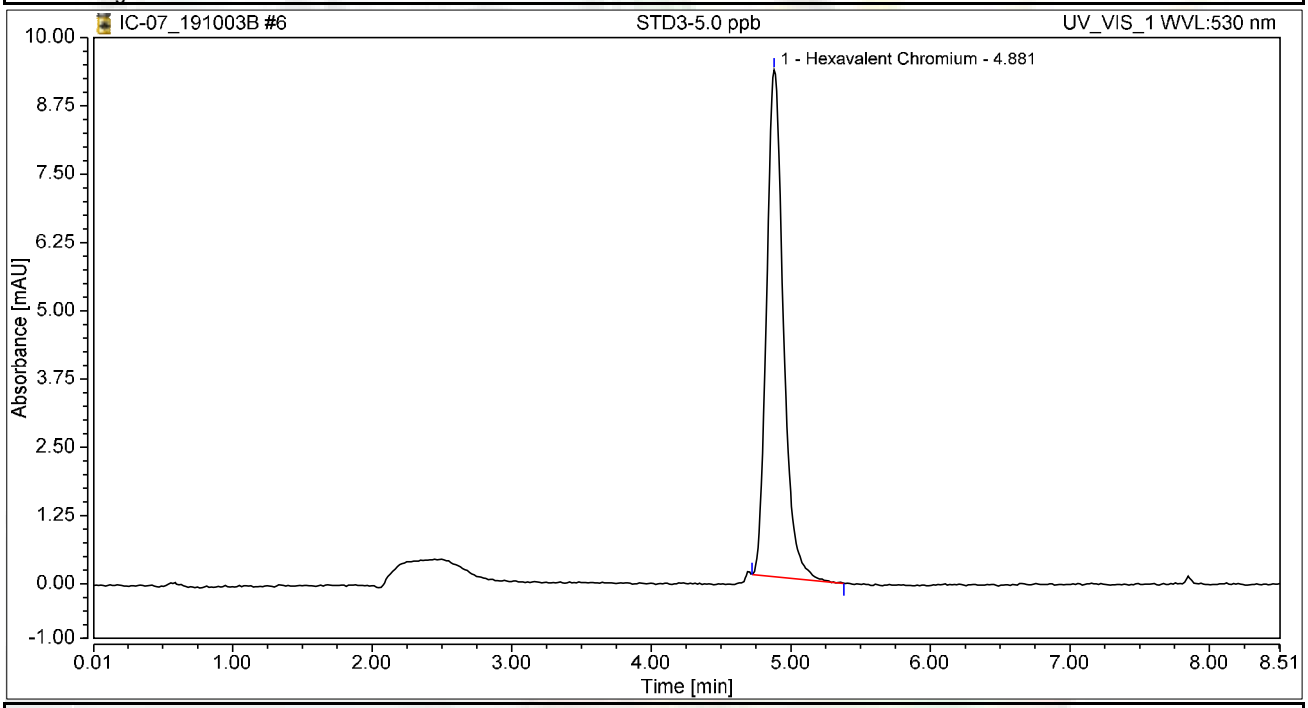
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	0.285	1.914	92.83	81.09	1.0571
2		7.290	0.022	0.446	7.17	18.91	n.a.
Total:			**0.306**	**2.360**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

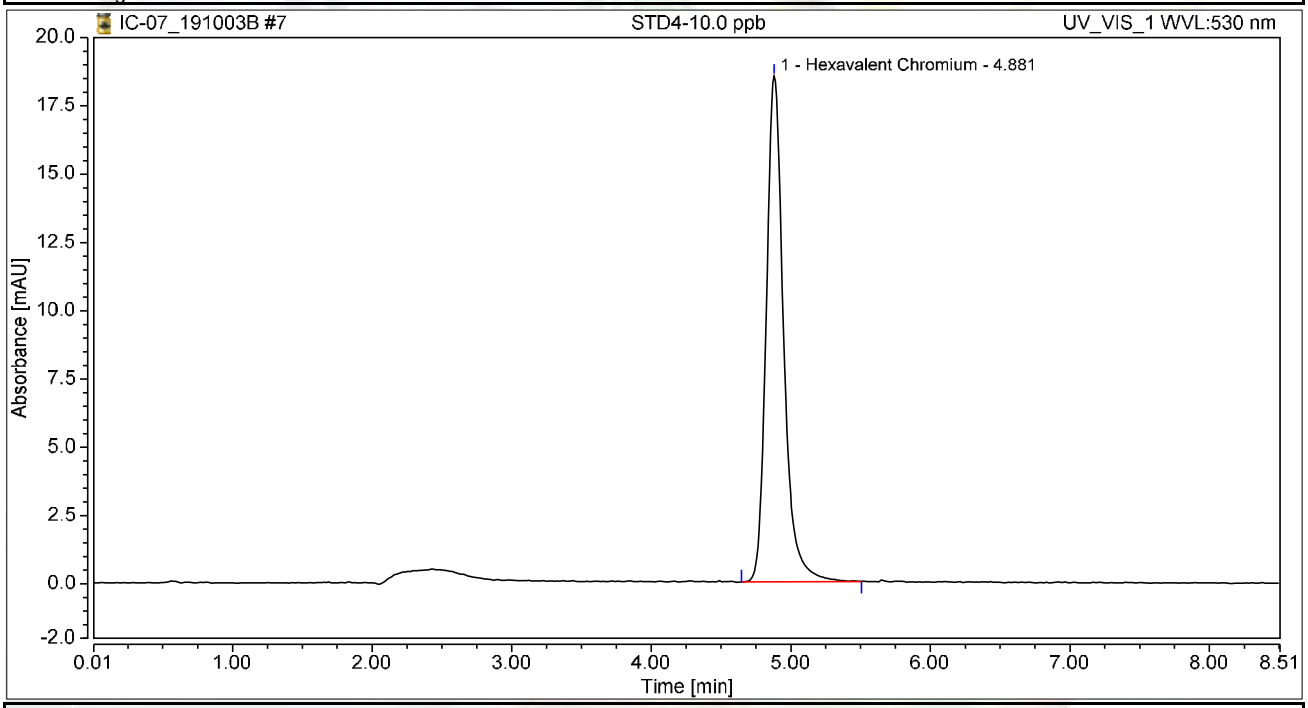
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.298	9.280	100.00	100.00	4.8236
Total:			**1.298**	**9.280**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

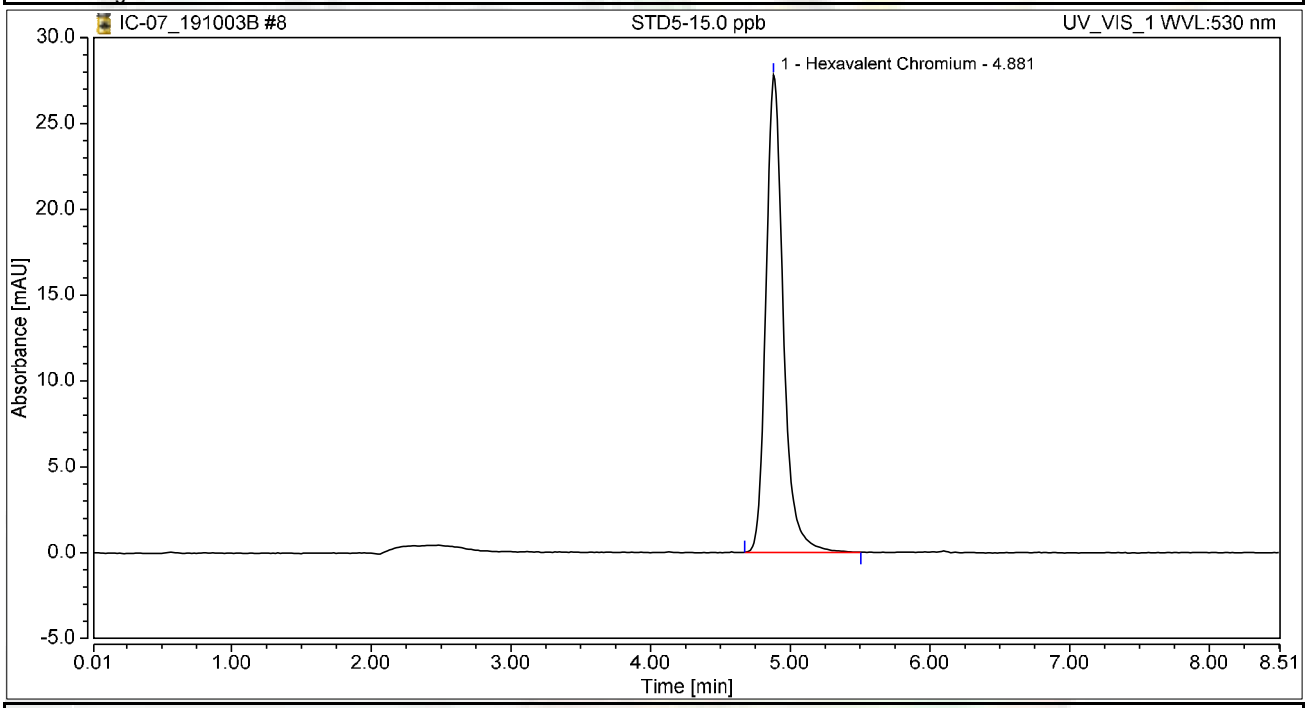
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	2.665	18.516	100.00	100.00	9.8992
Total:			**2.665**	**18.516**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

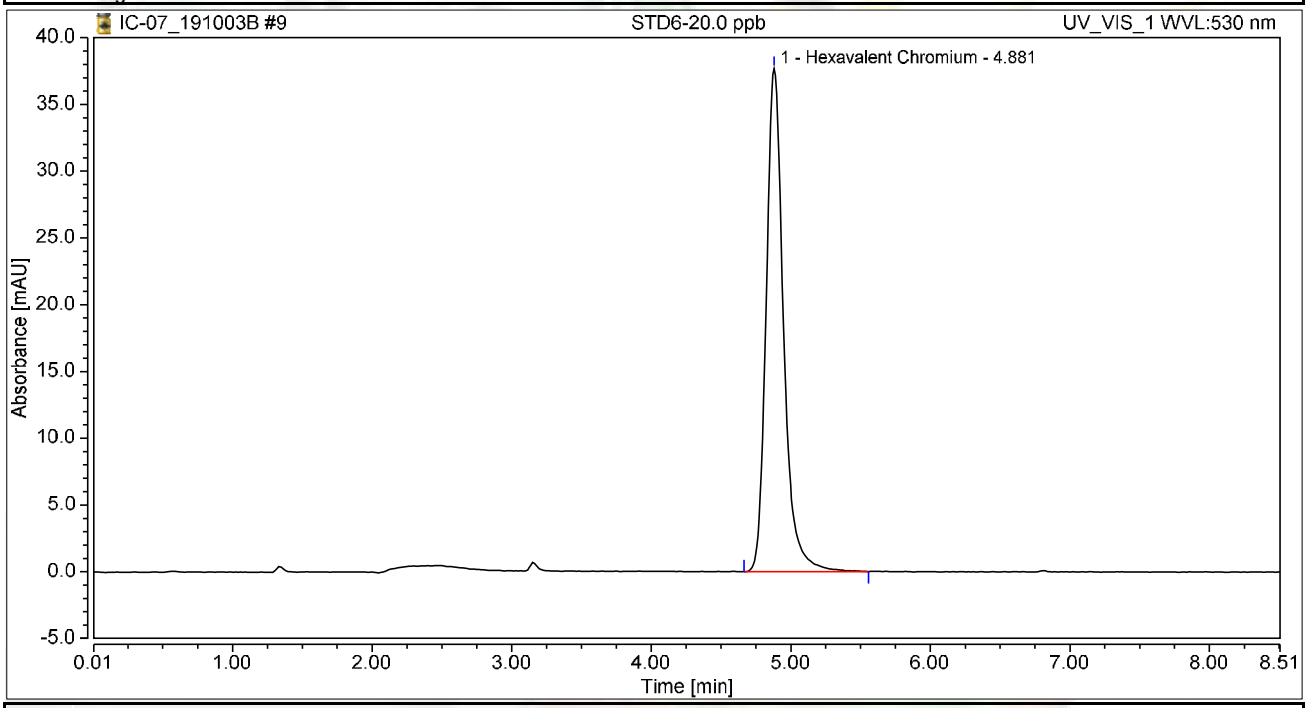
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	4.009	27.812	100.00	100.00	14.8937
Total:			**4.009**	**27.812**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



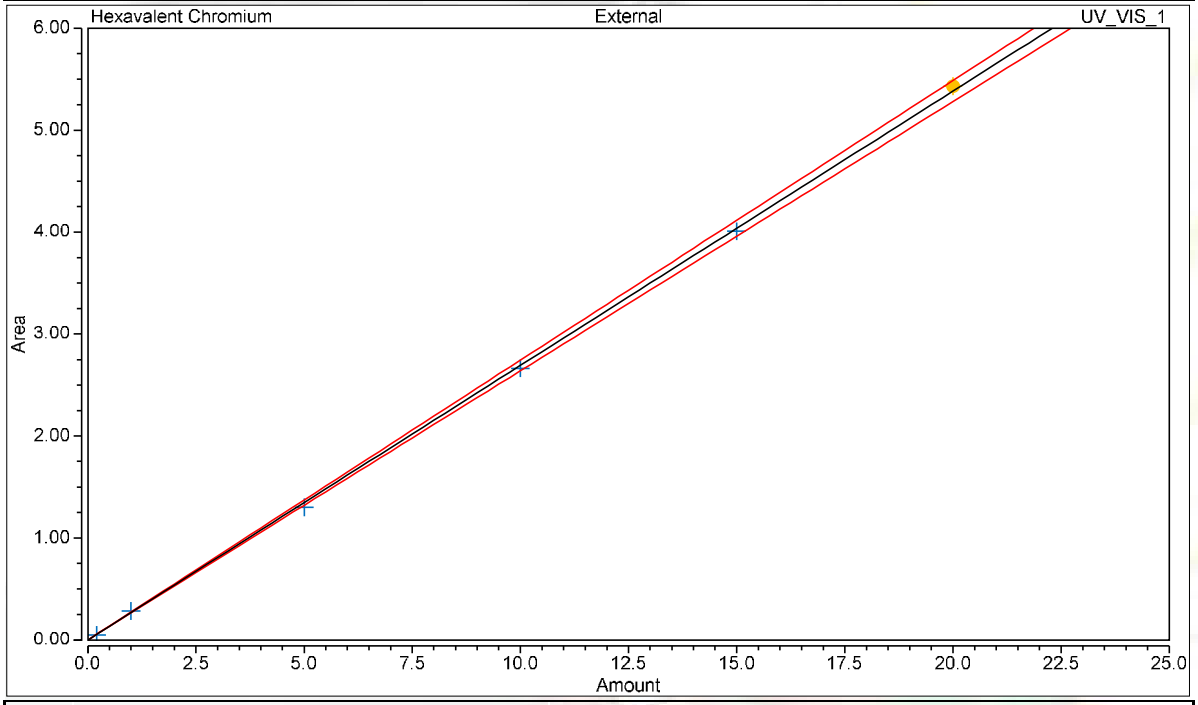
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	5.430	37.680	100.00	100.00	20.1715
Total:			**5.430**	**37.680**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2692
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99973

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

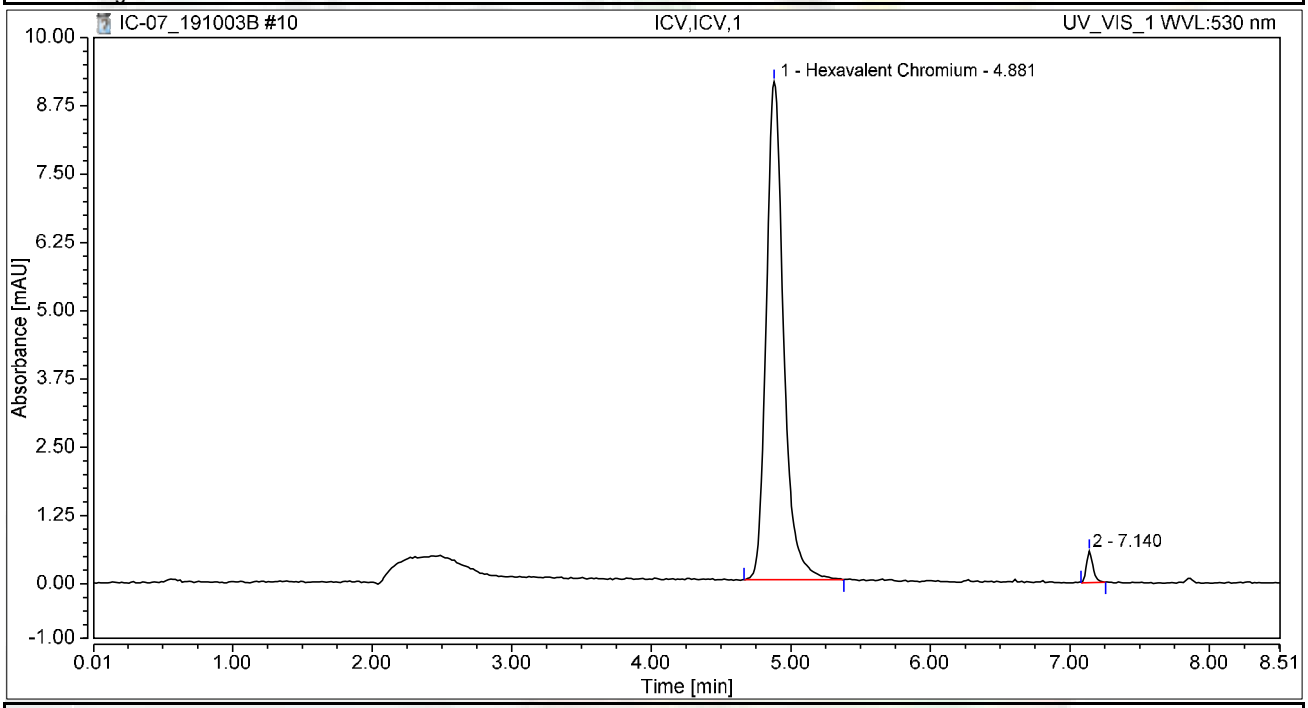
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0504	0.050	0.372
5	STD2-1.0 ppb	02	1.0000	0.2845	0.285	1.914
6	STD3-5.0 ppb	03	5.0000	1.2983	1.298	9.280
7	STD4-10.0 ppb	04	10.0000	2.6645	2.665	18.516
8	STD5-15.0 ppb	05	15.0000	4.0089	4.009	27.812
9	STD6-20.0 ppb	06	20.0000	5.4295	5.430	37.680

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

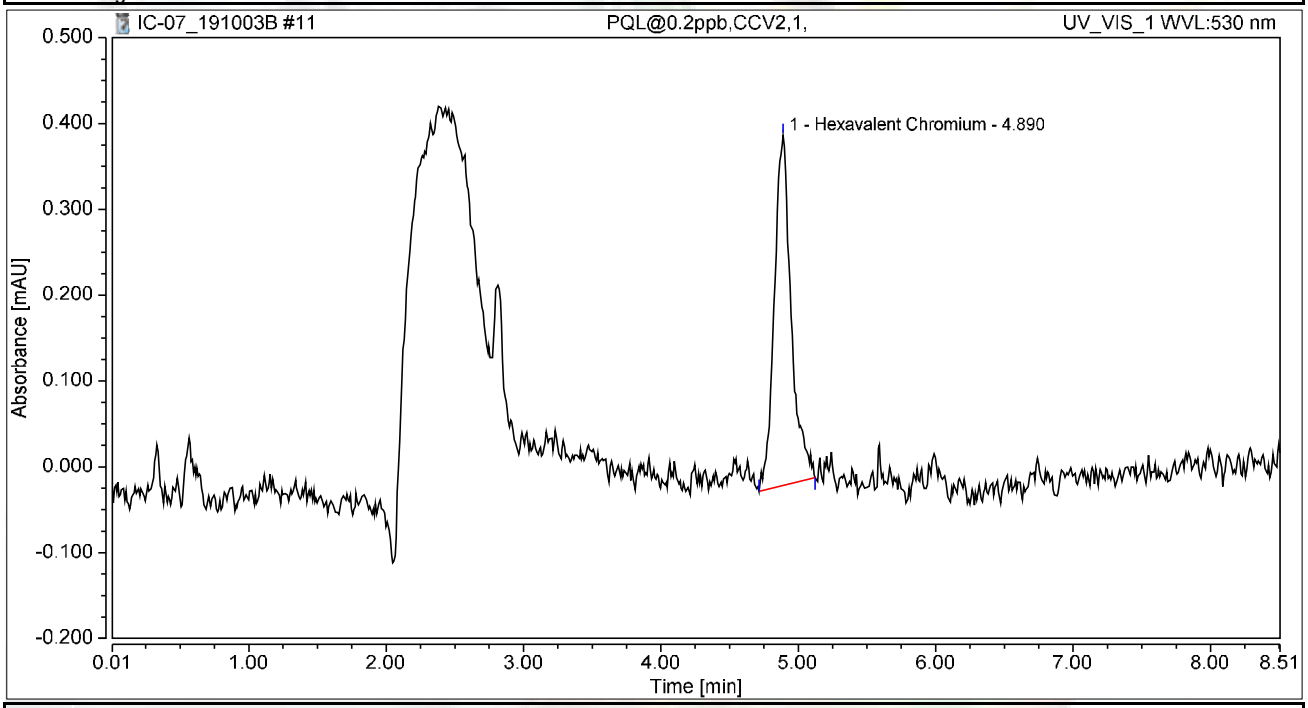
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.881	1.315	9.117	97.72	94.14	4.8852
2		7.140	0.031	0.568	2.28	5.86	n.a.
Total:			**1.346**	**9.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

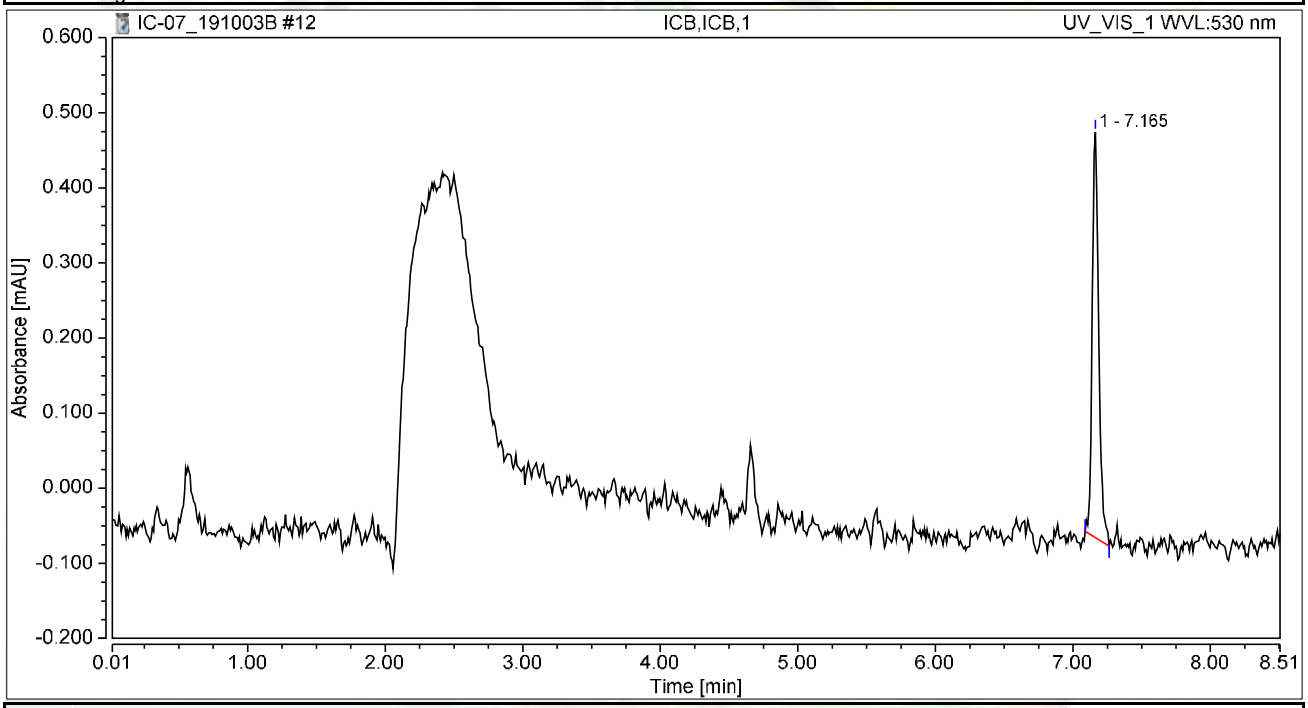
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.890	0.058	0.408	100.00	100.00	0.2165
Total:			**0.058**	**0.408**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/19 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.165	0.030	0.540	100.00	100.00	n.a.
Total:			**0.030**	**0.540**	**100.00**	**100.00**	

RAW DATA

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:07 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/03/19 10:26 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/03/19 10:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/03/19 10:50 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:00 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:09 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:19 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:28 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/03/19 11:38 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 7:39 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	10/08/19 7:49 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/08/19 7:59 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	10/08/19 8:08 AM	Reported
14	MB-R136808	MBLK	1	Hexavalent Chromium	10/08/19 8:18 AM	Reported
15	LCS-R136808	LCS	1	Hexavalent Chromium	10/08/19 8:27 AM	Reported
16	N037770-001AMS	MS	1	Hexavalent Chromium	10/08/19 8:43 AM	Not Reported
17	N037770-001A	SAMP	5	Hexavalent Chromium	10/08/19 8:54 AM	Reported
18	N037770-001AMS	MS	5	Hexavalent Chromium	10/08/19 9:04 AM	Reported
19	N037770-002AMS	MS	1	Hexavalent Chromium	10/08/19 9:13 AM	Not Reported
20	N037770-002A	SAMP	5	Hexavalent Chromium	10/08/19 9:23 AM	Reported
21	N037770-002AMS	MS	5	Hexavalent Chromium	10/08/19 9:32 AM	Reported
22	N037770-003A	SAMP	1	Hexavalent Chromium	10/08/19 9:42 AM	Not Reported
23	N037770-003AMS	MS	1	Hexavalent Chromium	10/08/19 9:51 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	10/08/19 10:01 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	10/08/19 10:10 AM	Reported
26	N037770-004A	SAMP	1	Hexavalent Chromium	10/08/19 10:20 AM	Reported
27	N037770-004AMS	MS	1	Hexavalent Chromium	10/08/19 10:31 AM	Reported
28	N037770-005A	SAMP	1	Hexavalent Chromium	10/08/19 10:41 AM	Reported
29	N037770-005AMS	MS	1	Hexavalent Chromium	10/08/19 10:50 AM	Reported
30	N037770-005ADUP	DUP	1	Hexavalent Chromium	10/08/19 11:00 AM	Reported
31	N037770-001AMSD	MSD	5	Hexavalent Chromium	10/08/19 11:09 AM	Reported
32	N037770-003A	SAMP	5	Hexavalent Chromium	10/08/19 11:19 AM	Reported
33	N037770-003AMS	MS	5	Hexavalent Chromium	10/08/19 11:28 AM	Reported
34	N037790-001AMS	MS	1	Hexavalent Chromium	10/08/19 11:38 AM	Not Reported
35	N037790-002AMS	MS	1	Hexavalent Chromium	10/08/19 11:47 AM	Not Reported
36	CCV-3	CCV	1	Hexavalent Chromium	10/08/19 11:57 AM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	10/08/19 12:06 PM	Reported
38	N037792-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:17 PM	Reported
39	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 12:28 PM	Not Reported
40	N037798-001AMS	MS	1	Hexavalent Chromium	10/08/19 12:38 PM	Not Reported
41	N037798-002AMS	MS	1	Hexavalent Chromium	10/08/19 12:47 PM	Not Reported
42	N037790-001A	SAMP	50	Hexavalent Chromium	10/08/19 12:57 PM	Reported



10/14/2019

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037790-001AMS	MS	50	Hexavalent Chromium	10/08/19 1:06 PM	Reported
44	N037790-002A	SAMP	10	Hexavalent Chromium	10/08/19 1:15 PM	Reported
45	N037790-002AMS	MS	10	Hexavalent Chromium	10/08/19 1:25 PM	Reported
46	N037792-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:34 PM	Reported
47	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 1:44 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	10/08/19 1:53 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	10/08/19 2:03 PM	Reported
50	N037798-001AMS	MS	5	Hexavalent Chromium	10/08/19 2:19 PM	Reported
51	N037798-002A	SAMP	10	Hexavalent Chromium	10/08/19 2:30 PM	Reported
52	N037798-002AMS	MS	10	Hexavalent Chromium	10/08/19 2:39 PM	Reported
53	N037798-001A	SAMP	5	Hexavalent Chromium	10/08/19 2:49 PM	Reported
54	N037794-001A	SAMP	200	Hexavalent Chromium	10/08/19 2:58 PM	Reported
55	N037794-001AMS	MS	200	Hexavalent Chromium	10/08/19 3:08 PM	Reported
56	N037736-001A	SAMP	1	Hexavalent Chromium	10/08/19 3:38 PM	Reported
57	N037736-001AMS	MS	1	Hexavalent Chromium	10/08/19 3:49 PM	Reported
58	N037736-002A	SAMP	1	Hexavalent Chromium	10/08/19 3:58 PM	Reported
59	N037736-002AMS	MS	1	Hexavalent Chromium	10/08/19 4:08 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	10/08/19 4:17 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	10/08/19 4:27 PM	Reported
62	N037736-003A	SAMP	1	Hexavalent Chromium	10/08/19 4:36 PM	Reported
63	N037736-003AMS	MS	1	Hexavalent Chromium	10/08/19 4:45 PM	Reported
64	N037736-004A	SAMP	1	Hexavalent Chromium	10/08/19 4:55 PM	Reported
65	N037736-004AMS	MS	1	Hexavalent Chromium	10/08/19 5:04 PM	Reported
66	N037736-005A	SAMP	1	Hexavalent Chromium	10/08/19 5:14 PM	Reported
67	N037736-005AMS	MS	1	Hexavalent Chromium	10/08/19 5:23 PM	Reported
68	N037736-006A	SAMP	1	Hexavalent Chromium	10/08/19 5:33 PM	Reported
69	N037736-006AMS	MS	1	Hexavalent Chromium	10/08/19 5:42 PM	Reported
70	N037736-007A	SAMP	1	Hexavalent Chromium	10/08/19 5:52 PM	Reported
71	N037736-007AMS	MS	1	Hexavalent Chromium	10/08/19 6:01 PM	Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	10/08/19 6:11 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	10/08/19 6:20 PM	Reported
74	N037736-008A	SAMP	1	Hexavalent Chromium	10/08/19 6:35 PM	Reported
75	N037736-008AMS	MS	1	Hexavalent Chromium	10/08/19 6:45 PM	Reported
76	MB-R136842	MBLK	1	Hexavalent Chromium	10/08/19 6:55 PM	Reported
77	LCS-R136842	LCS	1	Hexavalent Chromium	10/08/19 7:04 PM	Reported
78	N037801-001A	SAMP	1	Hexavalent Chromium	10/08/19 7:14 PM	Reported
79	N037801-001AMS	MS	1	Hexavalent Chromium	10/08/19 7:23 PM	Reported
80	N037801-002A	SAMP	1	Hexavalent Chromium	10/08/19 7:33 PM	Reported
81	N037801-002AMS	MS	1	Hexavalent Chromium	10/08/19 7:42 PM	Reported
82	N037801-003A	SAMP	1	Hexavalent Chromium	10/08/19 7:52 PM	Reported
83	N037801-003AMS	MS	1	Hexavalent Chromium	10/08/19 8:01 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	10/08/19 8:11 PM	Reported

INJECTION LOG: 191008A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	10/08/19 8:20 PM	Reported
86	N037801-004A	SAMP	1	Hexavalent Chromium	10/08/19 8:29 PM	Reported
87	N037801-004AMS	MS	1	Hexavalent Chromium	10/08/19 8:39 PM	Reported
88	N037801-005A	SAMP	1	Hexavalent Chromium	10/08/19 8:48 PM	Reported
89	N037801-005AMS	MS	1	Hexavalent Chromium	10/08/19 8:58 PM	Reported
90	N037801-006A	SAMP	1	Hexavalent Chromium	10/08/19 9:07 PM	Reported
91	N037801-006AMS	MS	1	Hexavalent Chromium	10/08/19 9:17 PM	Reported
92	N037801-007A	SAMP	1	Hexavalent Chromium	10/08/19 9:26 PM	Reported
93	N037801-007AMS	MS	1	Hexavalent Chromium	10/08/19 9:36 PM	Reported
94	N037801-004AMSD	MSD	1	Hexavalent Chromium	10/08/19 9:45 PM	Reported
95	N037801-001ADUP	DUP	1	Hexavalent Chromium	10/08/19 9:55 PM	Reported
96	CCV-8	CCV1	1	Hexavalent Chromium	10/08/19 10:04 PM	Reported
97	CCB-8	CCB	1	Hexavalent Chromium	10/08/19 10:14 PM	Reported
98	N037756-001A	SAMP	20	Hexavalent Chromium	10/08/19 10:23 PM	Reported
99	N037756-001AMS	MS	20	Hexavalent Chromium	10/08/19 10:32 PM	Reported
100	N037757-001A	SAMP	1	Hexavalent Chromium	10/08/19 10:42 PM	Reported
101	N037757-001AMS	MS	1	Hexavalent Chromium	10/08/19 10:51 PM	Reported
102	N037757-002A	SAMP	50	Hexavalent Chromium	10/08/19 11:01 PM	Reported
103	N037757-002AMS	MS	50	Hexavalent Chromium	10/08/19 11:10 PM	Reported
104	N037772-002B	SAMP	1	Hexavalent Chromium	10/08/19 11:20 PM	Reported
105	N037772-002BMS	MS	1	Hexavalent Chromium	10/08/19 11:29 PM	Reported
106	CCV-9	CCV	1	Hexavalent Chromium	10/08/19 11:39 PM	Reported
107	CCB-9	CCB	1	Hexavalent Chromium	10/08/19 11:48 PM	Reported
108	BLANK	BLANK	1	Hexavalent Chromium	10/08/19 11:58 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191008A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**09/Oct/19 09:51:48**
No. of Injections:	**111**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/03/2019 10:07	Finished	BLANK
2	BLANK	2	1000	Unknown		10/03/2019 10:26	Finished	BLANK
3	iBLANK	1	1000	Unknown		10/03/2019 10:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	2	1000	Calibration Standard	01	10/03/2019 10:50	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	3	1000	Calibration Standard	02	10/03/2019 11:00	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	4	1000	Calibration Standard	03	10/03/2019 11:09	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	5	1000	Calibration Standard	04	10/03/2019 11:19	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	6	1000	Calibration Standard	05	10/03/2019 11:28	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	7	1000	Calibration Standard	06	10/03/2019 11:38	Finished	20 ppb, IWST-190702A
10	BLANK	1	1000	Unknown		10/08/2019 07:39	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		10/08/2019 07:49	Finished	CCV @5ppb, IWST-190702A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/08/2019 07:59	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		10/08/2019 08:08	Finished	CCB R190830A
14	MB-H2O,MBLK,1,	5	1000	Unknown		10/08/2019 08:18	Finished	MB R190830A
15	LCS-H2O,LCS,1,	6	1000	Unknown		10/08/2019 08:27	Finished	LCS @5ppb, IWST-190702B
16	N037770-001AMS,MS	7	1000	Unknown		10/08/2019 08:43	Finished	MS (1ppb), IWST-190702B,10
17	N037770-001A,SAMP	8	1000	Unknown		10/08/2019 08:54	Finished	SAMP,2>10 mL
18	N037770-001AMS,MS	9	1000	Unknown		10/08/2019 09:04	Finished	MS (1ppb), IWST-190702B,2>1
19	N037770-002AMS,MS	10	1000	Unknown		10/08/2019 09:13	Finished	MS (1ppb), IWST-190702B,10
20	N037770-002A,SAMP	11	1000	Unknown		10/08/2019 09:23	Finished	SAMP,2>10 mL
21	N037770-002AMS,MS	12	1000	Unknown		10/08/2019 09:32	Finished	MS (1ppb), IWST-190702B,2>1
22	N037770-003A,SAMP	13	1000	Unknown		10/08/2019 09:42	Finished	SAMP, 10 mL
23	N037770-003AMS,MS	14	1000	Unknown		10/08/2019 09:51	Finished	MS (1ppb), IWST-190702B,10
24	CCV-2,CCV1,1,	15	1000	Unknown		10/08/2019 10:01	Finished	CCV @10ppb, IWST-190702A
25	CCB-2,CCB,1,	16	1000	Unknown		10/08/2019 10:10	Finished	CCB R190830A
26	N037770-004A,SAMP	17	1000	Unknown		10/08/2019 10:20	Finished	SAMP, 10 mL
27	N037770-004AMS,MS	18	1000	Unknown		10/08/2019 10:31	Finished	MS (1ppb), IWST-190702B,10
28	N037770-005A,SAMP	19	1000	Unknown		10/08/2019 10:41	Finished	SAMP, 10 mL
29	N037770-005AMS,MS	20	1000	Unknown		10/08/2019 10:50	Finished	MS (1ppb), IWST-190702B,10
30	N037770-005ADUP,D	21	1000	Unknown		10/08/2019 11:00	Finished	DUP, 10 mL
31	N037770-001AMSD,M	22	1000	Unknown		10/08/2019 11:09	Finished	MSD (1ppb), IWST-190702B,10
32	N037770-003A,SAMP	23	1000	Unknown		10/08/2019 11:19	Finished	MS (1ppb), IWST-190702B,10
33	N037770-003AMS,MS	24	1000	Unknown		10/08/2019 11:28	Finished	MS (1ppb), IWST-190702B,10
34	N037790-001AMS,MS	25	1000	Unknown		10/08/2019 11:38	Finished	MS (1ppb), IWST-190702B,10
35	N037790-002AMS,MS	26	1000	Unknown		10/08/2019 11:47	Finished	MS (1ppb), IWST-190702B,10
36	CCV-3,CCV,1,	27	1000	Unknown		10/08/2019 11:57	Finished	CCV @5ppb, IWST-190702A
37	CCB-3,CCB,1,	28	1000	Unknown		10/08/2019 12:06	Finished	CCB R190830A
38	N037792-001AMS,MS	29	1000	Unknown		10/08/2019 12:17	Finished	MS (5ppb), IWST-190702B,0.0
39	N037794-001AMS,MS	30	1000	Unknown		10/08/2019 12:28	Finished	MS (5ppb), IWST-190702B,0.0
40	N037798-001AMS,MS	31	1000	Unknown		10/08/2019 12:38	Finished	MS (1ppb), IWST-190702B,10
41	N037798-002AMS,MS	32	1000	Unknown		10/08/2019 12:47	Finished	MS (1ppb), IWST-190702B,10
42	N037790-001A,SAMP	33	1000	Unknown		10/08/2019 12:57	Finished	SAMP,0.2>10mL
43	N037790-001AMS,MS	34	1000	Unknown		10/08/2019 13:06	Finished	MS (5ppb), IWST-190702B,0.2
44	N037790-002A,SAMP	35	1000	Unknown		10/08/2019 13:15	Finished	SAMP,1>10mL
45	N037790-002AMS,MS	36	1000	Unknown		10/08/2019 13:25	Finished	MS (5ppb), IWST-190702B,1>1
46	N037792-001A,SAMP	37	1000	Unknown		10/08/2019 13:34	Finished	SAMP,0.05>10mL
47	N037794-001A,SAMP	38	1000	Unknown		10/08/2019 13:44	Finished	SAMP,0.05>10mL
48	CCV-4,CCV1,1,	39	1000	Unknown		10/08/2019 13:53	Finished	CCV @10ppb, IWST-190702A
49	CCB-4,CCB,1,	40	1000	Unknown		10/08/2019 14:03	Finished	CCB R190830A
50	N037798-001AMS,MS	41	1000	Unknown		10/08/2019 14:19	Finished	MS (1ppb), IWST-190702B,2>1
51	N037798-002A,SAMP	42	1000	Unknown		10/08/2019 14:30	Finished	SAMP,1>10mL
52	N037798-002AMS,MS	43	1000	Unknown		10/08/2019 14:39	Finished	MS (5ppb), IWST-190702B,1>1
53	N037798-001A,SAMP	44	1000	Unknown		10/08/2019 14:49	Finished	SAMP,2>10mL
54	N037794-001A,SAMP	45	1000	Unknown		10/08/2019 14:58	Finished	SAMP,0.05>10mL
55	N037794-001AMS,MS	46	1000	Unknown		10/08/2019 15:08	Finished	MS (5ppb), IWST-190702B,0.0
56	N037736-001A,SAMP	1	1000	Unknown		10/08/2019 15:38	Finished	SAMP, 10mL
57	N037736-001AMS,MS	2	1000	Unknown		10/08/2019 15:49	Finished	MS (1ppb), IWST-190702B,10
58	N037736-002A,SAMP	3	1000	Unknown		10/08/2019 15:58	Finished	SAMP, 10mL
59	N037736-002AMS,MS	4	1000	Unknown		10/08/2019 16:08	Finished	MS (1ppb), IWST-190702B,10
60	CCV-5,CCV,1,	5	1000	Unknown		10/08/2019 16:17	Finished	CCV @5ppb, IWST-190702A

61	CCB-5,CCB,1,	6	1000	Unknown		10/08/2019 16:27	Finished	CCB R190830A
62	N037736-003A,SAMF	7	1000	Unknown		10/08/2019 16:36	Finished	SAMP, 10mL
63	N037736-003AMS,MS	8	1000	Unknown		10/08/2019 16:45	Finished	MS (1ppb), IWST-190702B,10
64	N037736-004A,SAMF	9	1000	Unknown		10/08/2019 16:55	Finished	SAMP, 10mL
65	N037736-004AMS,MS	10	1000	Unknown		10/08/2019 17:04	Finished	MS (1ppb), IWST-190702B,10
66	N037736-005A,SAMF	11	1000	Unknown		10/08/2019 17:14	Finished	SAMP, 10mL
67	N037736-005AMS,MS	12	1000	Unknown		10/08/2019 17:23	Finished	MS (1ppb), IWST-190702B,10
68	N037736-006A,SAMF	13	1000	Unknown		10/08/2019 17:33	Finished	SAMP, 10mL
69	N037736-006AMS,MS	14	1000	Unknown		10/08/2019 17:42	Finished	MS (1ppb), IWST-190702B,10
70	N037736-007A,SAMF	15	1000	Unknown		10/08/2019 17:52	Finished	
71	N037736-007AMS,MS	16	1000	Unknown		10/08/2019 18:01	Finished	
72	CCV-6,CCV1,1,	17	1000	Unknown		10/08/2019 18:11	Finished	CCV @10ppb, IWST-190702A
73	CCB-6,CCB,1,	18	1000	Unknown		10/08/2019 18:20	Finished	CCB R190830A
74	N037736-008A,SAMF	1	1000	Unknown		10/08/2019 18:35	Finished	SAMP, 10mL
75	N037736-008AMS,MS	2	1000	Unknown		10/08/2019 18:45	Finished	MS (1ppb), IWST-190702B,10
76	MB-H2O,MBLK,1,	3	1000	Unknown		10/08/2019 18:55	Finished	MB R190830A
77	LCS-H2O,LCS,1,	4	1000	Unknown		10/08/2019 19:04	Finished	LCS @5ppb, IWST-190702B
78	N037801-001A,SAMF	5	1000	Unknown		10/08/2019 19:14	Finished	SAMP, 10mL
79	N037801-001AMS,MS	6	1000	Unknown		10/08/2019 19:23	Finished	MS (1ppb), IWST-190702B,10
80	N037801-002A,SAMF	7	1000	Unknown		10/08/2019 19:33	Finished	SAMP, 10mL
81	N037801-002AMS,MS	8	1000	Unknown		10/08/2019 19:42	Finished	MS (1ppb), IWST-190702B,10
82	N037801-003A,SAMF	9	1000	Unknown		10/08/2019 19:52	Finished	SAMP, 10mL
83	N037801-003AMS,MS	10	1000	Unknown		10/08/2019 20:01	Finished	MS (1ppb), IWST-190702B,10
84	CCV-7,CCV,1,	11	1000	Unknown		10/08/2019 20:11	Finished	CCV @5ppb, IWST-190702A
85	CCB-7,CCB,1,	12	1000	Unknown		10/08/2019 20:20	Finished	CCB R190830A
86	N037801-004A,SAMF	13	1000	Unknown		10/08/2019 20:29	Finished	SAMP, 10mL
87	N037801-004AMS,MS	14	1000	Unknown		10/08/2019 20:39	Finished	MS (1ppb), IWST-190702B,10
88	N037801-005A,SAMF	15	1000	Unknown		10/08/2019 20:48	Finished	SAMP, 10mL
89	N037801-005AMS,MS	16	1000	Unknown		10/08/2019 20:58	Finished	MS (1ppb), IWST-190702B,10
90	N037801-006A,SAMF	17	1000	Unknown		10/08/2019 21:07	Finished	SAMP, 10mL
91	N037801-006AMS,MS	18	1000	Unknown		10/08/2019 21:17	Finished	MS (1ppb), IWST-190702B,10
92	N037801-007A,SAMF	19	1000	Unknown		10/08/2019 21:26	Finished	SAMP, 10mL
93	N037801-007AMS,MS	20	1000	Unknown		10/08/2019 21:36	Finished	MS (1ppb), IWST-190702B,10
94	N037801-004AMSD,M	21	1000	Unknown		10/08/2019 21:45	Finished	MSD (1ppb), IWST-190702B,1
95	N037801-001ADUP,D	22	1000	Unknown		10/08/2019 21:55	Finished	DUP, 10mL
96	CCV-8,CCV1,1,	23	1000	Unknown		10/08/2019 22:04	Finished	CCV @10ppb, IWST-190702A
97	CCB-8,CCB,1,	24	1000	Unknown		10/08/2019 22:14	Finished	CCB R190830A
98	N037756-001A,SAMF	25	1000	Unknown		10/08/2019 22:23	Finished	SAMP, 0.5>10mL
99	N037756-001AMS,MS	26	1000	Unknown		10/08/2019 22:32	Finished	MS (5ppb), IWST-190702B,0.5
100	N037757-001A,SAMF	27	1000	Unknown		10/08/2019 22:42	Finished	SAMP, 10mL
101	N037757-001AMS,MS	28	1000	Unknown		10/08/2019 22:51	Finished	MS (1ppb), IWST-190702B,10
102	N037757-002A,SAMF	29	1000	Unknown		10/08/2019 23:01	Finished	SAMP, 0.2>10mL
103	N037757-002AMS,MS	30	1000	Unknown		10/08/2019 23:10	Finished	MS (5ppb), IWST-190702B,0.2
N037772-002B 104	~~N037772-001A,SAMF~~	31	1000	Unknown		10/08/2019 23:20	Finished	SAMP, 10mL
N037772-002BMS 105	~~N037772-001AMS,MS~~	32	1000	Unknown		10/08/2019 23:29	Finished	MS (1ppb), IWST-190702B,10
106	CCV-9,CCV,1,	33	1000	Unknown		10/08/2019 23:39	Finished	CCV @5ppb, IWST-190702A
107	CCB-9,CCB,1,	34	1000	Unknown		10/08/2019 23:48	Finished	CCB R190830A
108	BLANK	35	1000	Unknown		10/08/2019 23:58	Finished	BLANK
109	SHUTDOWN	36	1000	Unknown		10/09/2019 00:07	Finished	
110	Eluent: R191008C	37	1000	Unknown		n.a.	Finished	Eluent
111	PCR: R191007B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

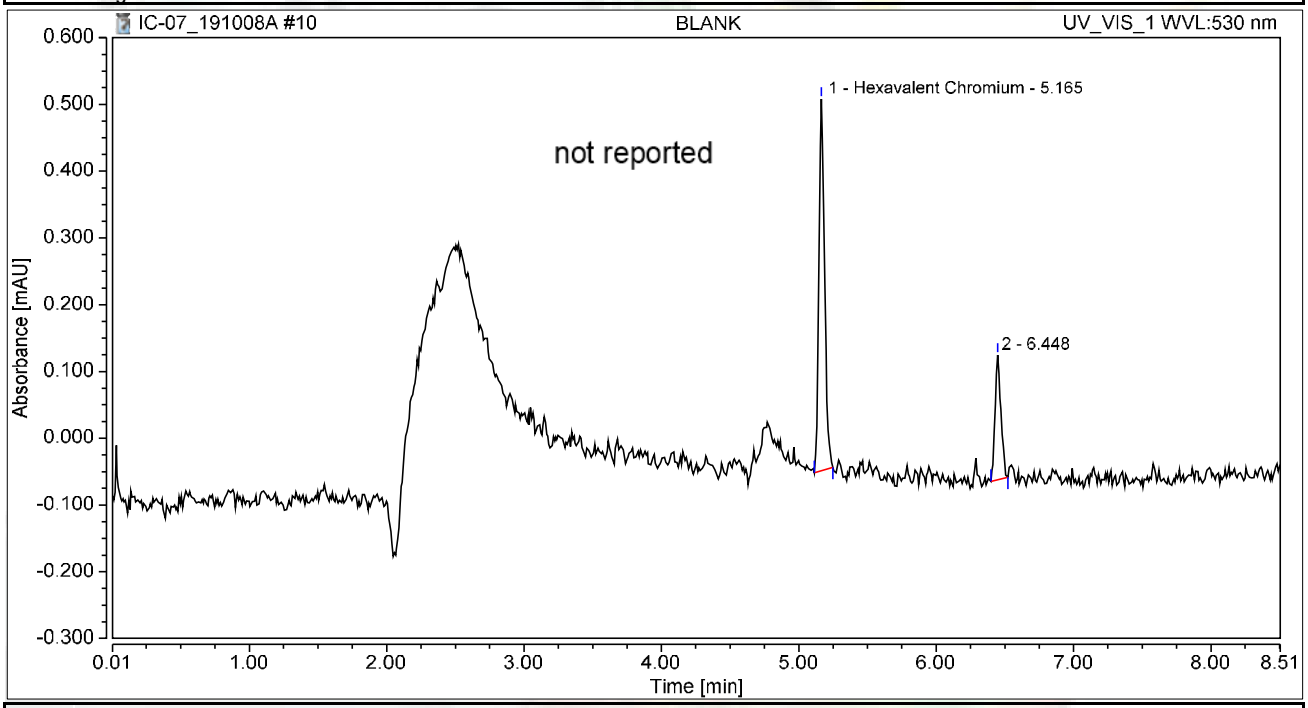
10/9/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 07:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

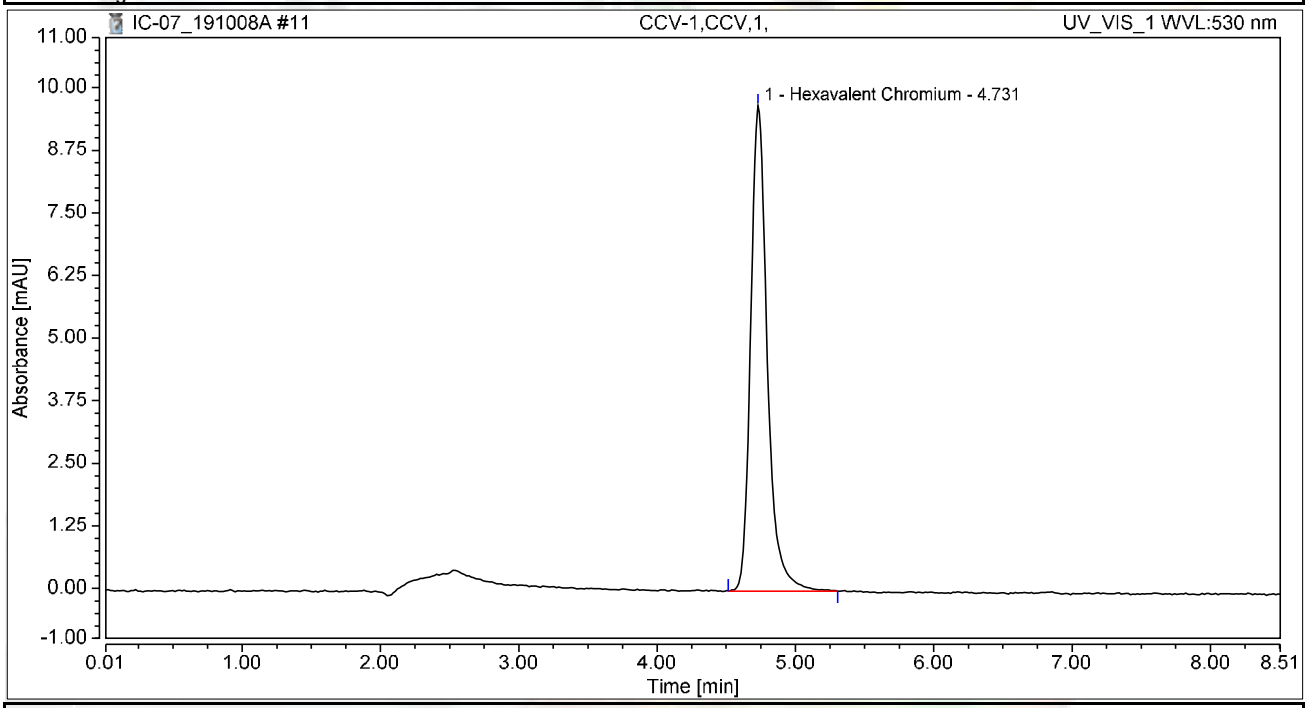
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	5.165	0.027	0.557	74.55	74.87	0.0998
2		6.448	0.009	0.187	25.45	25.13	n.a.
Total:			**0.036**	**0.744**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 07:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

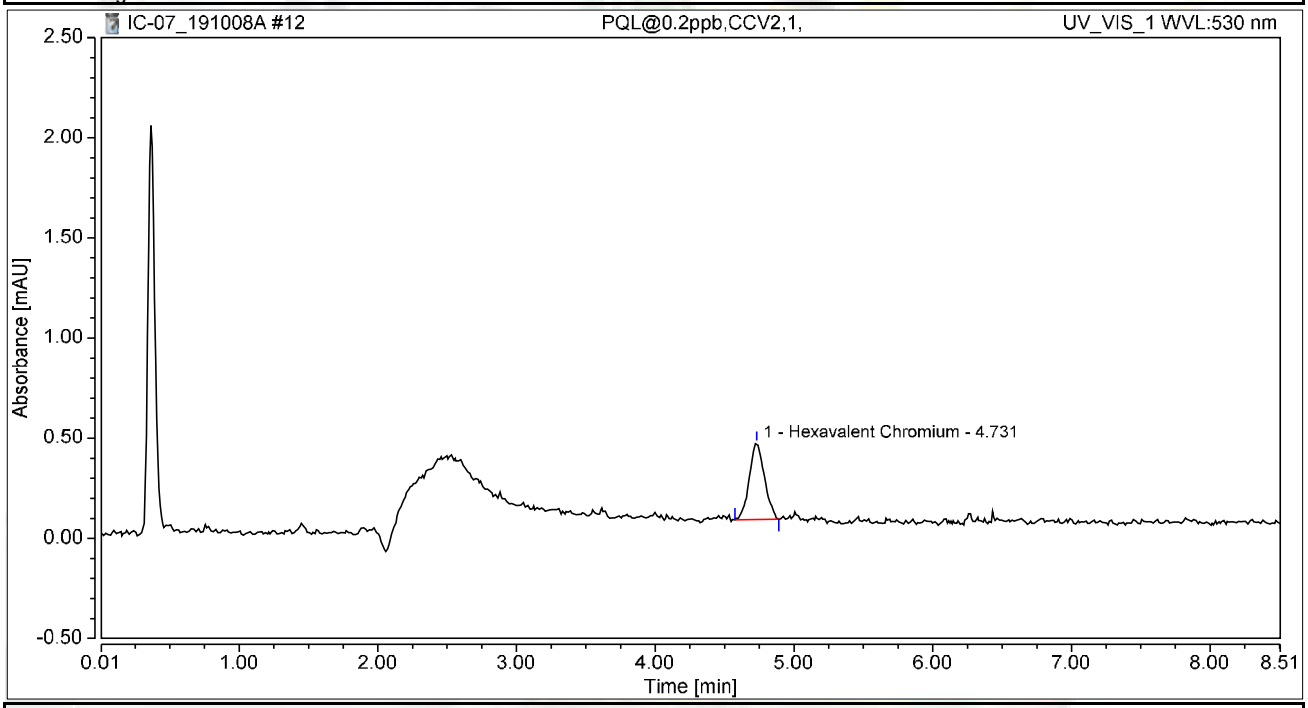
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.352	9.690	100.00	100.00	5.0245
Total:			**1.352**	**9.690**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 07:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

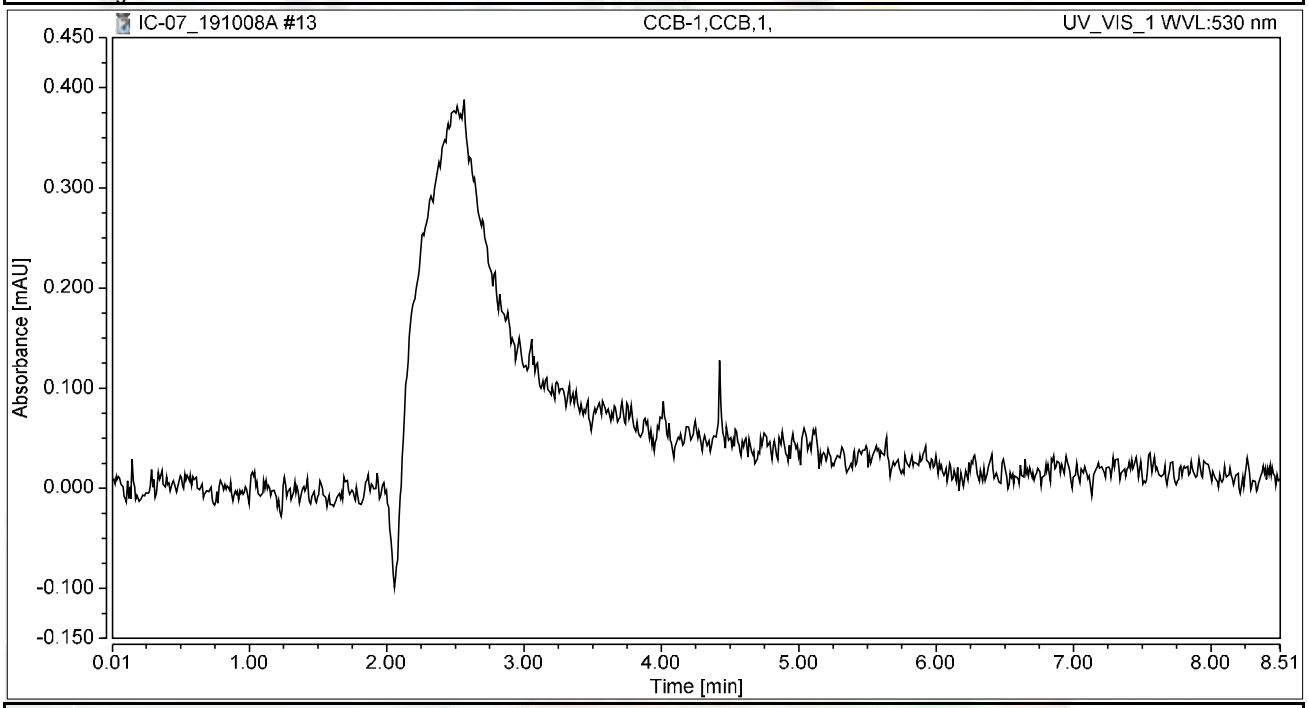
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.049	0.381	100.00	100.00	0.1809
Total:			**0.049**	**0.381**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

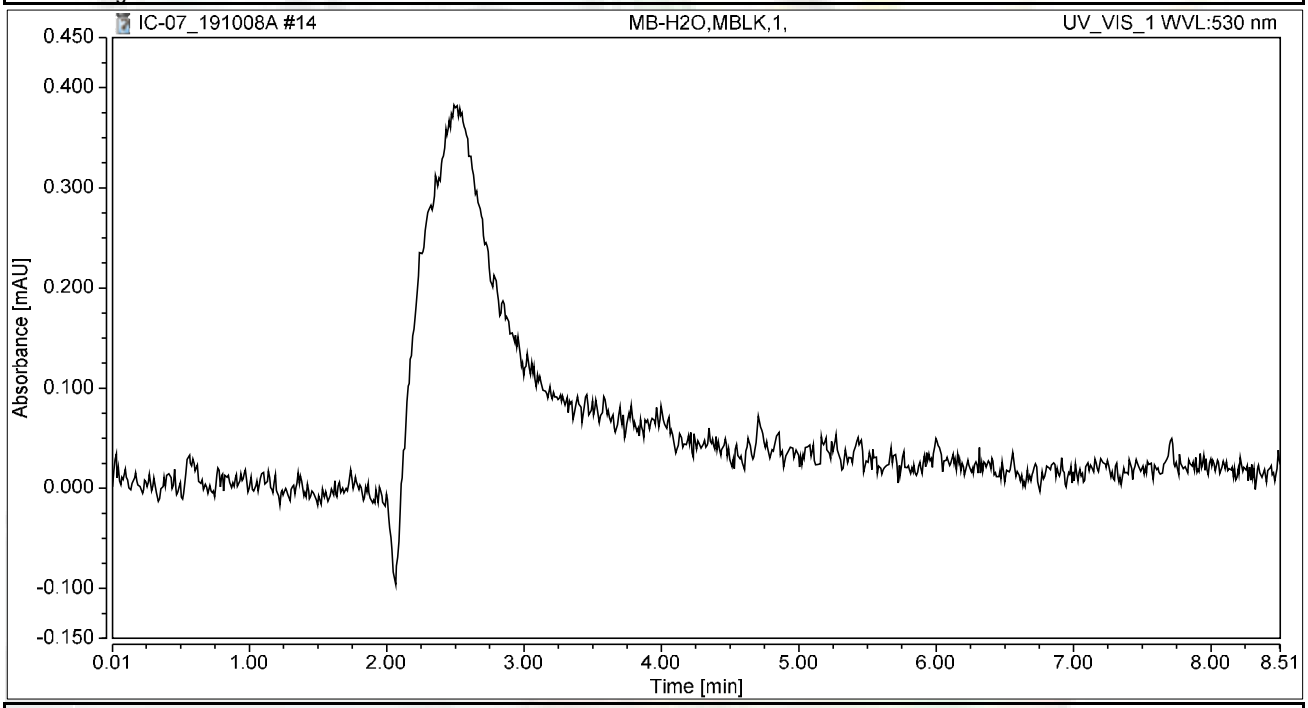
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

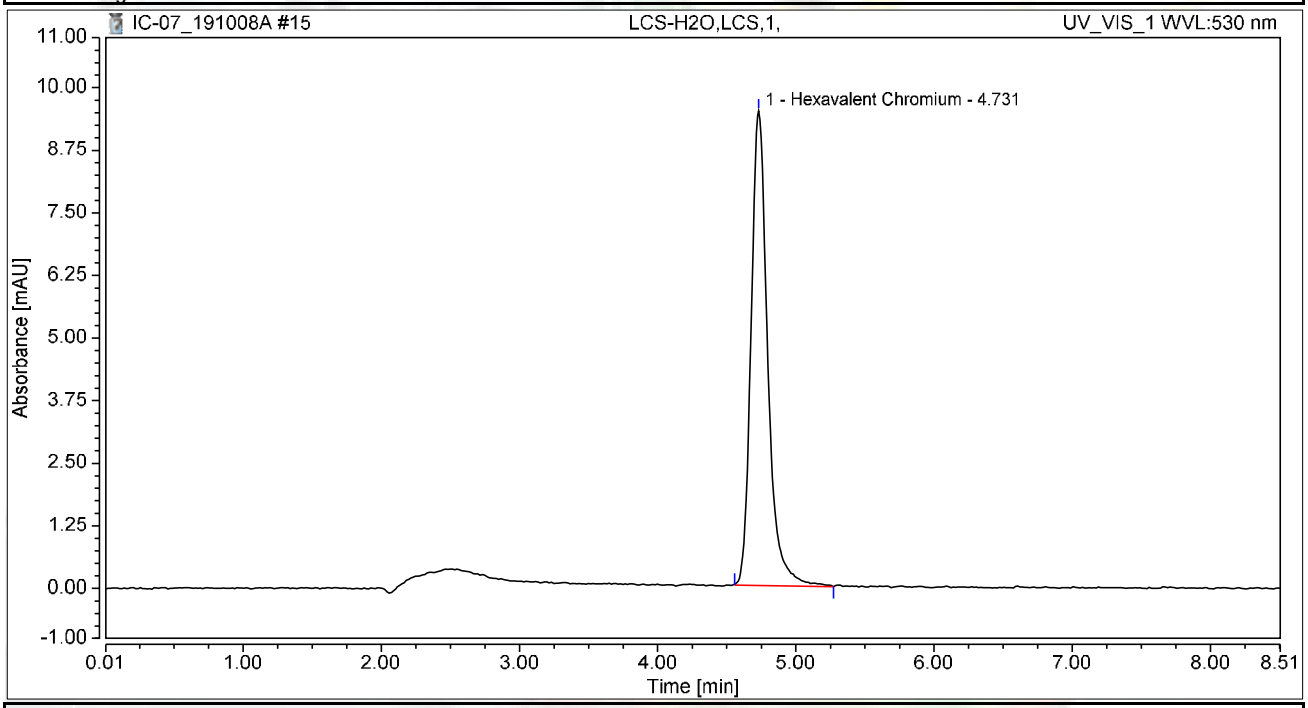
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

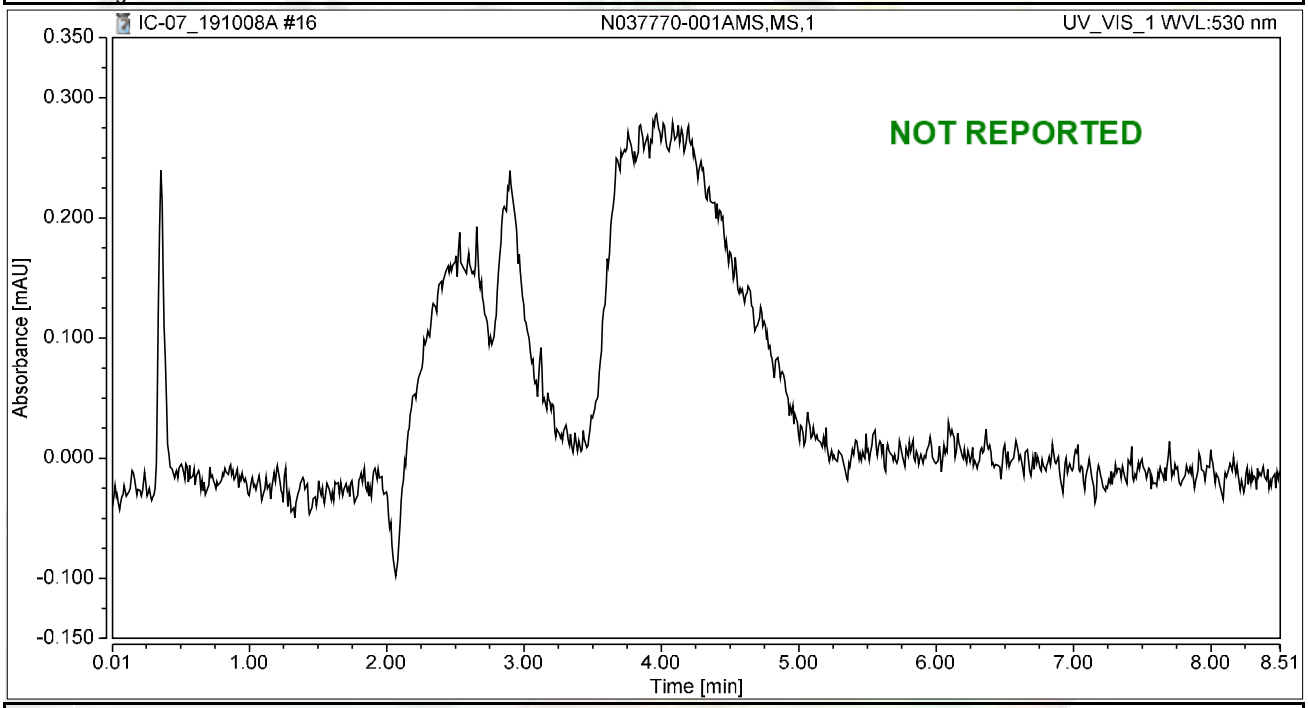
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.321	9.475	100.00	100.00	4.9074
Total:			**1.321**	**9.475**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

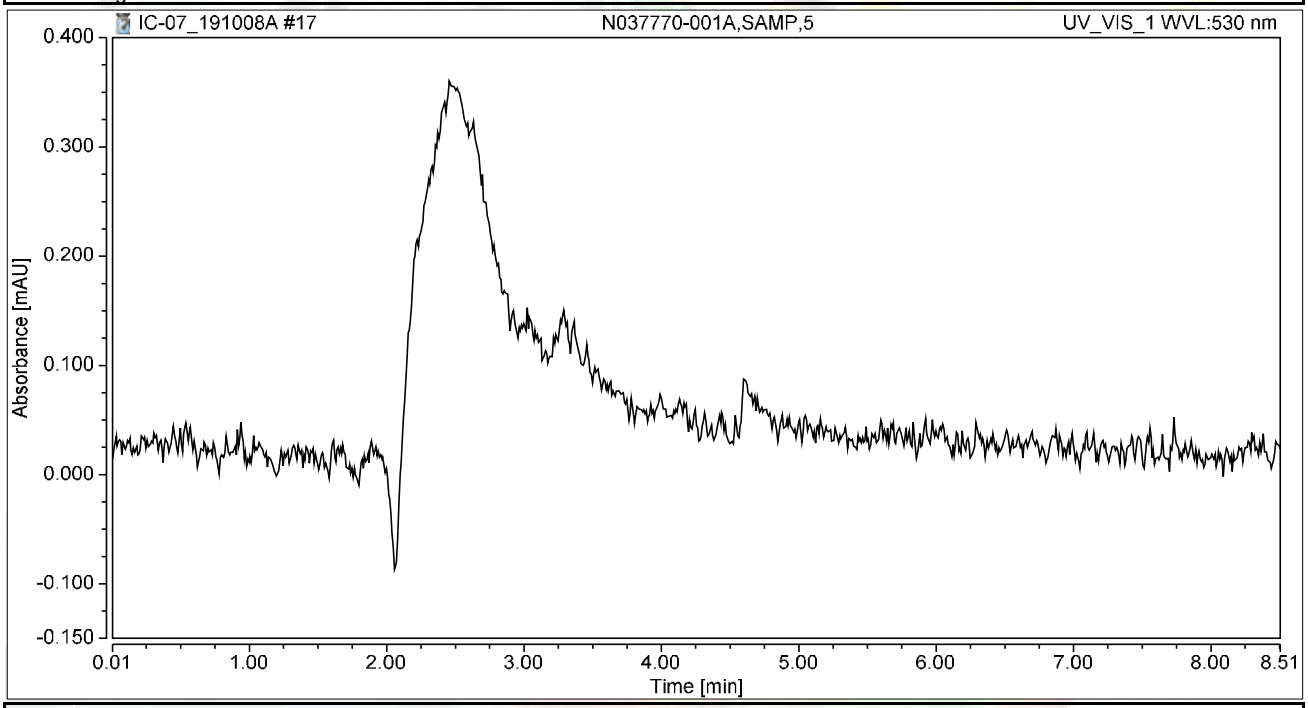
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 08:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

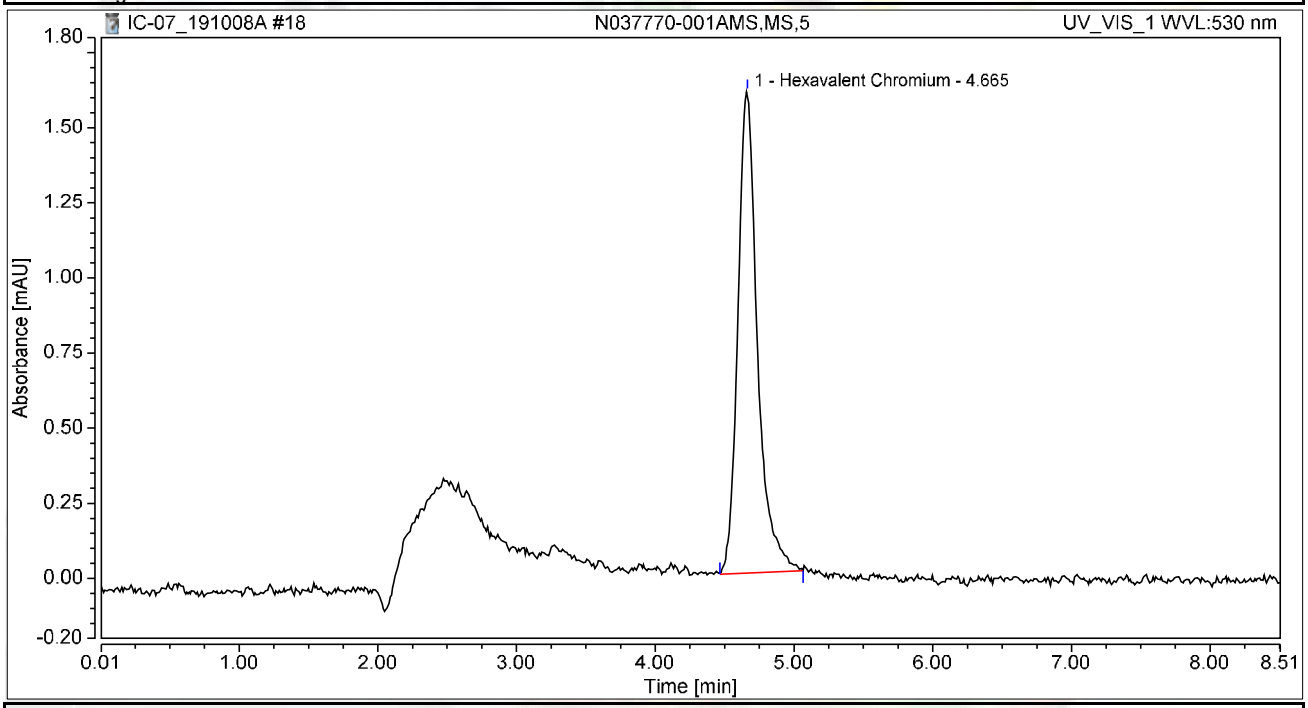
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

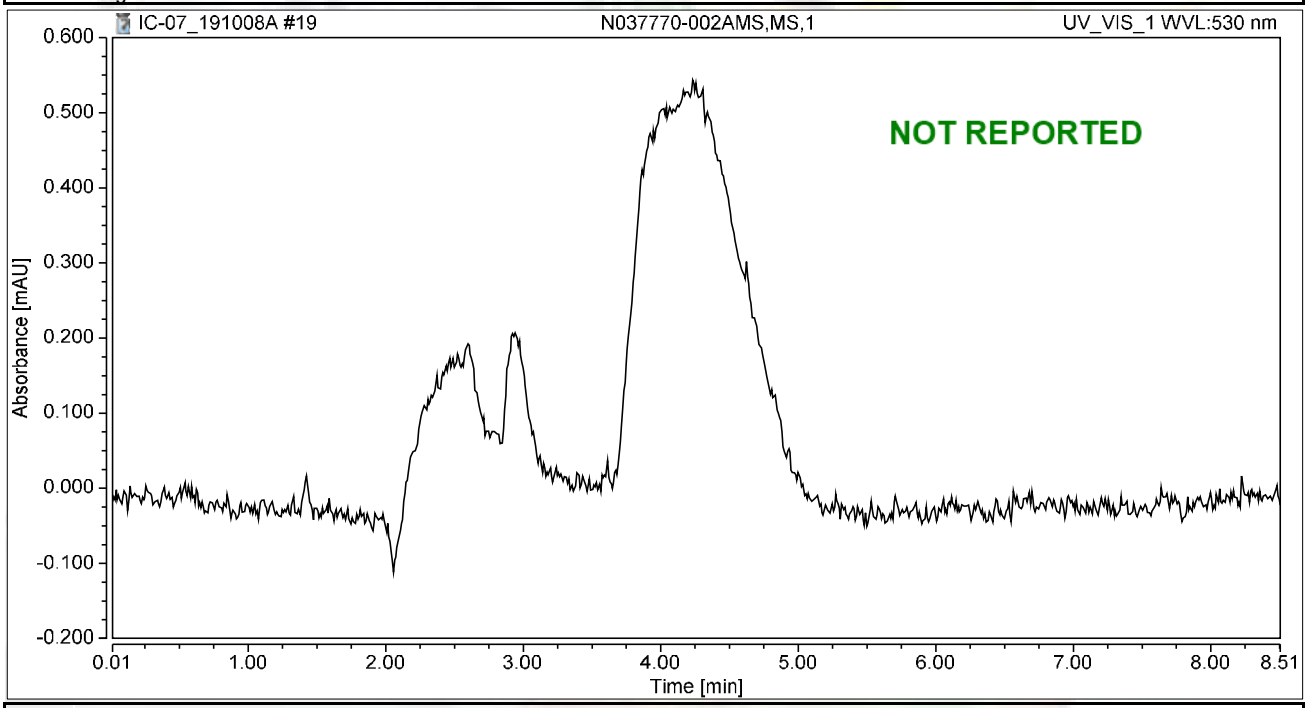
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.263	1.603	100.00	100.00	0.9762
Total:			**0.263**	**1.603**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

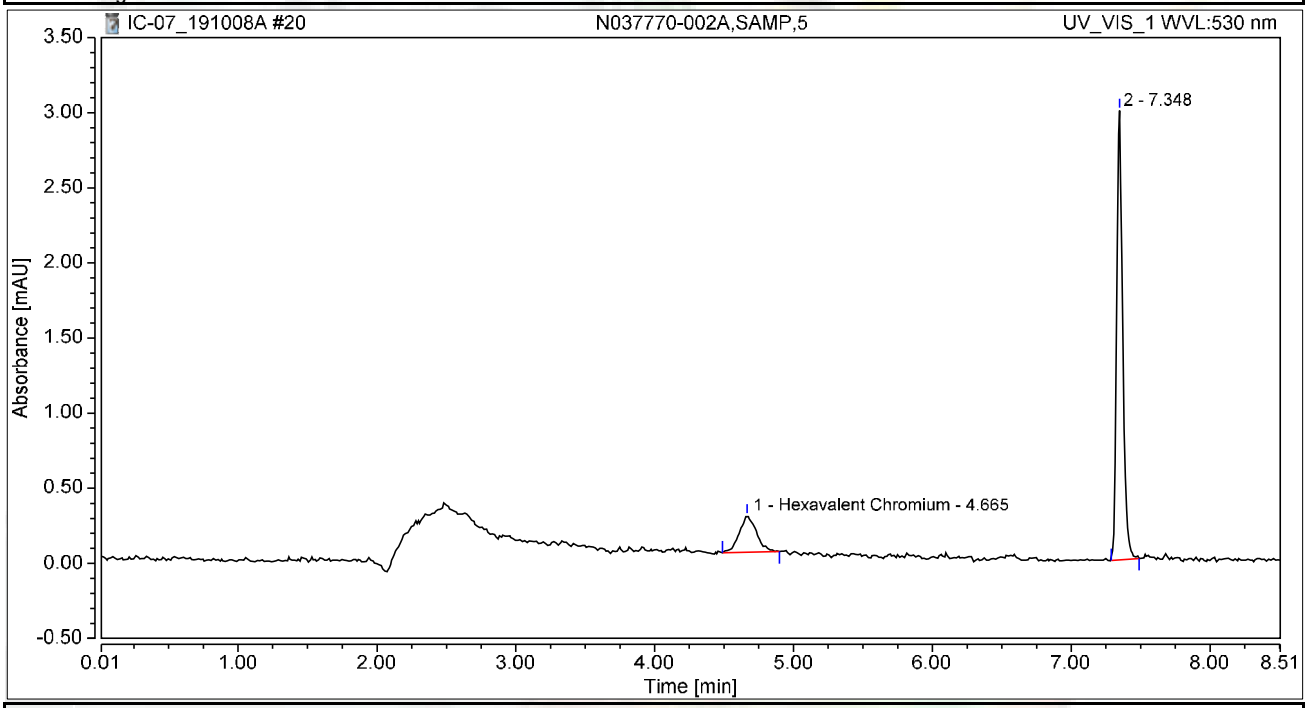
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-002A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

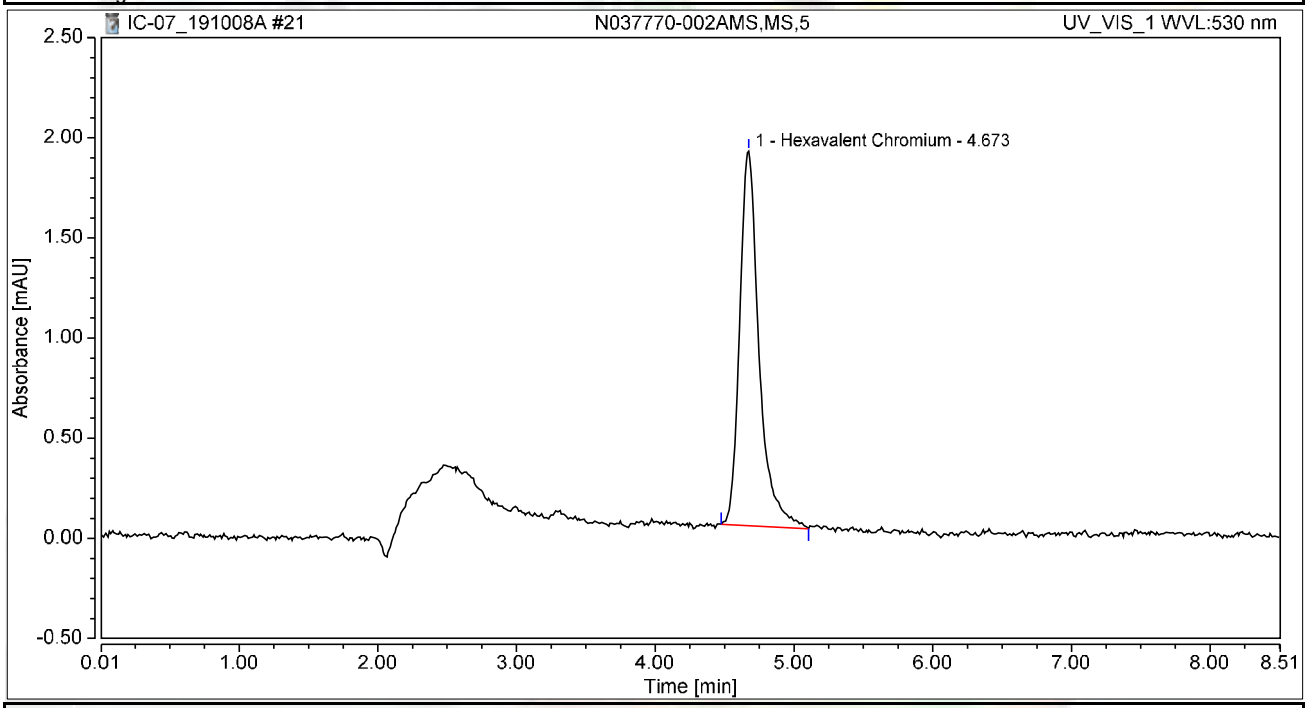
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.035	0.241	18.52	7.45	0.1295
2		7.348	0.153	2.990	81.48	92.55	n.a.
Total:			**0.188**	**3.231**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

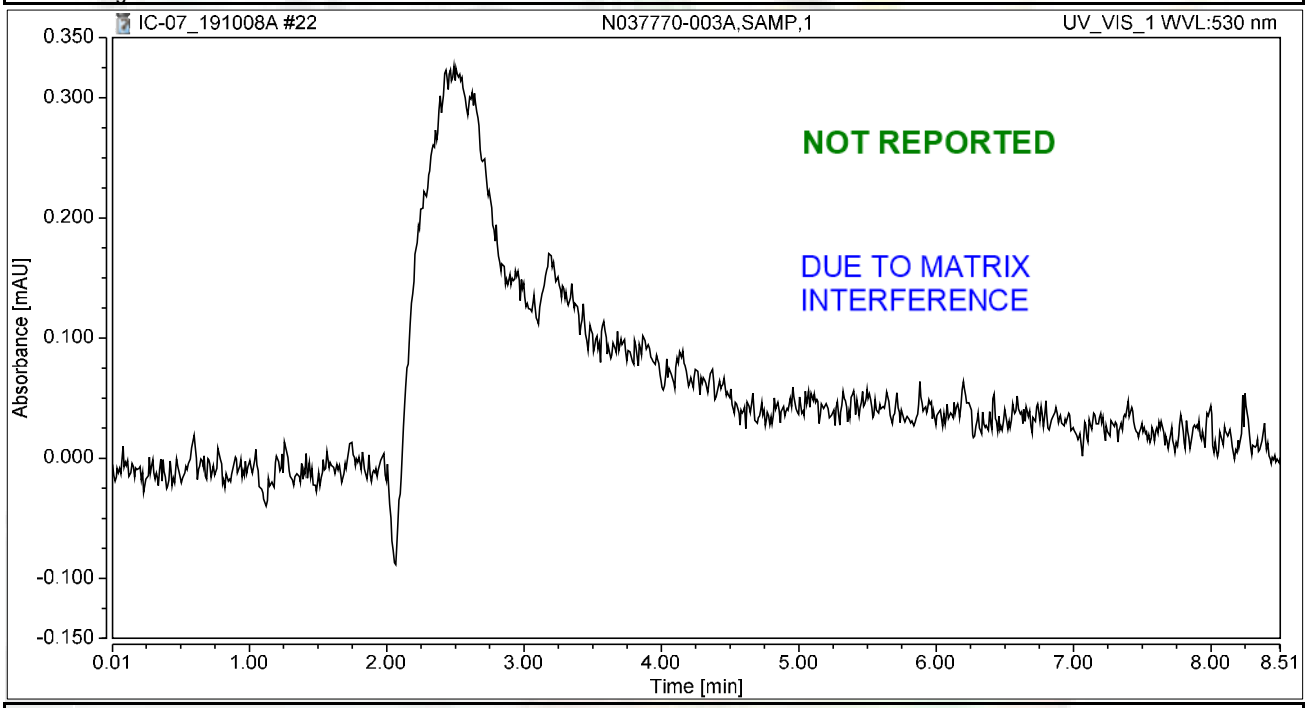
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.303	1.870	100.00	100.00	1.1245
Total:			**0.303**	**1.870**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

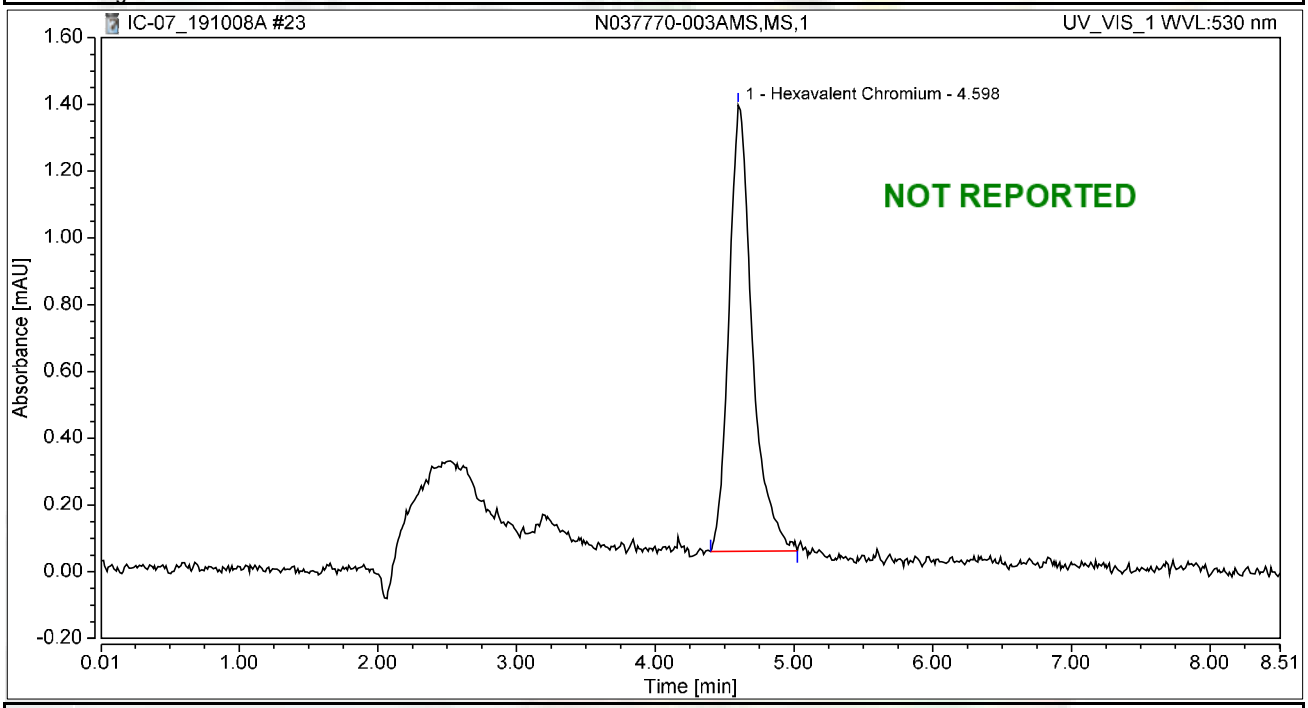
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

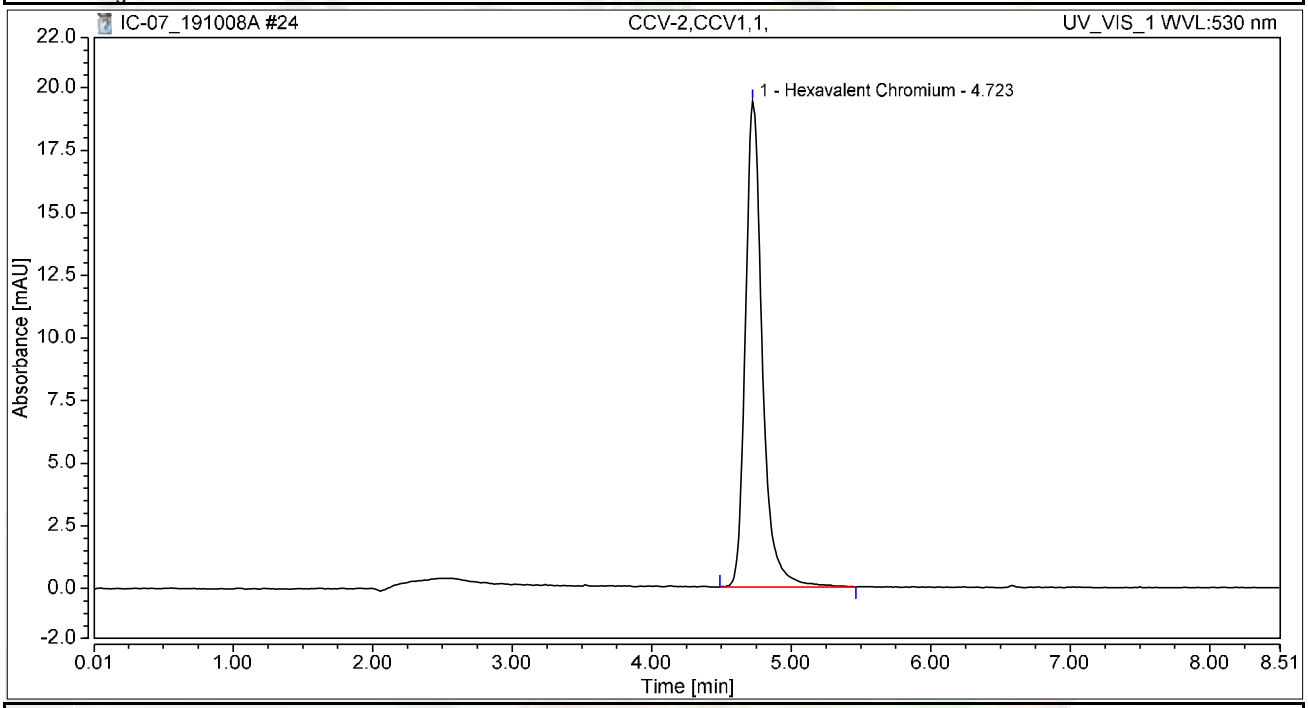
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.260	1.337	100.00	100.00	0.9678
Total:			**0.260**	**1.337**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

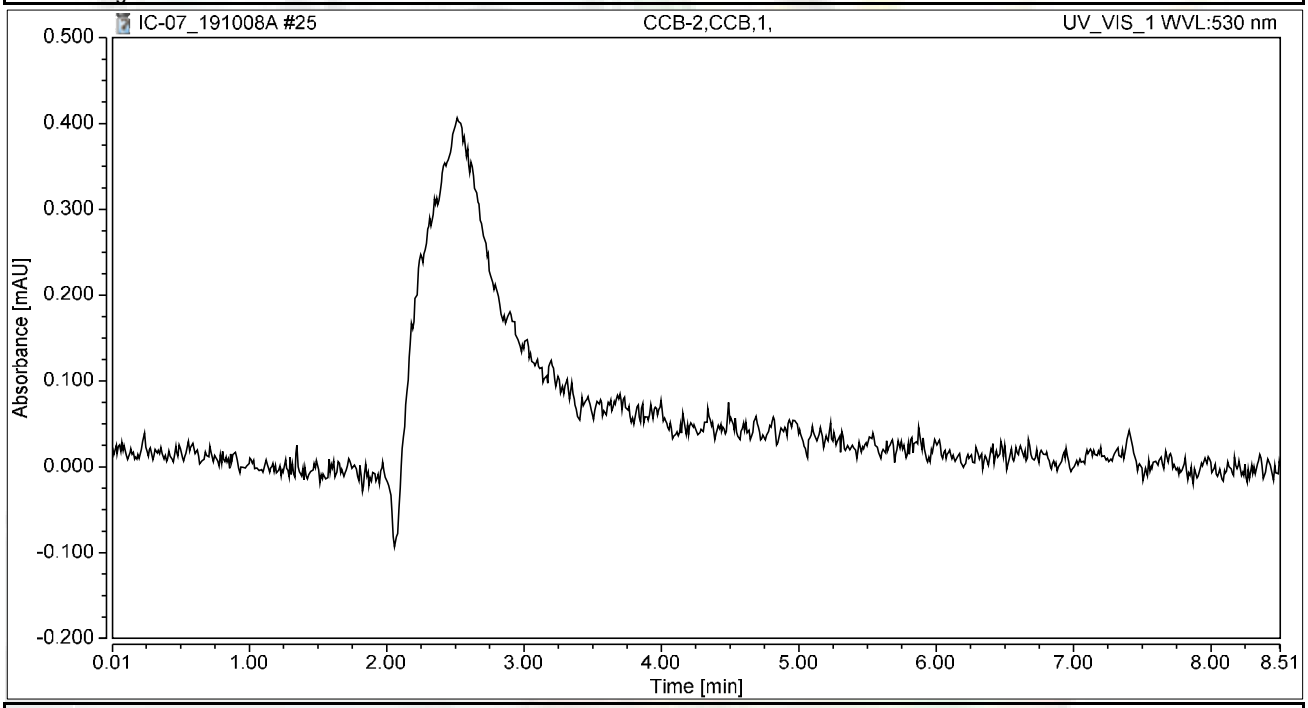
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.730	19.400	100.00	100.00	10.1436
Total:			**2.730**	**19.400**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

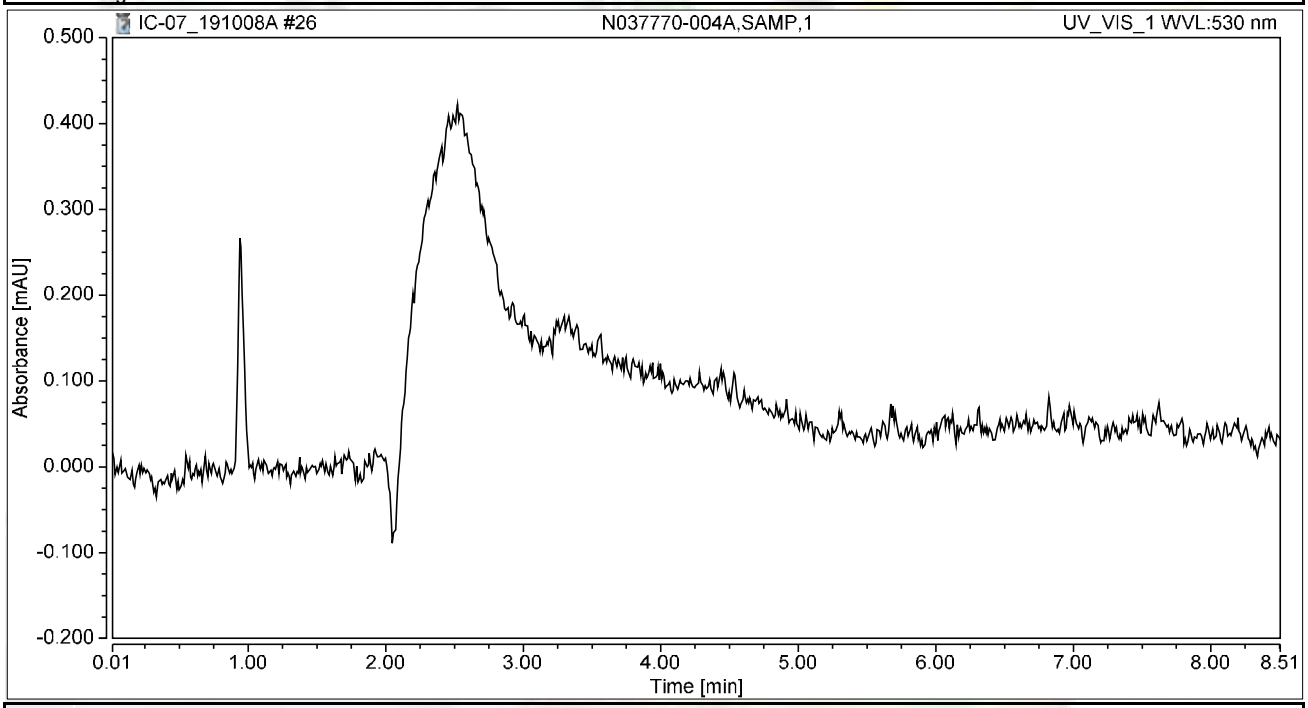
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

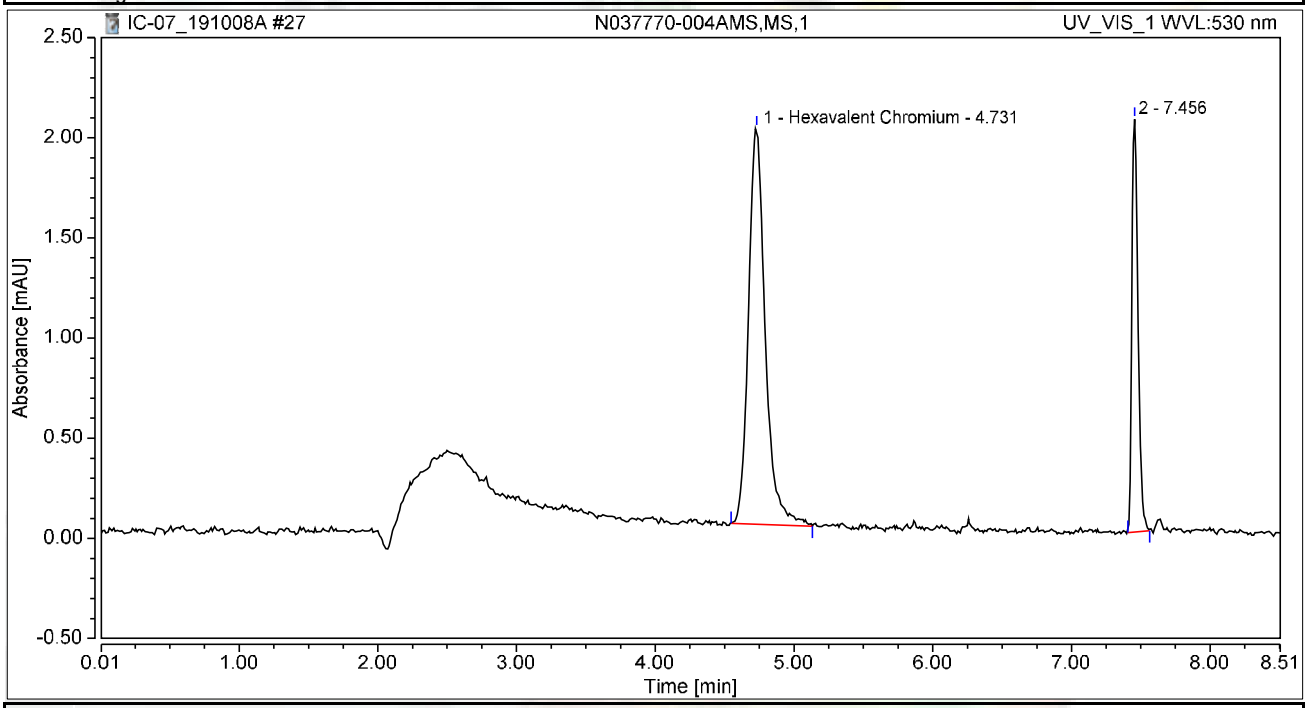
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

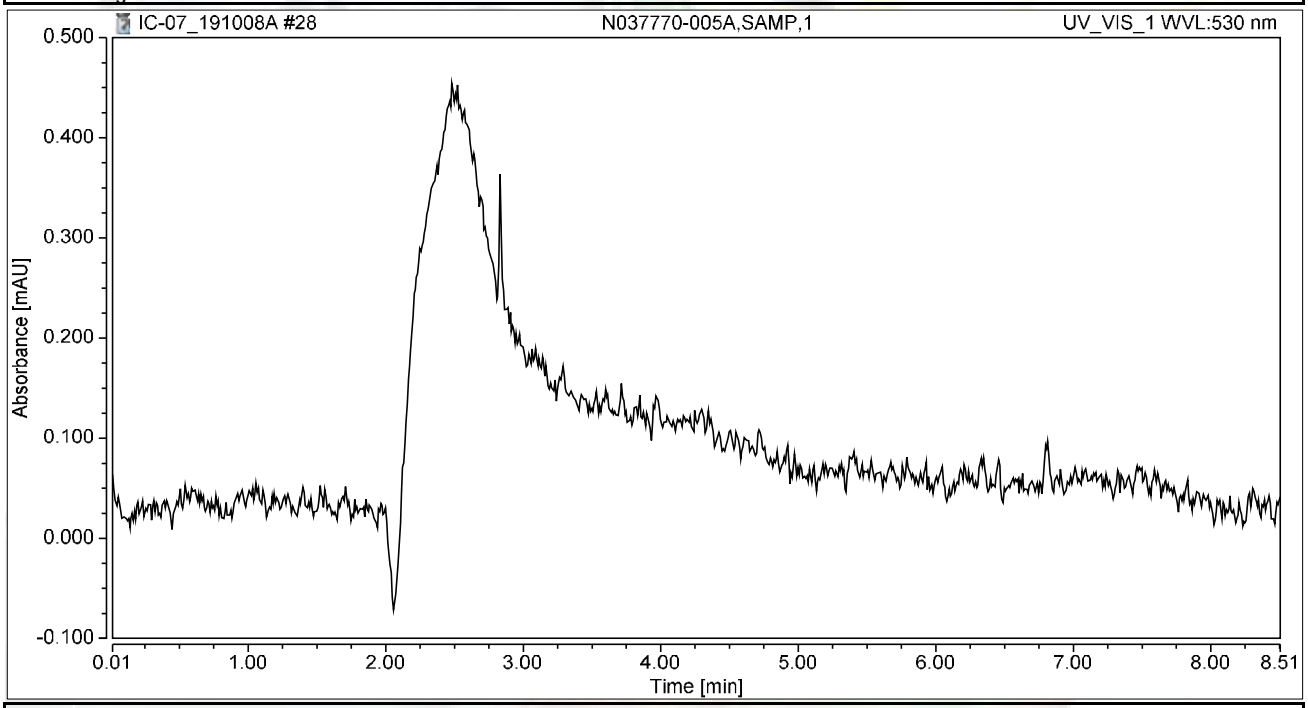
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.278	1.978	72.28	48.99	1.0316
2		7.456	0.106	2.060	27.72	51.01	n.a.
Total:			**0.384**	**4.039**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-005A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

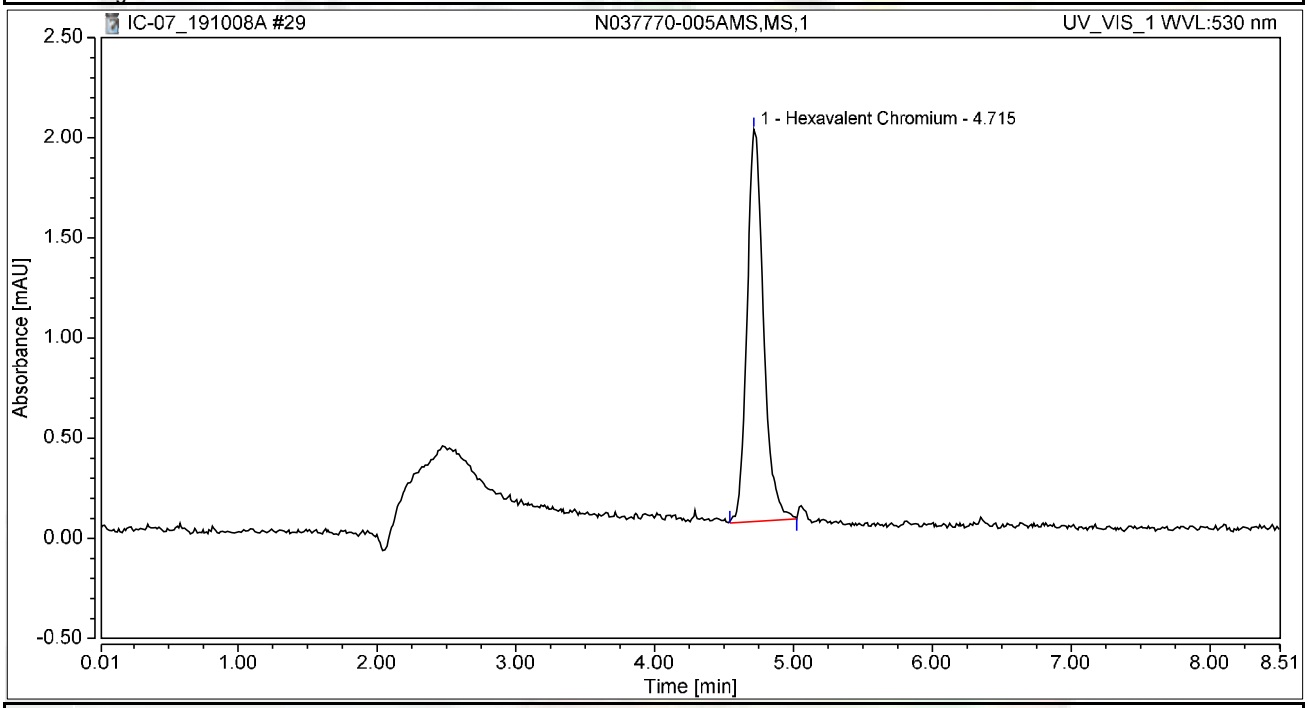
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

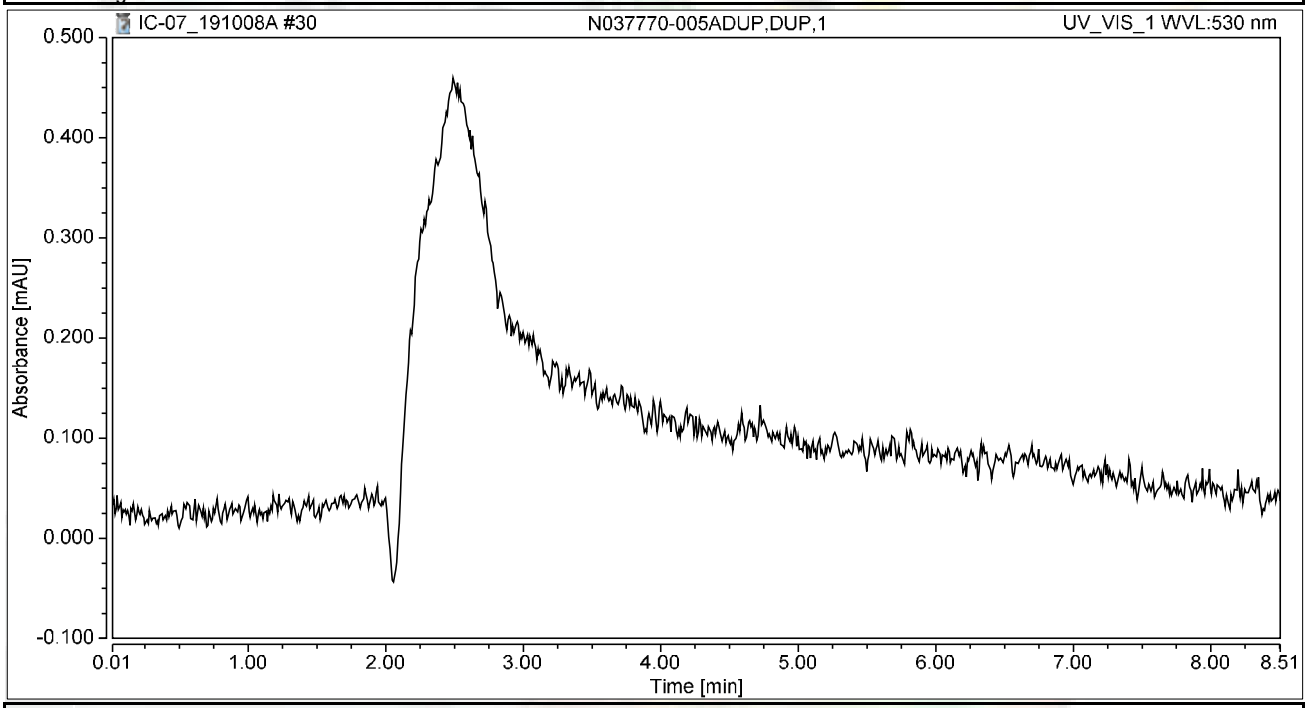
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.268	1.957	100.00	100.00	0.9974
Total:			**0.268**	**1.957**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-005ADUP,DUP,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

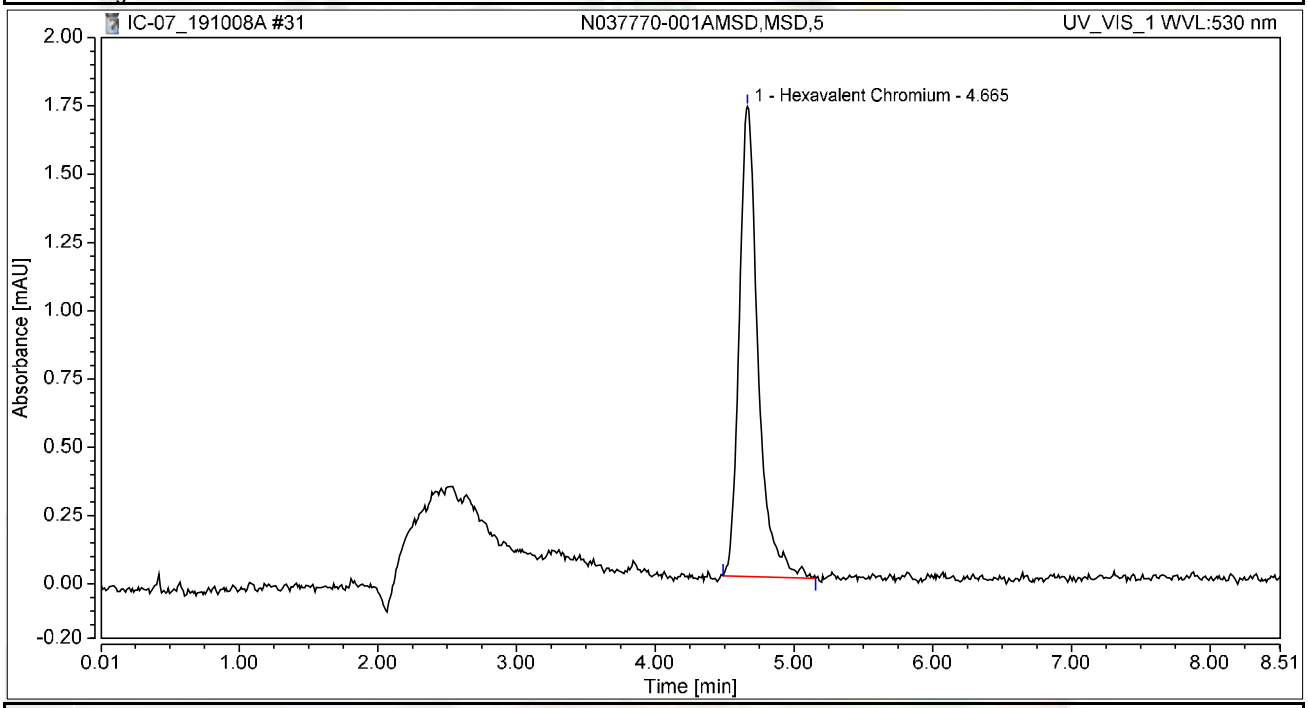
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-001AMSD,MSD,5**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

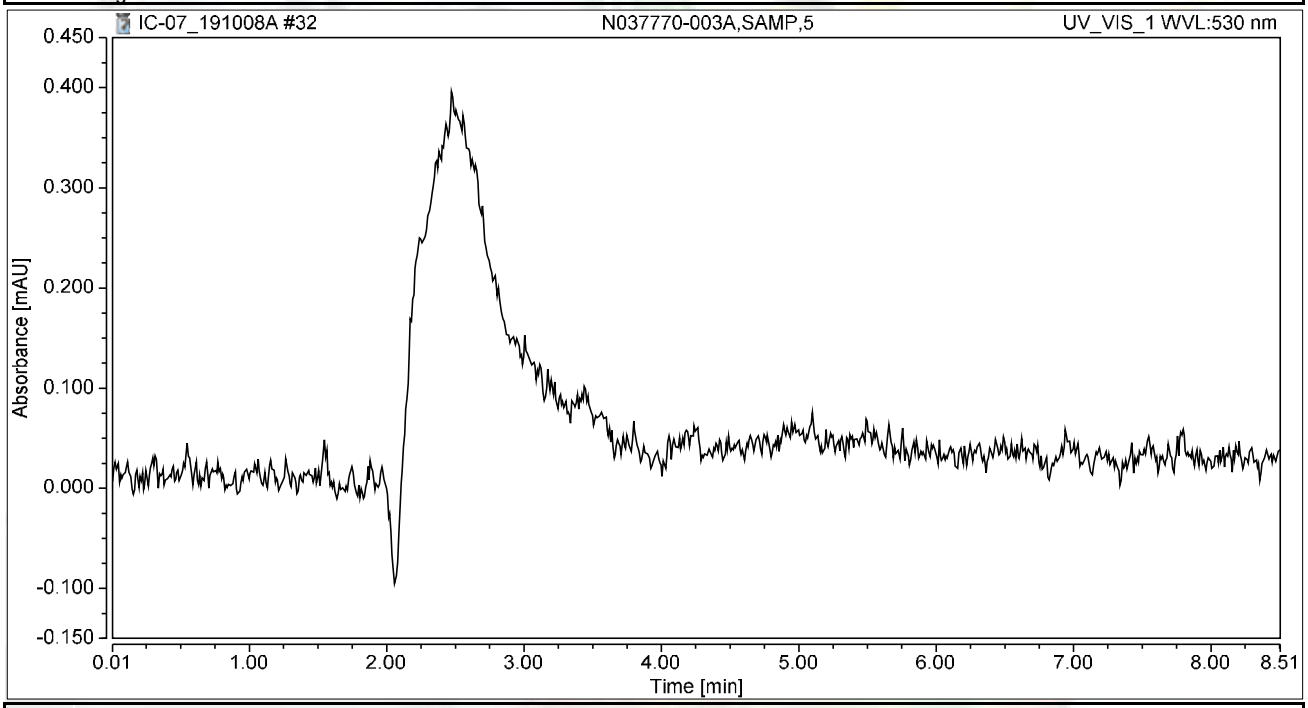
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.272	1.721	100.00	100.00	1.0090
Total:			**0.272**	**1.721**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

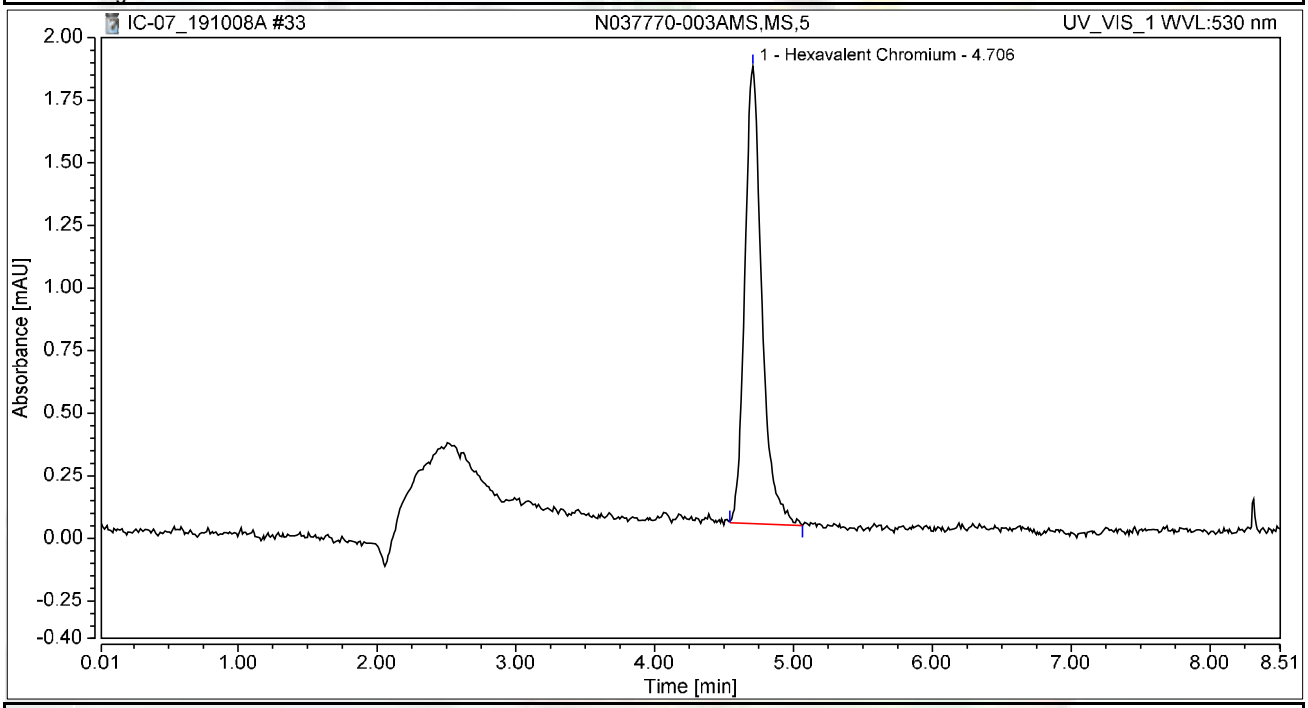
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037770-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

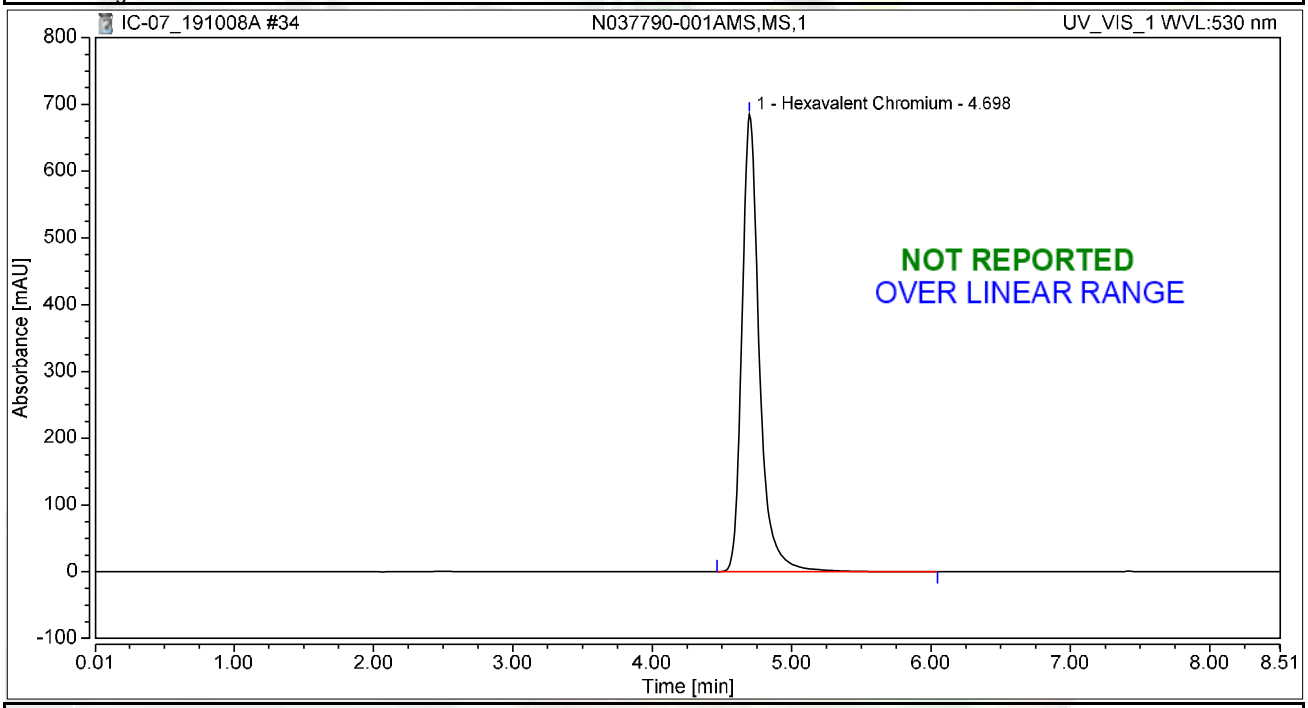
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.260	1.826	100.00	100.00	0.9660
Total:			**0.260**	**1.826**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

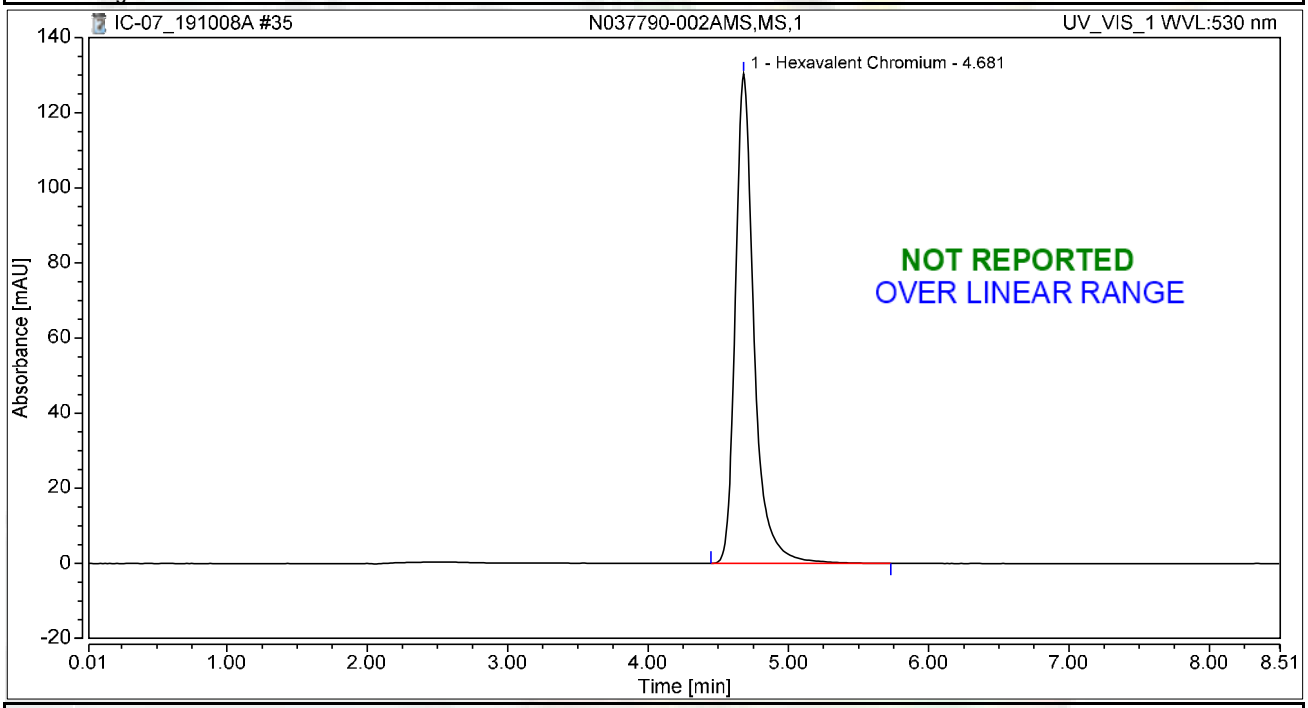
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	99.279	685.073	100.00	100.00	368.8350
Total:			**99.279**	**685.073**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

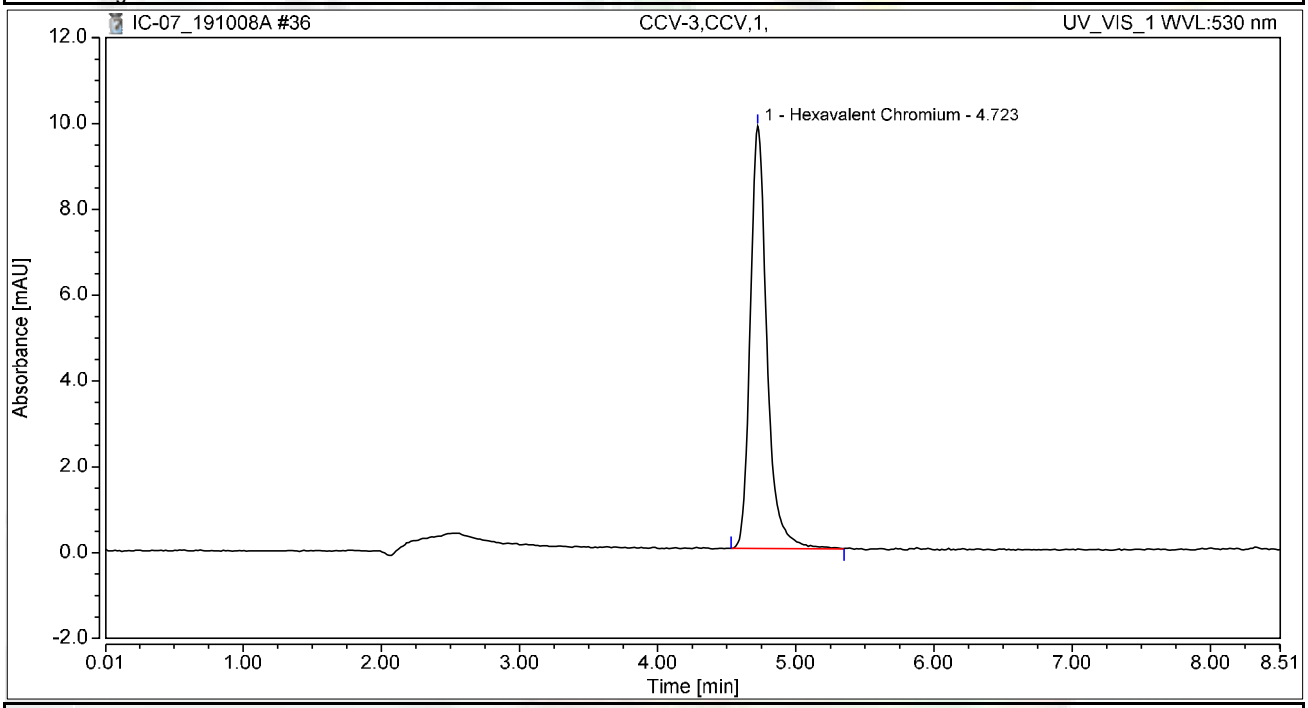
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	20.105	130.324	100.00	100.00	74.6919
Total:			**20.105**	**130.324**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

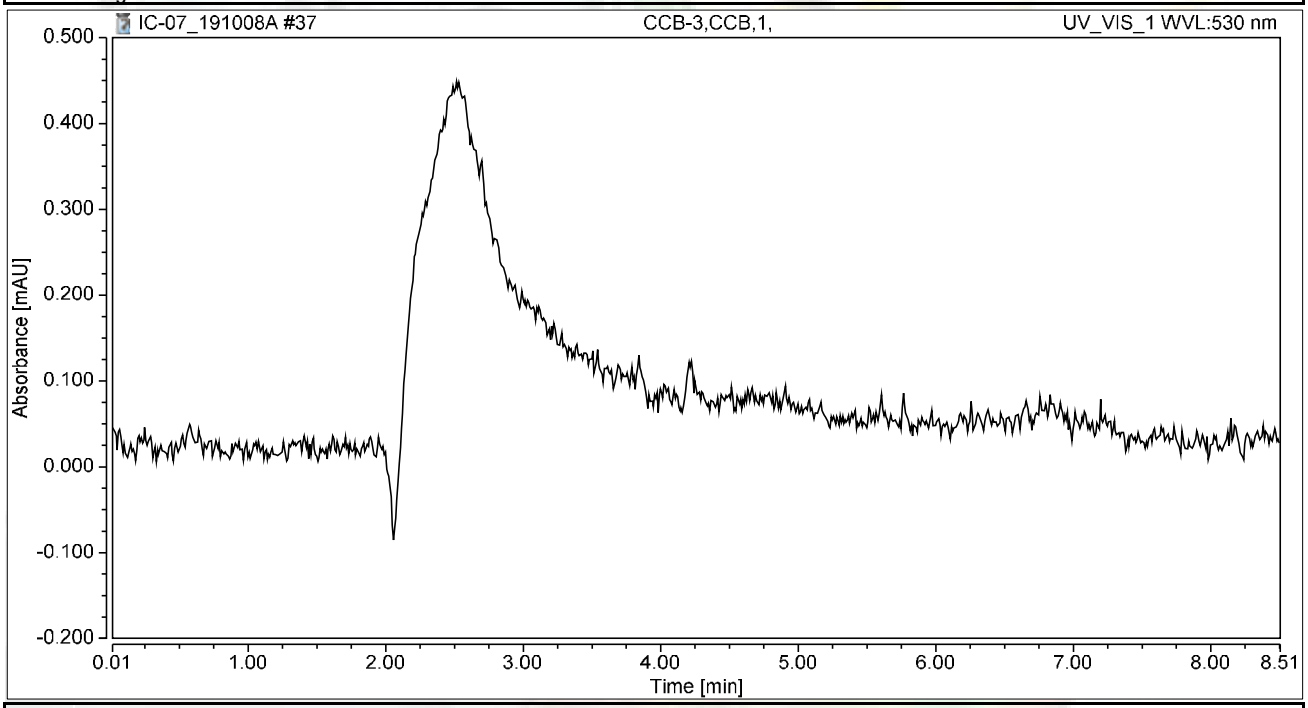
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.379	9.841	100.00	100.00	5.1219
Total:			**1.379**	**9.841**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

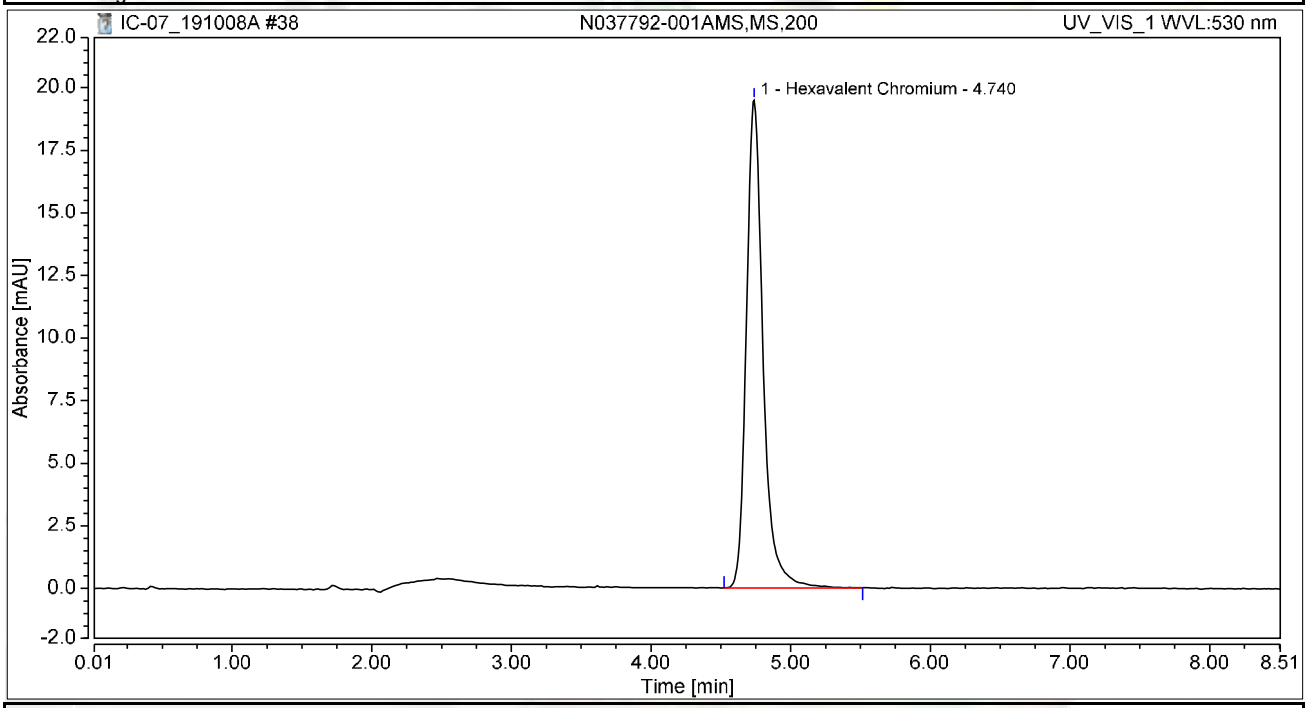
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037792-001AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

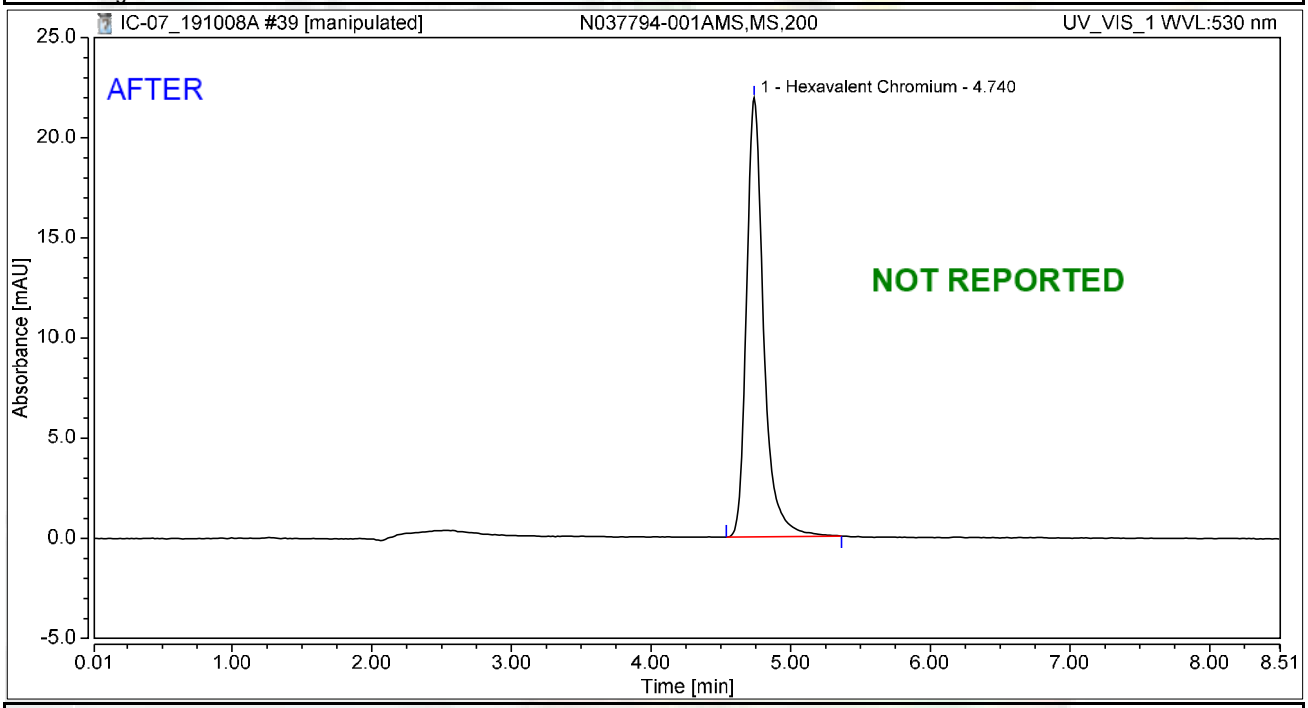
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.721	19.492	100.00	100.00	10.1080
Total:			**2.721**	**19.492**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

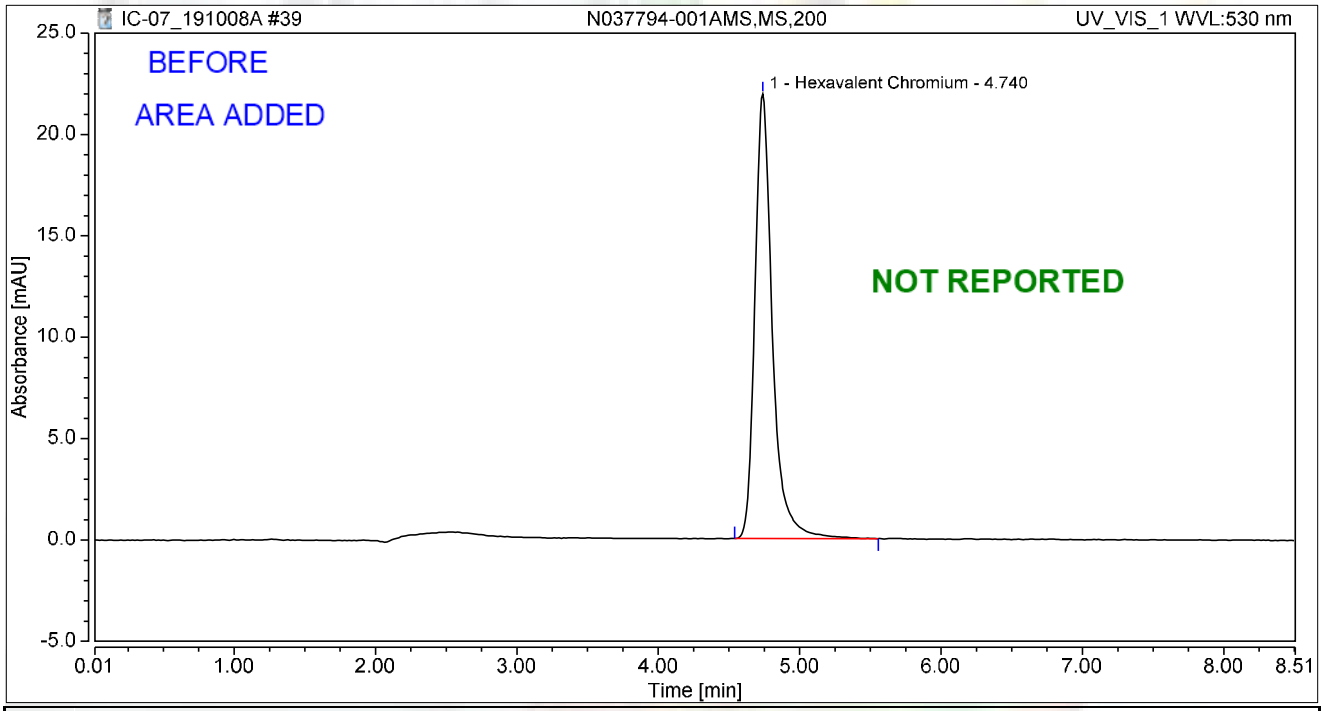
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.133	21.917	100.00	100.00	11.6398
Total:			**3.133**	**21.917**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

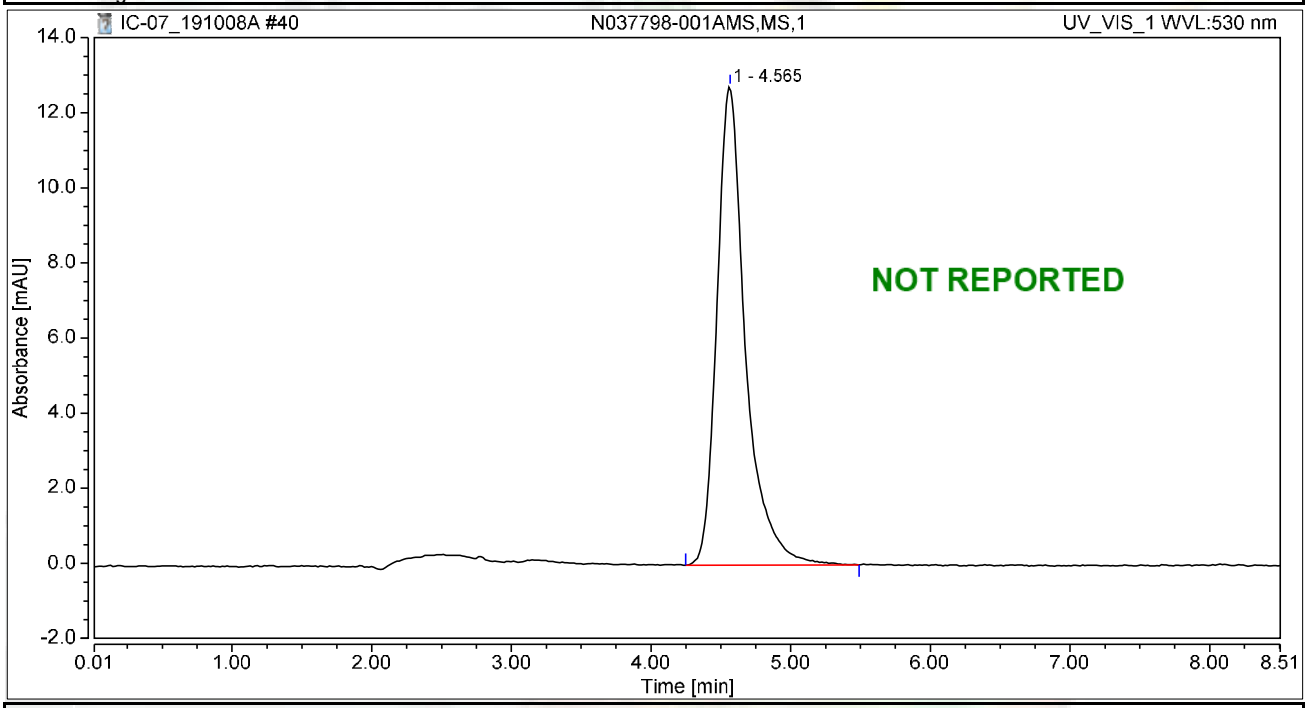
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.162	21.930	100.00	100.00	11.7473
Total:			**3.162**	**21.930**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

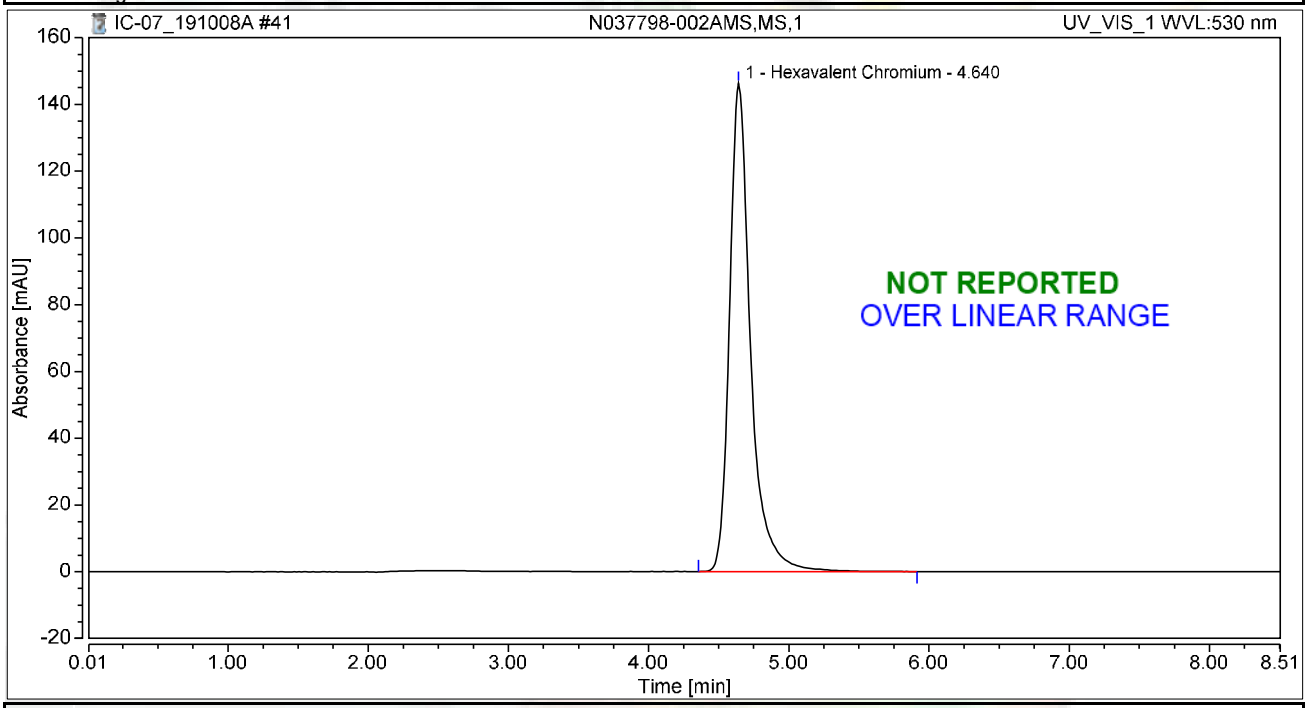
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.565	3.020	12.746	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**3.020**	**12.746**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

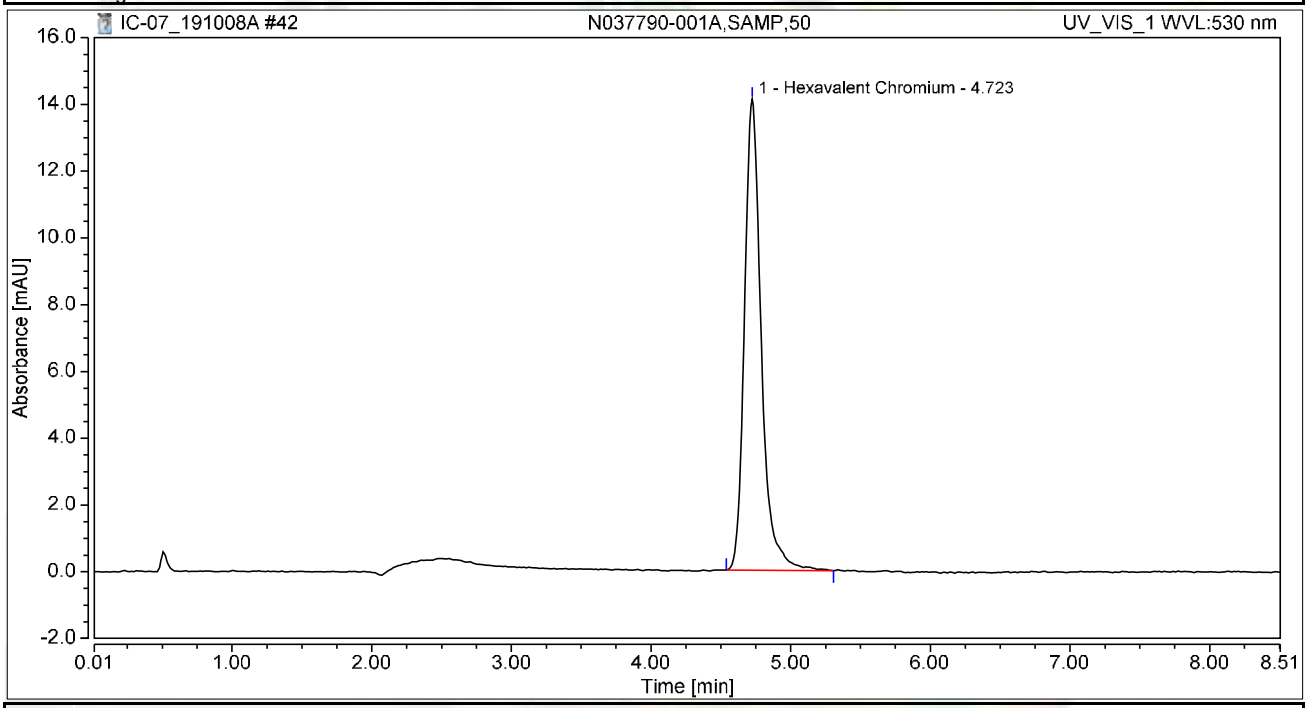
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.640	25.389	146.265	100.00	100.00	94.3246
Total:			**25.389**	**146.265**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-001A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 12:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

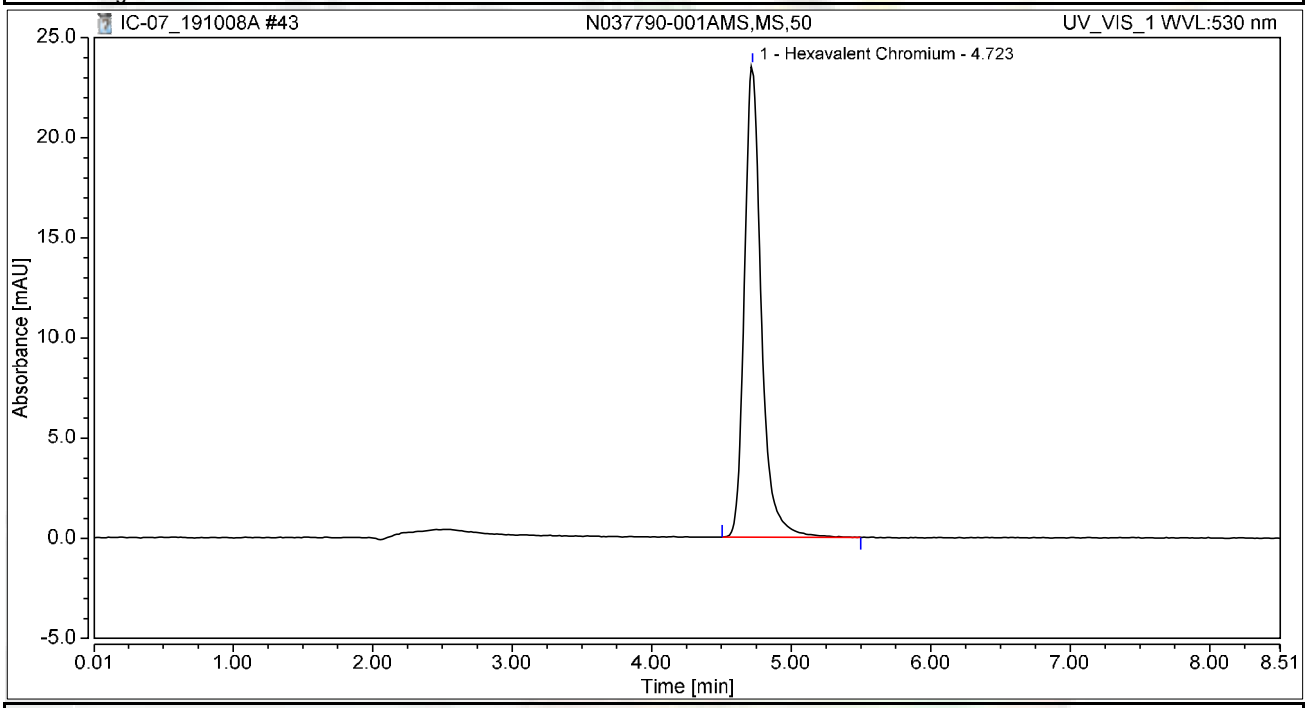
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.973	14.118	100.00	100.00	7.3284
Total:			**1.973**	**14.118**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-001AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

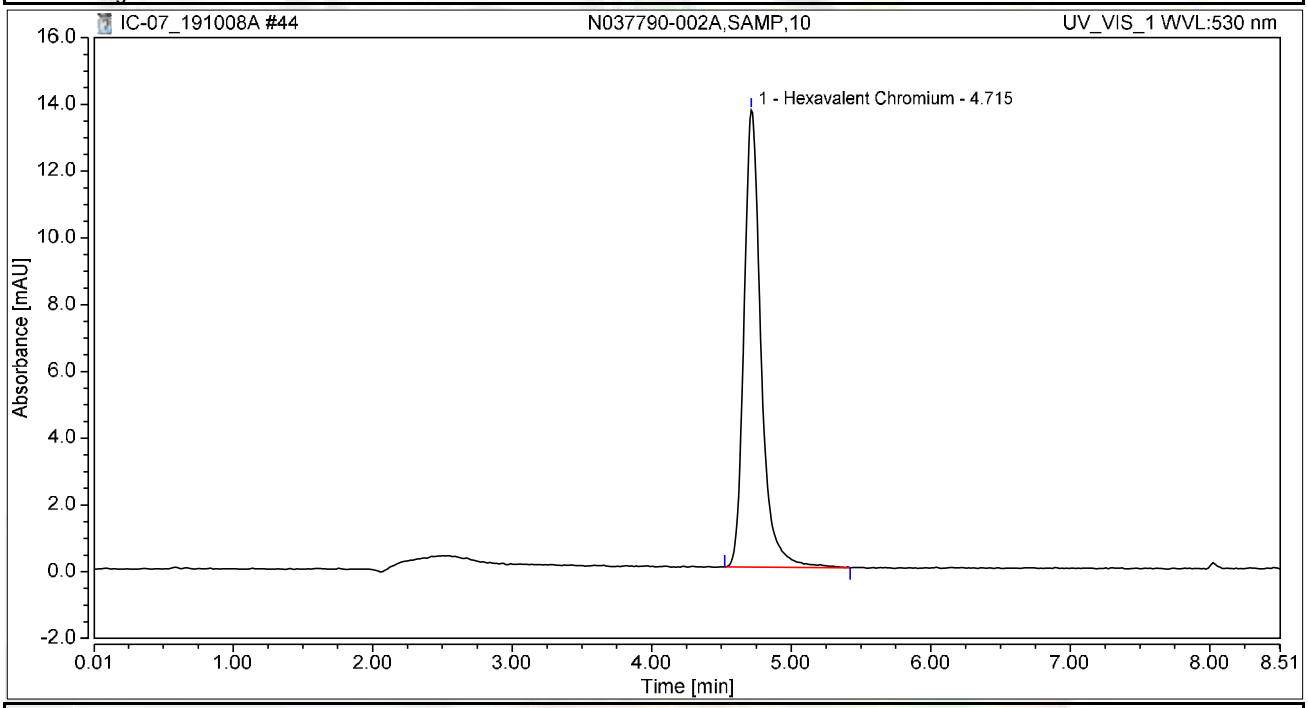
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	3.308	23.560	100.00	100.00	12.2912
Total:			**3.308**	**23.560**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

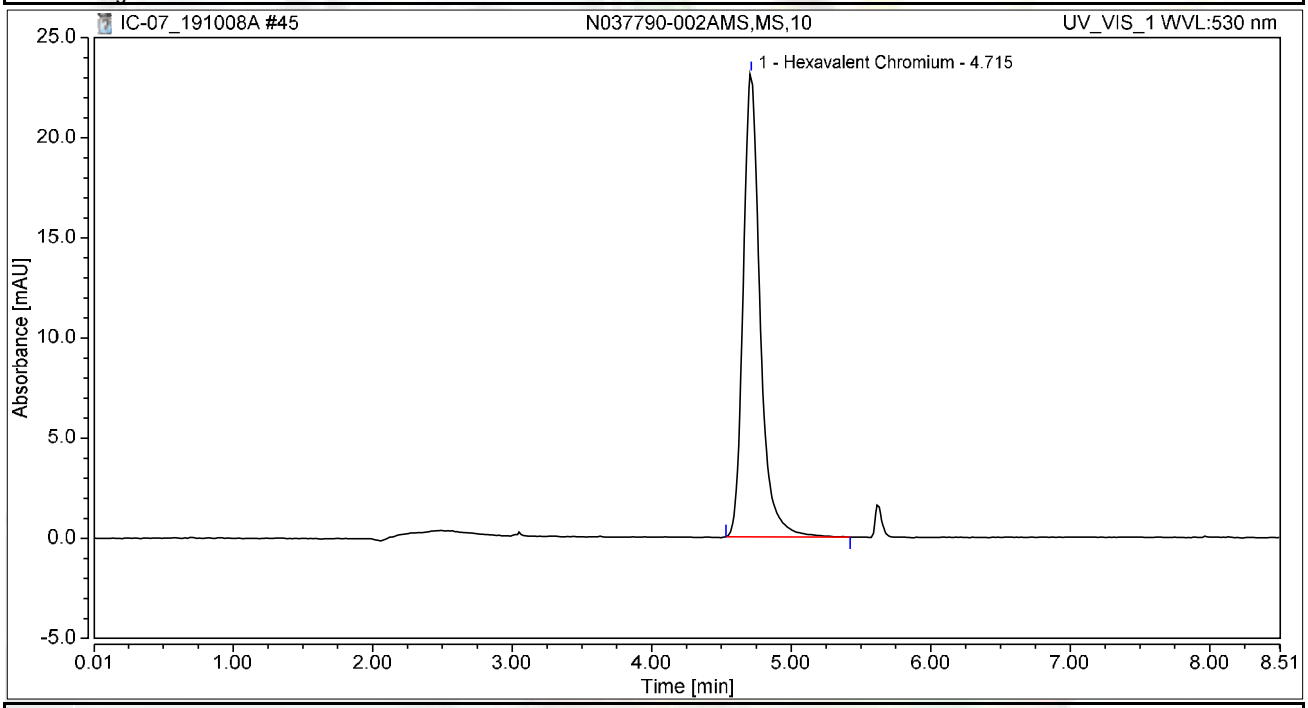
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.935	13.694	100.00	100.00	7.1882
Total:			**1.935**	**13.694**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037790-002AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

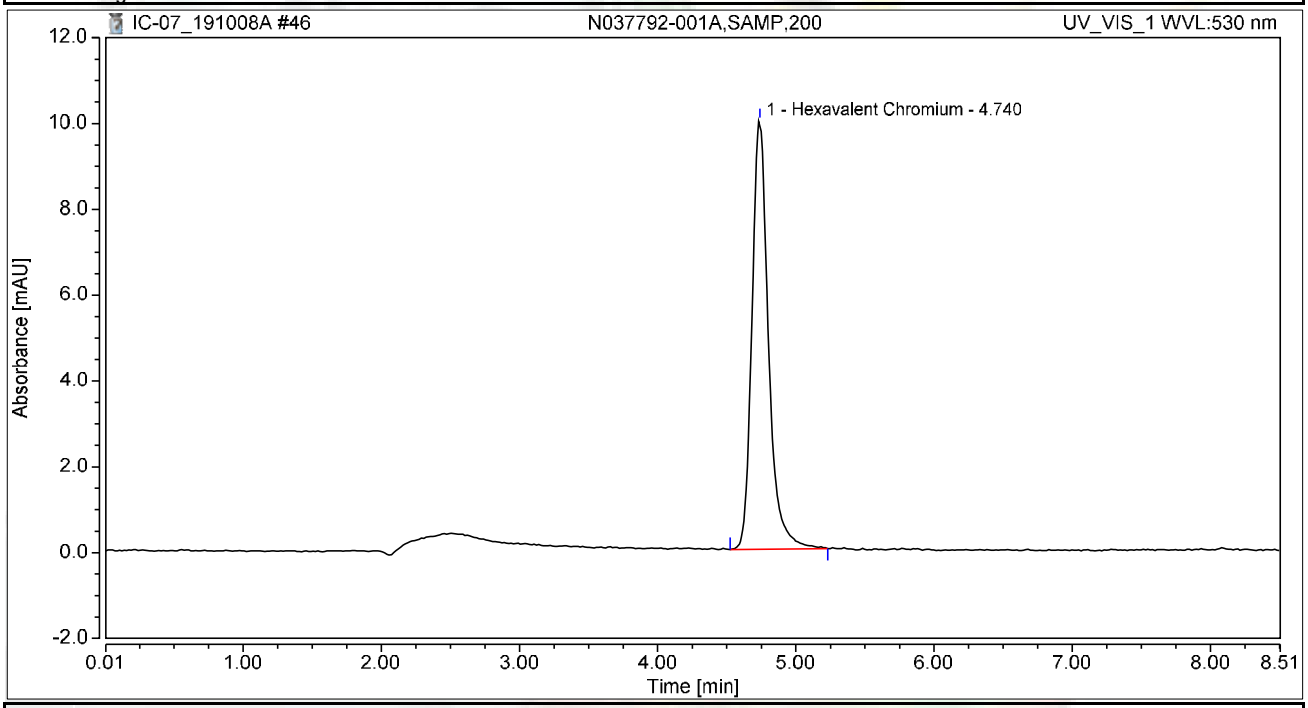
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	3.254	23.134	100.00	100.00	12.0878
Total:			**3.254**	**23.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037792-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

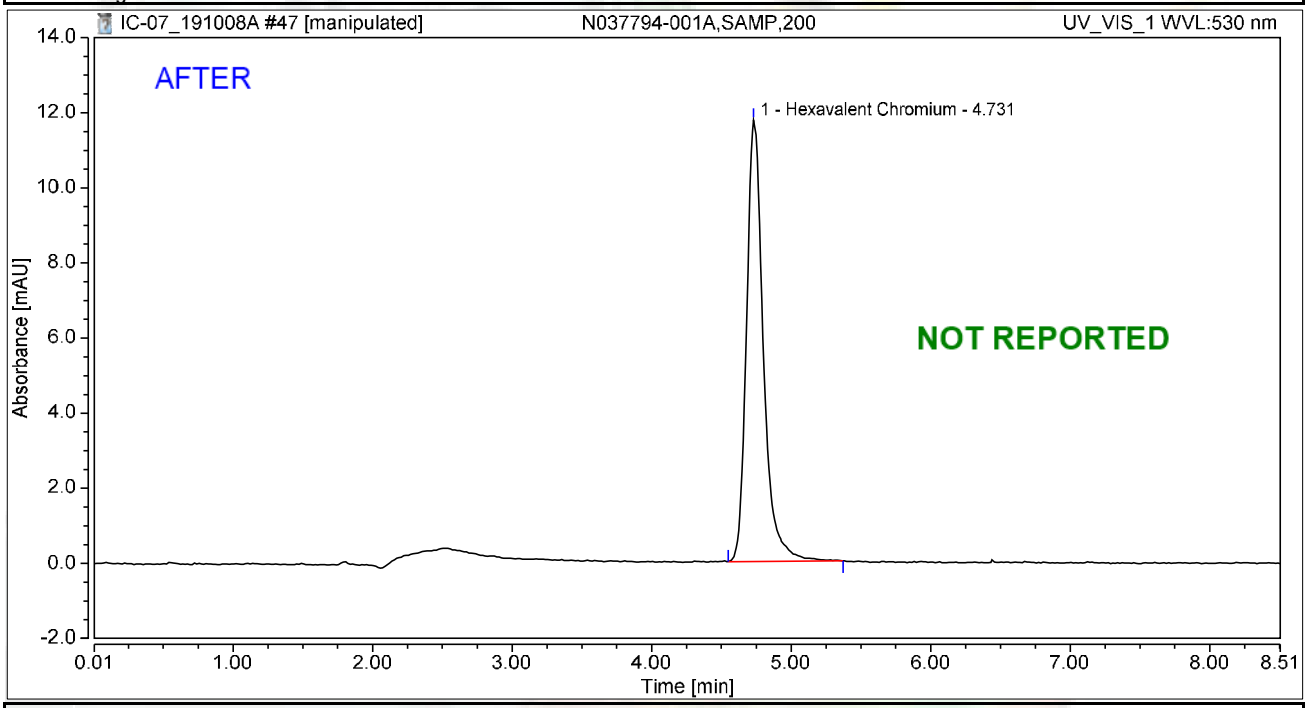
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.387	9.988	100.00	100.00	5.1520
Total:			**1.387**	**9.988**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

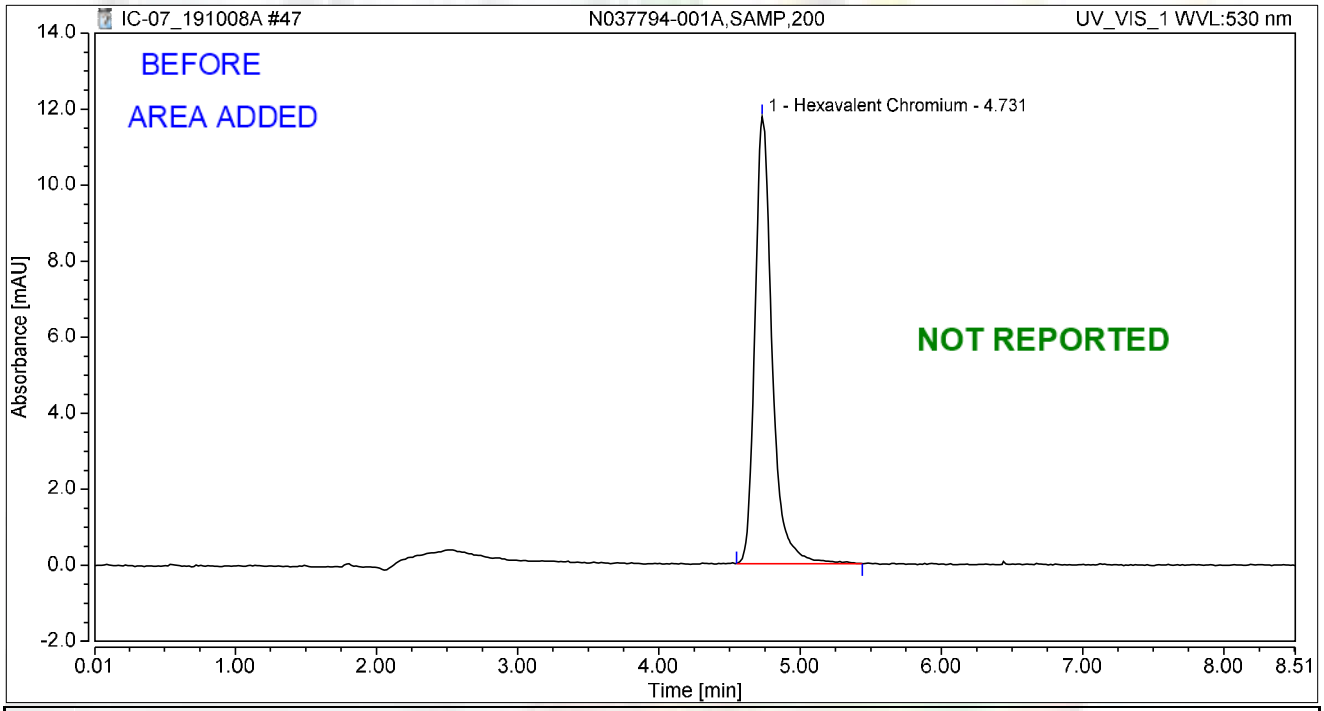
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.650	11.749	100.00	100.00	6.1298
Total:			**1.650**	**11.749**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

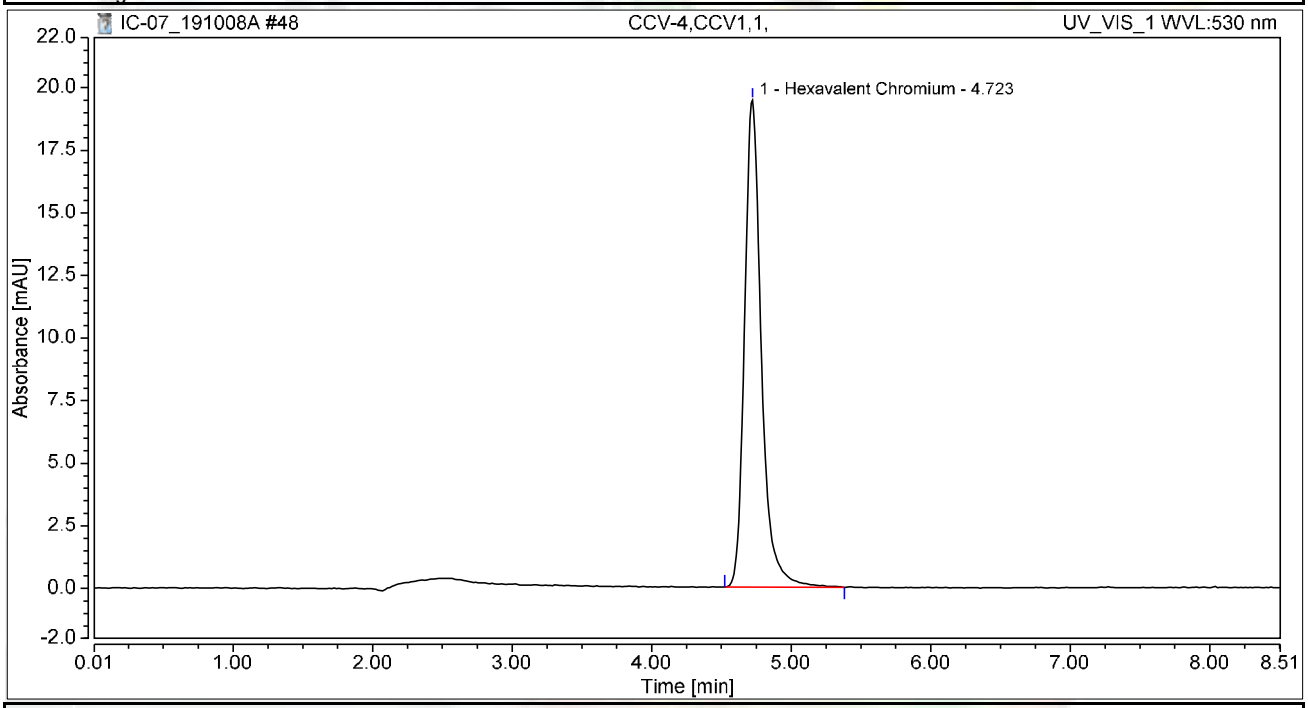
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.660	11.754	100.00	100.00	6.1682
Total:			**1.660**	**11.754**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 13:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

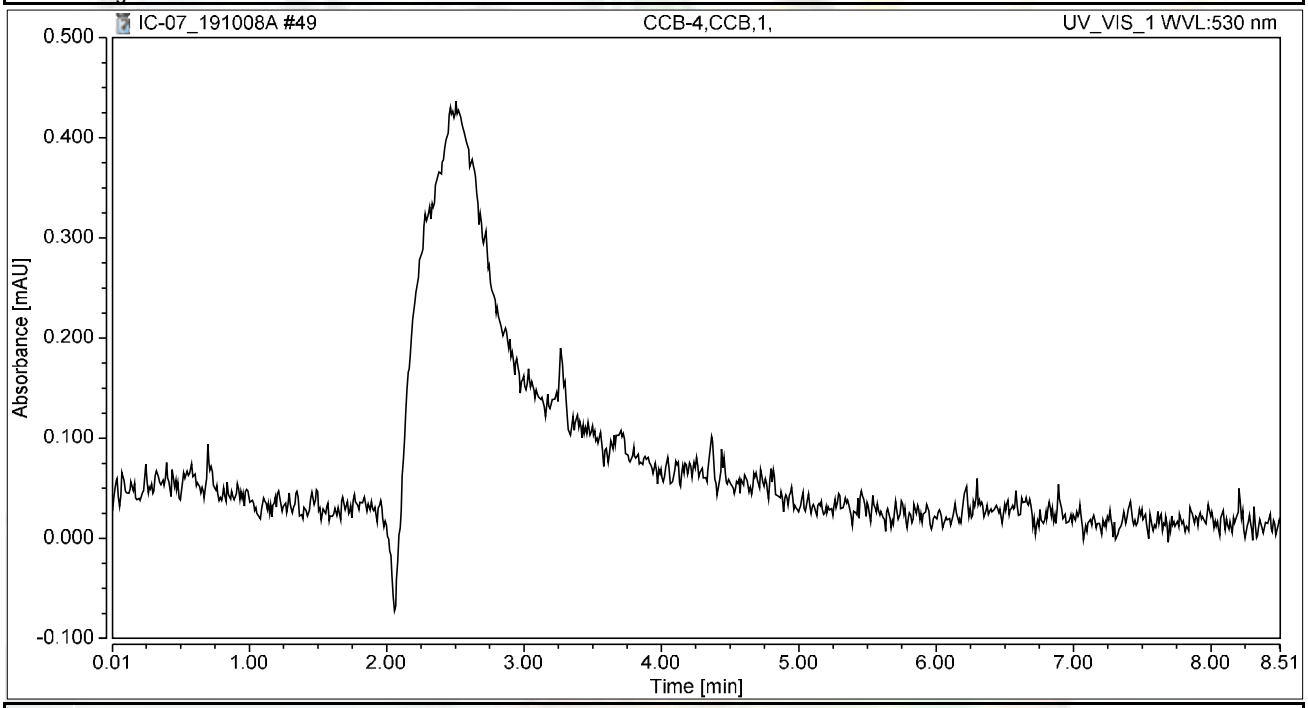
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.712	19.443	100.00	100.00	10.0758
Total:			**2.712**	**19.443**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

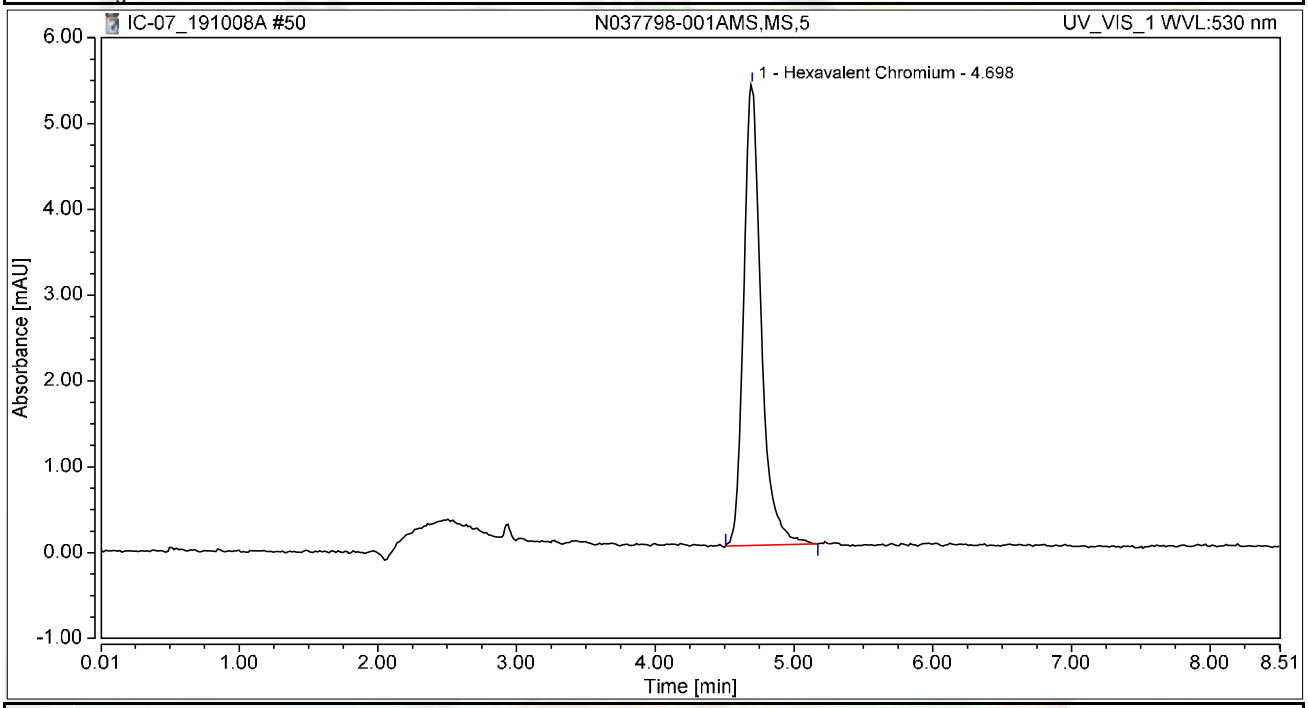
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

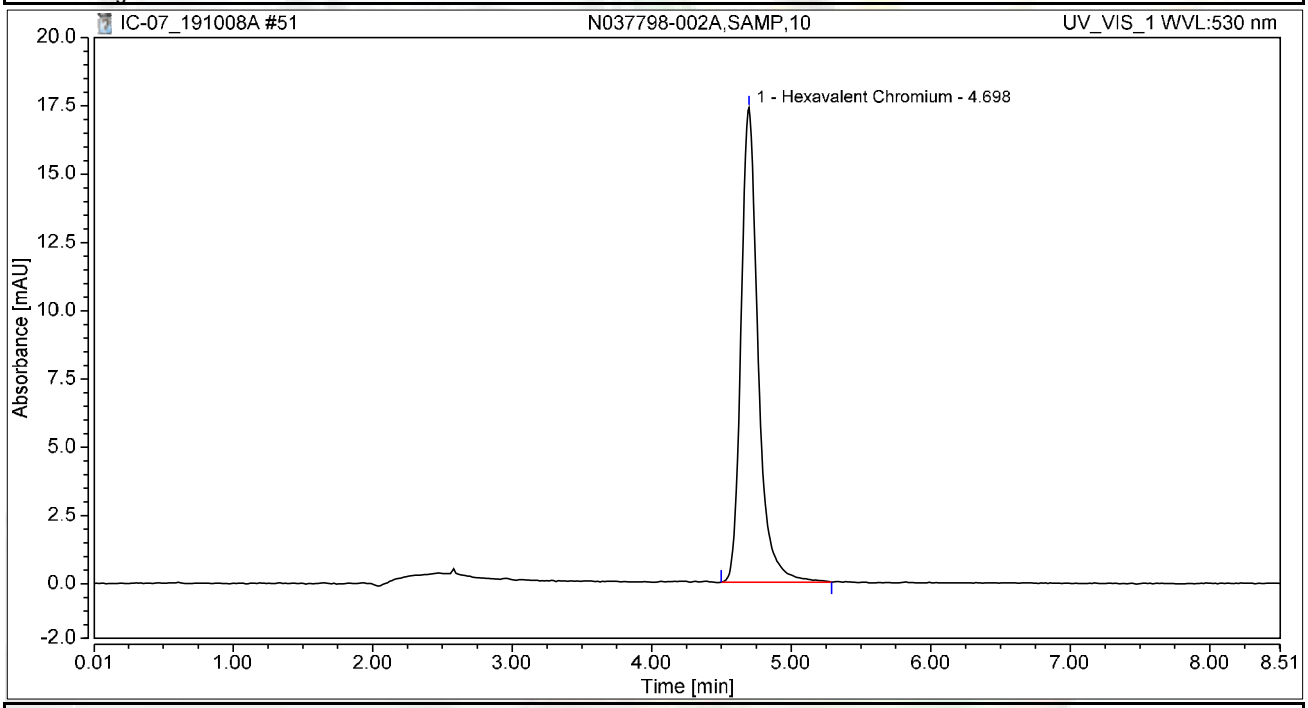
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.789	5.369	100.00	100.00	2.9331
Total:			**0.789**	**5.369**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

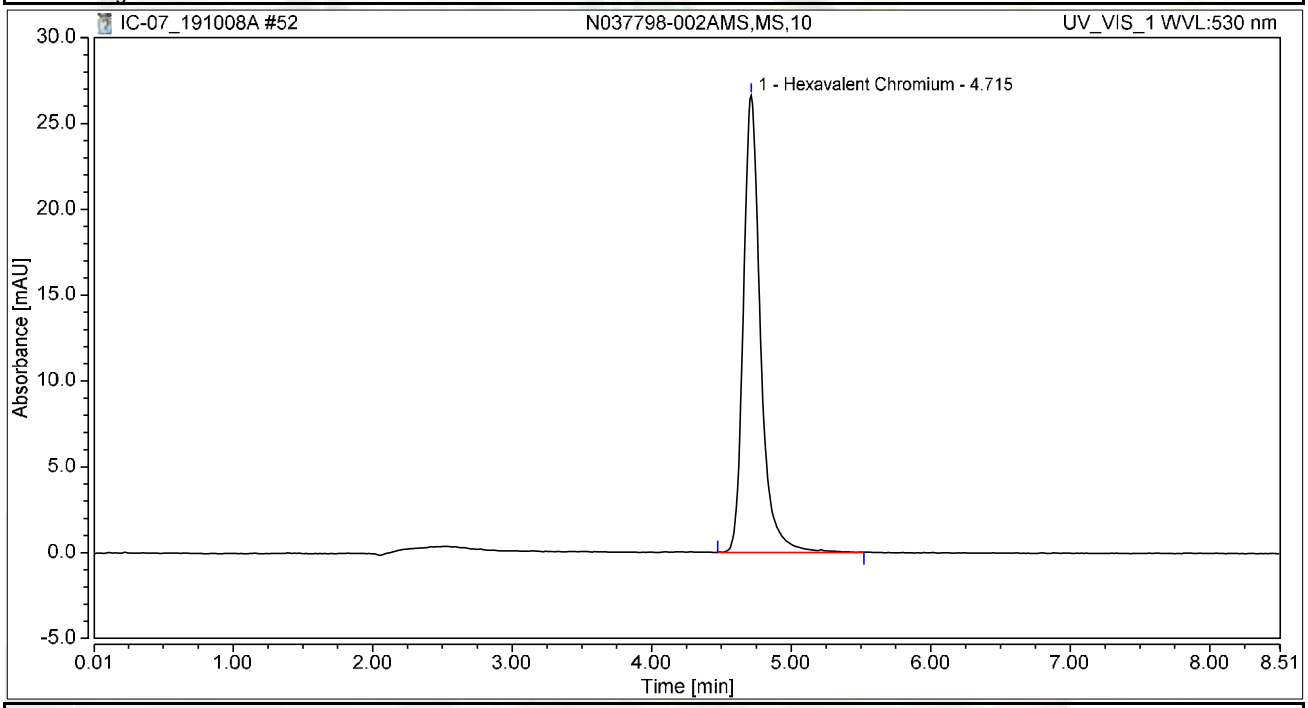
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.467	17.371	100.00	100.00	9.1645
Total:			**2.467**	**17.371**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-002AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

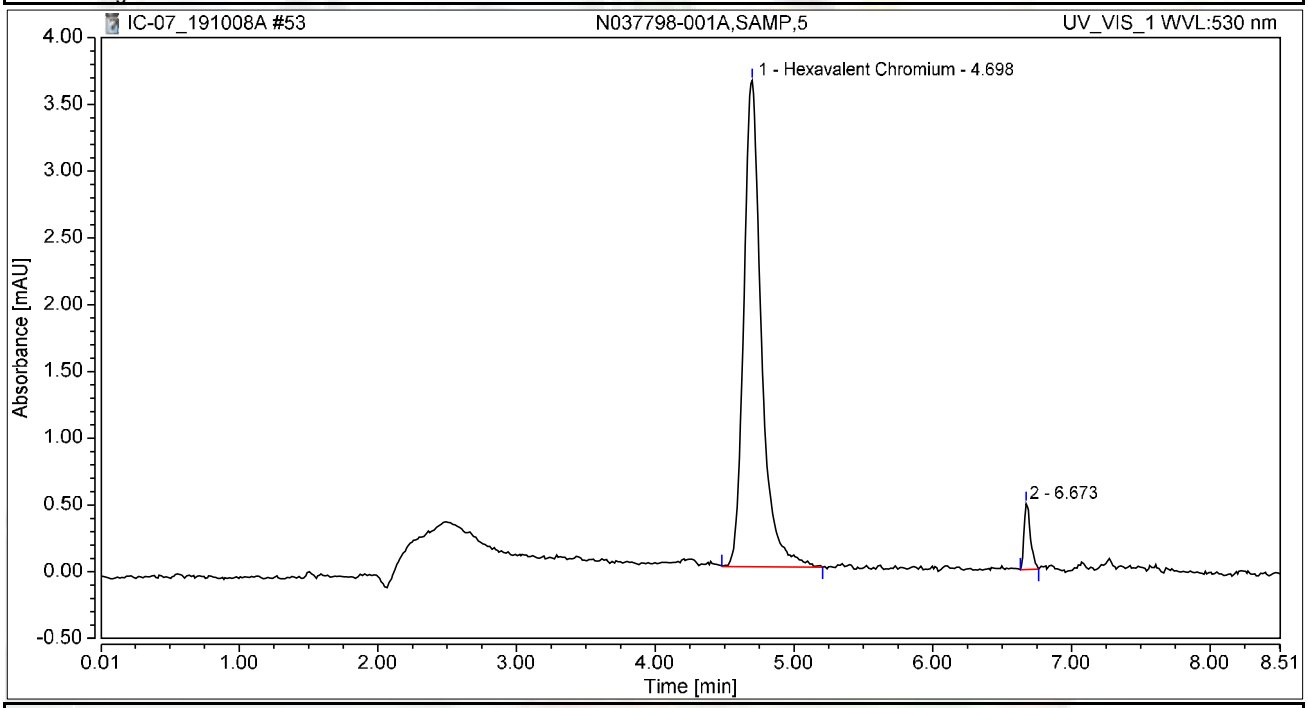
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	3.791	26.621	100.00	100.00	14.0858
Total:			**3.791**	**26.621**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037798-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

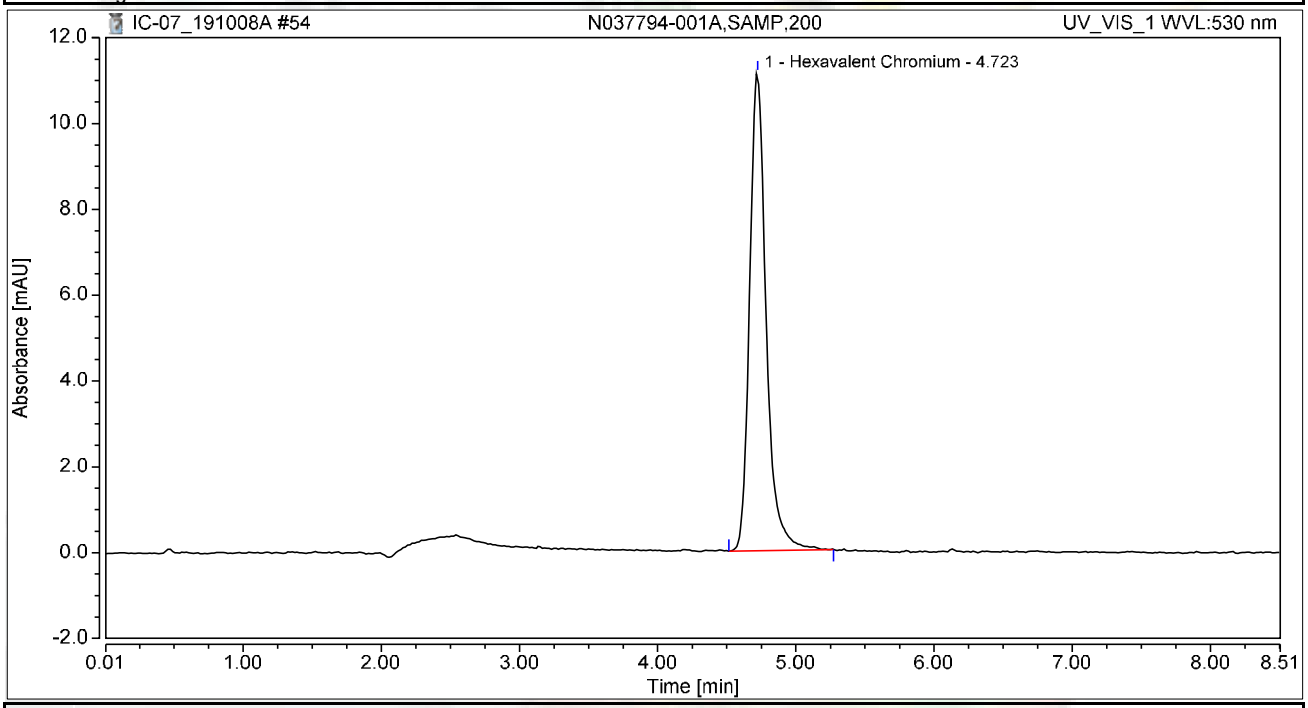
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.538	3.642	95.31	88.09	1.9971
2		6.673	0.026	0.492	4.69	11.91	n.a.
Total:			**0.564**	**4.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 14:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

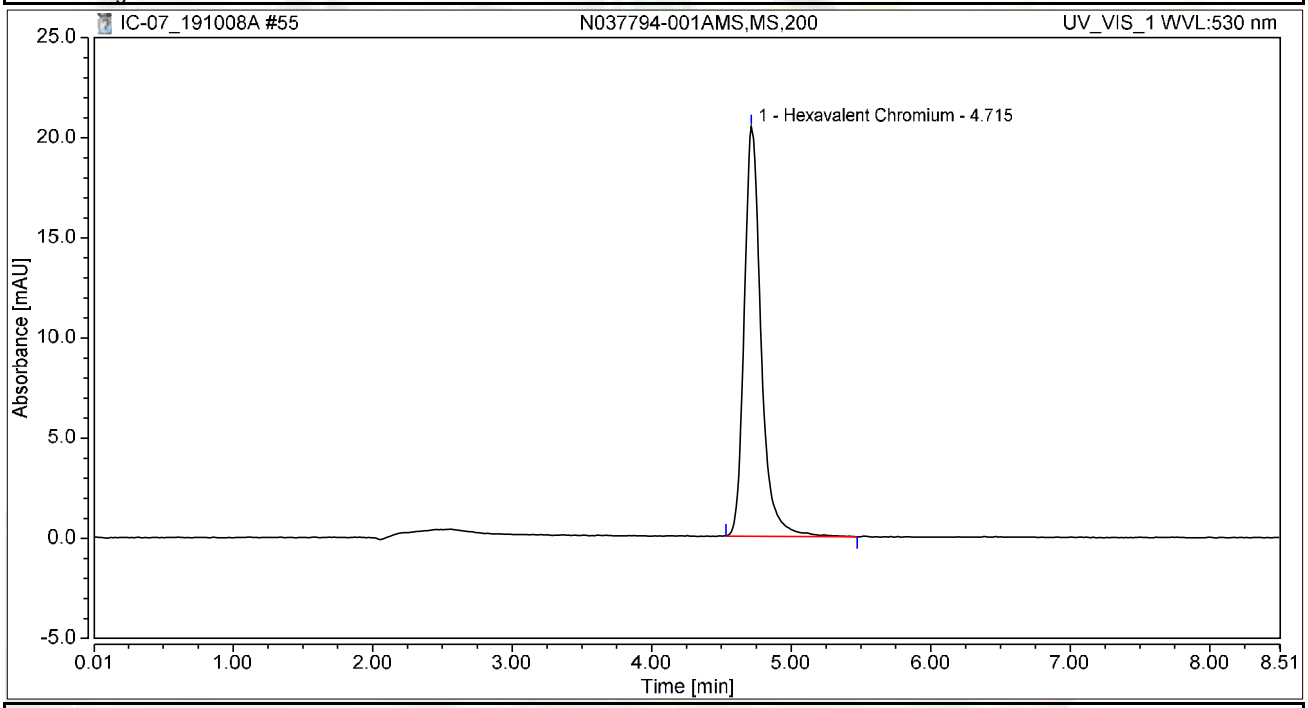
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.546	11.135	100.00	100.00	5.7448
Total:			**1.546**	**11.135**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037794-001AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

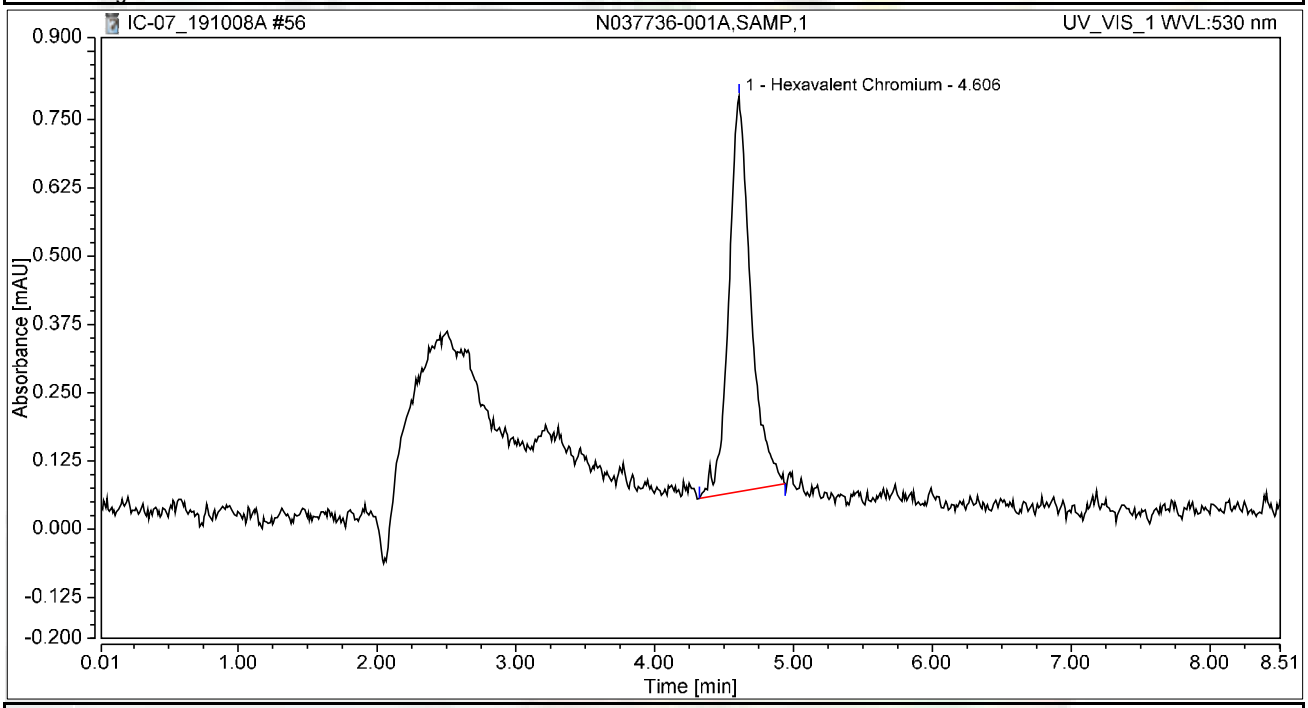
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.861	20.455	100.00	100.00	10.6307
Total:			**2.861**	**20.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

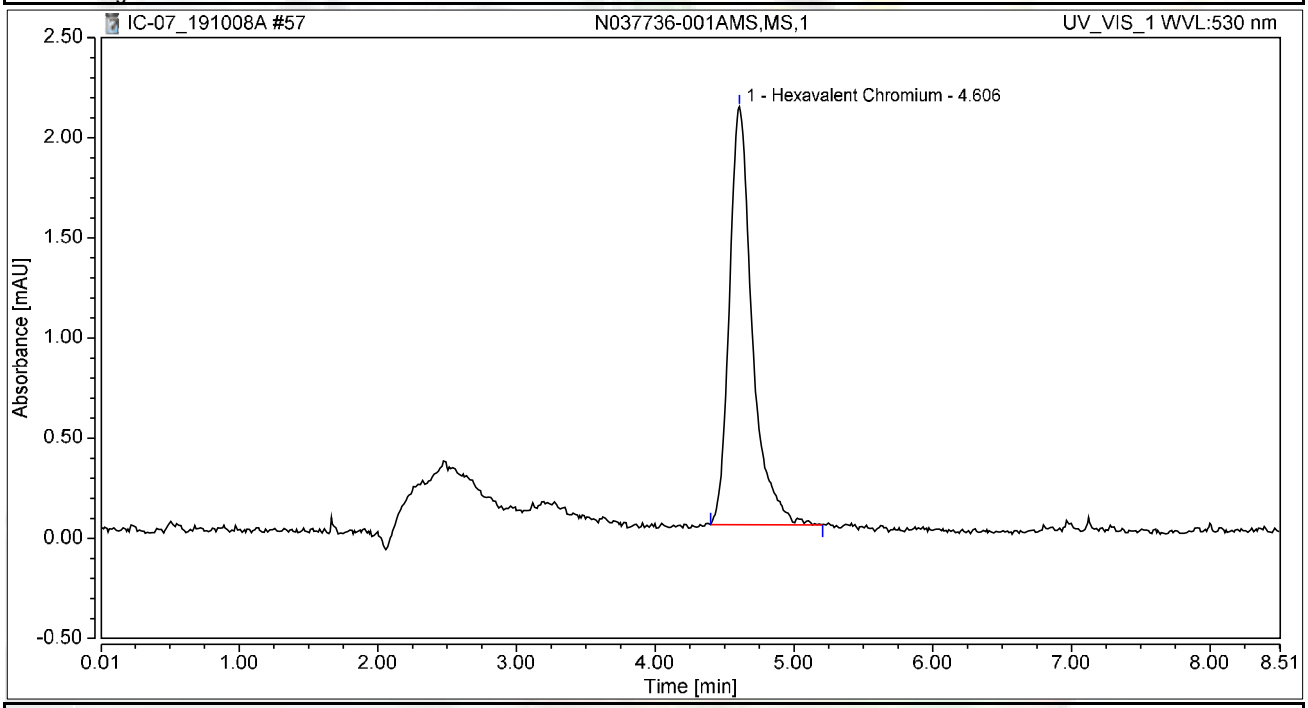
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.132	0.724	100.00	100.00	0.4905
Total:			**0.132**	**0.724**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

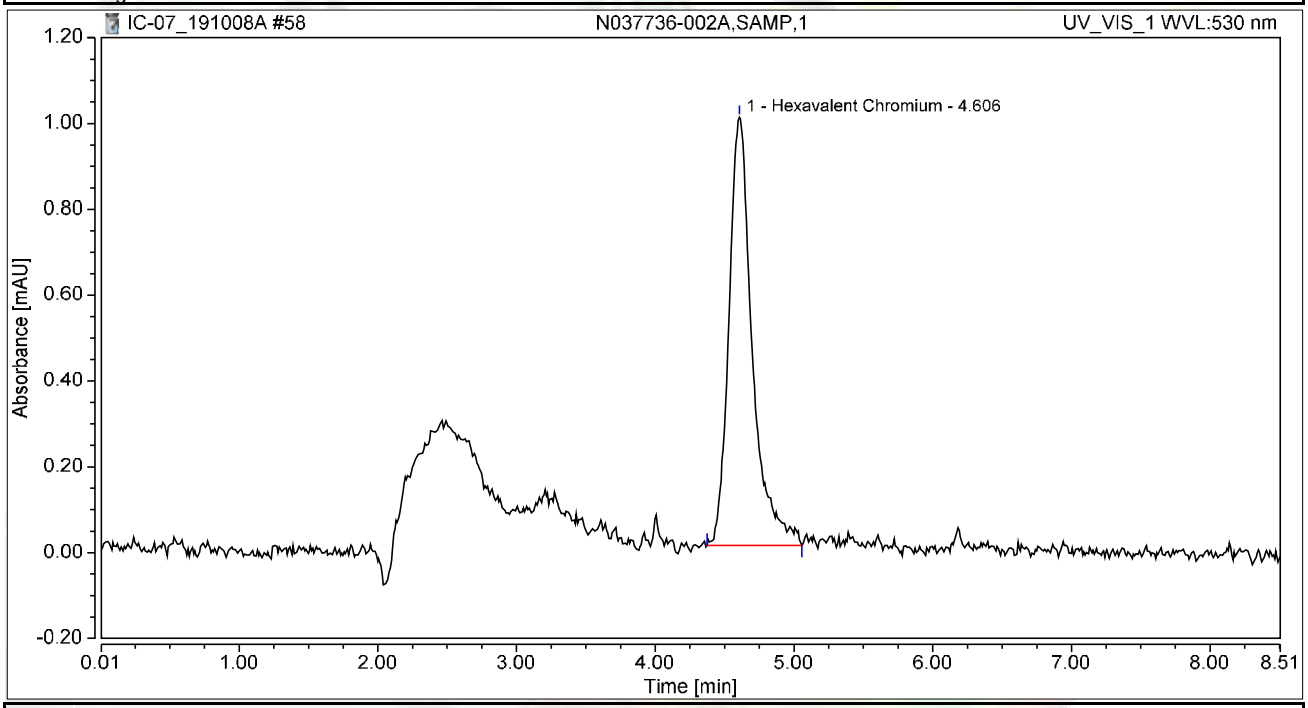
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.399	2.087	100.00	100.00	1.4818
Total:			**0.399**	**2.087**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 15:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

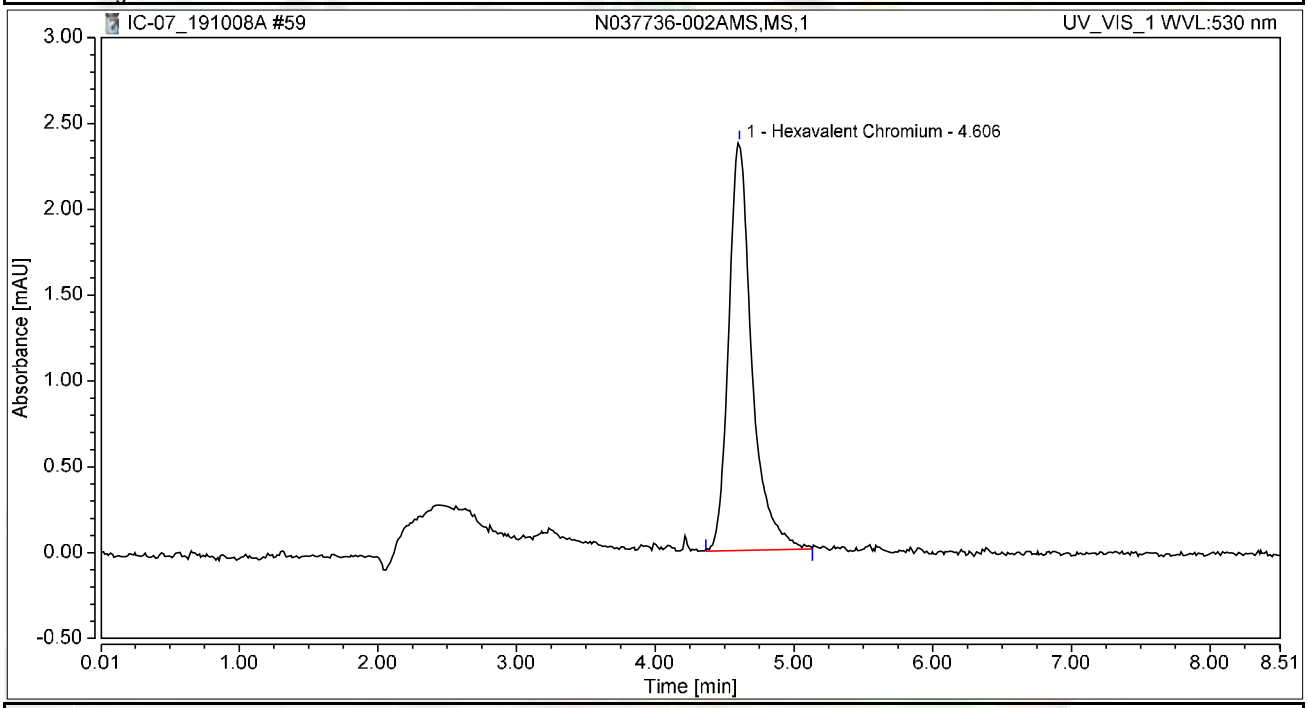
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.195	0.997	100.00	100.00	0.7247
Total:			**0.195**	**0.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

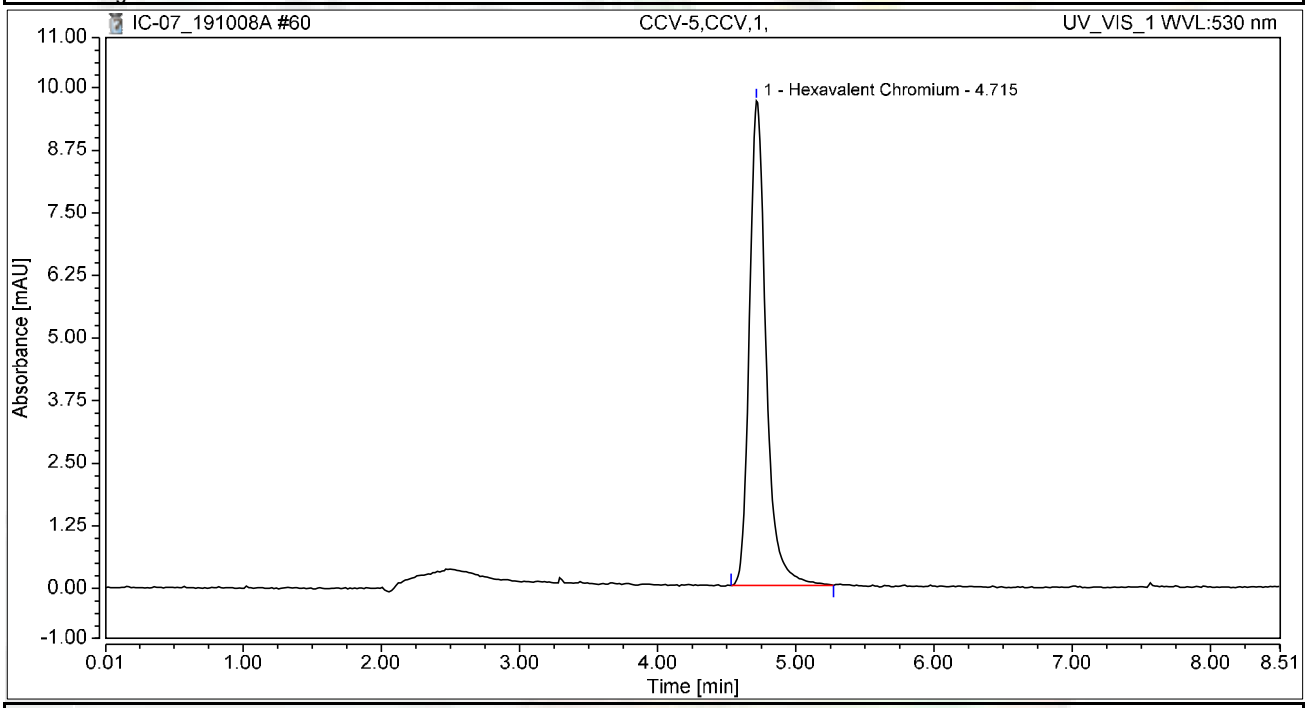
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.461	2.377	100.00	100.00	1.7134
Total:			**0.461**	**2.377**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

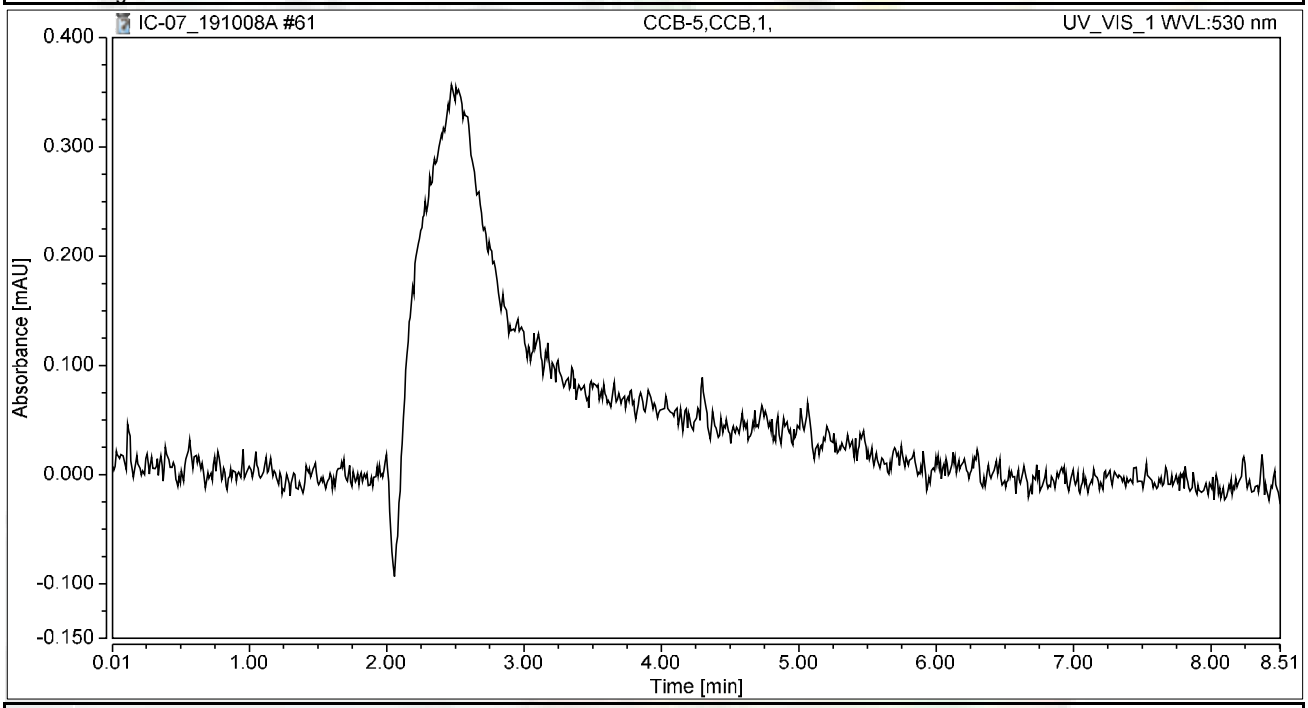
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.355	9.678	100.00	100.00	5.0328
Total:			**1.355**	**9.678**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

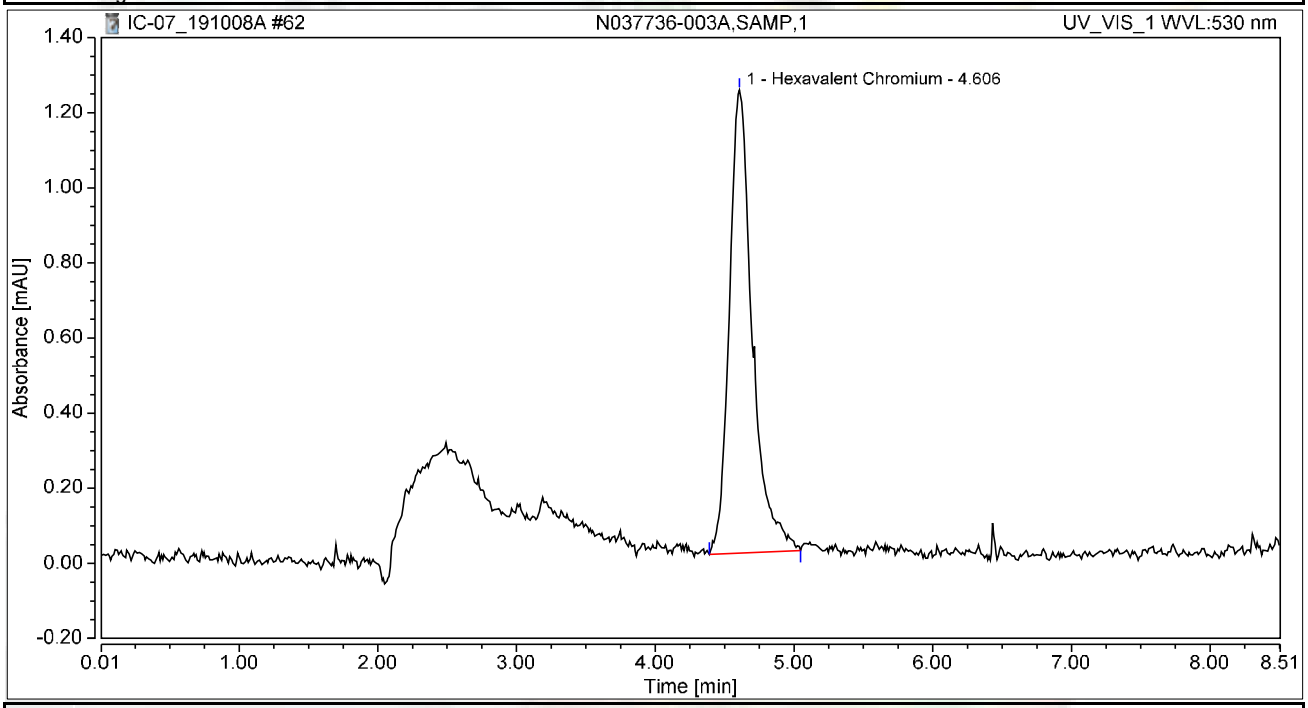
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

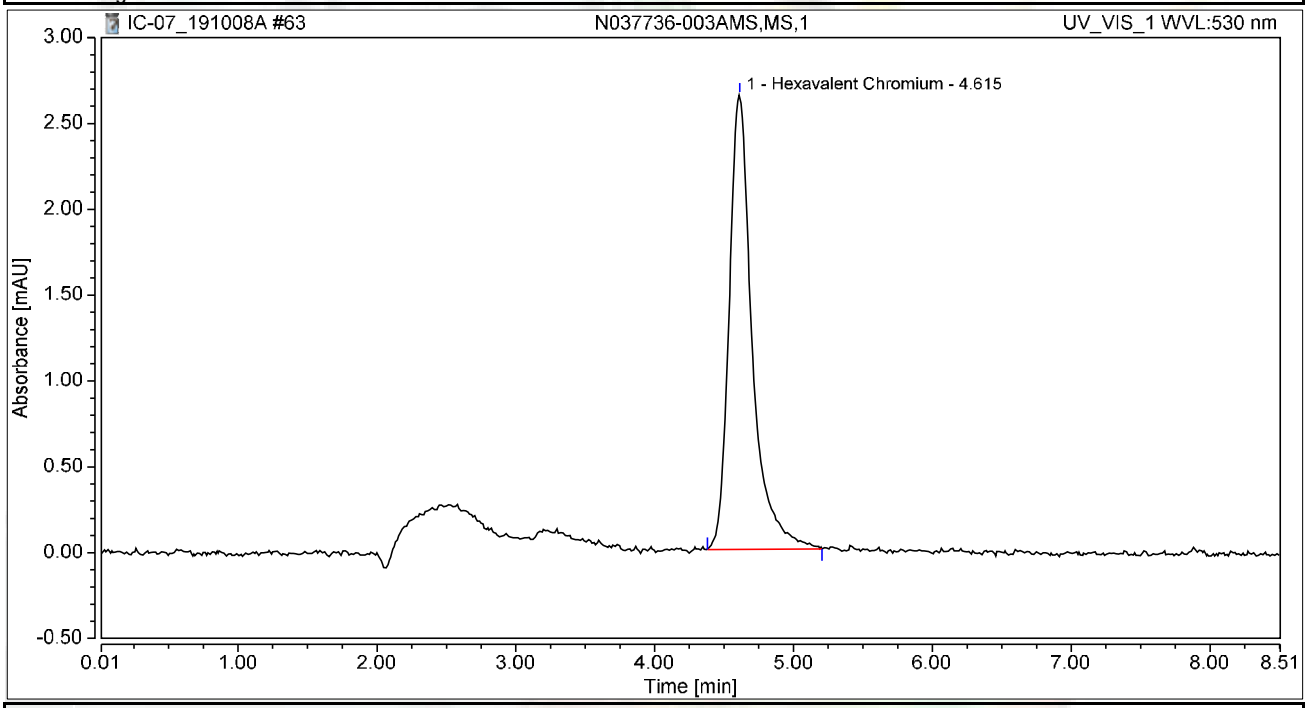
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.238	1.233	100.00	100.00	0.8827
Total:			**0.238**	**1.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

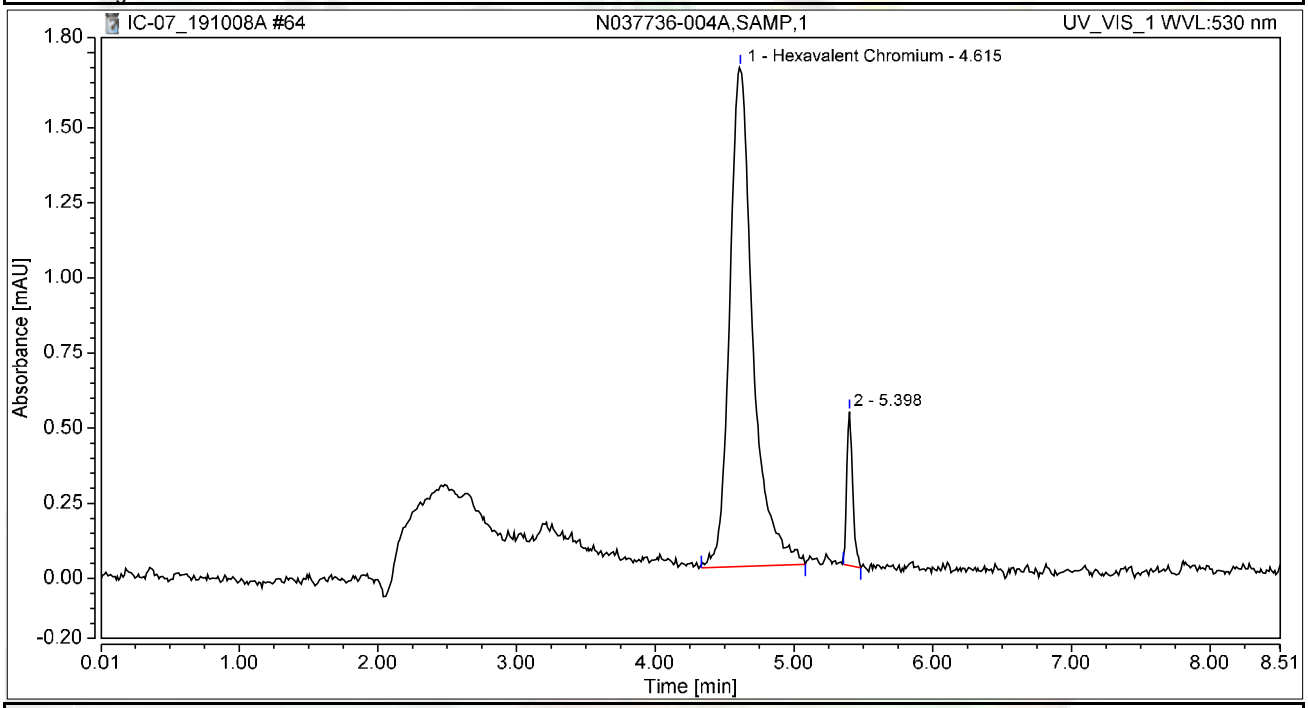
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.615	0.509	2.647	100.00	100.00	1.8916
Total:			**0.509**	**2.647**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 16:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

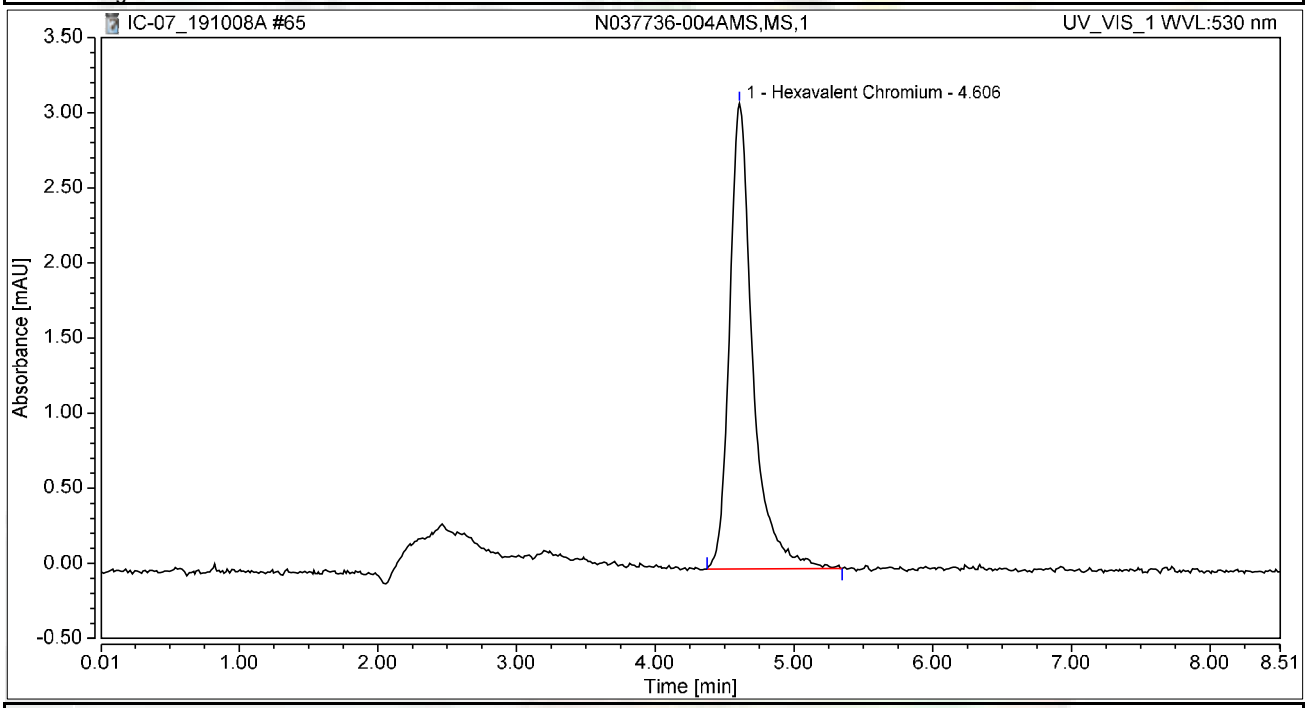
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.615	0.323	1.663	92.70	76.44	1.1987
2		5.398	0.025	0.512	7.30	23.56	n.a.
Total:			**0.348**	**2.175**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

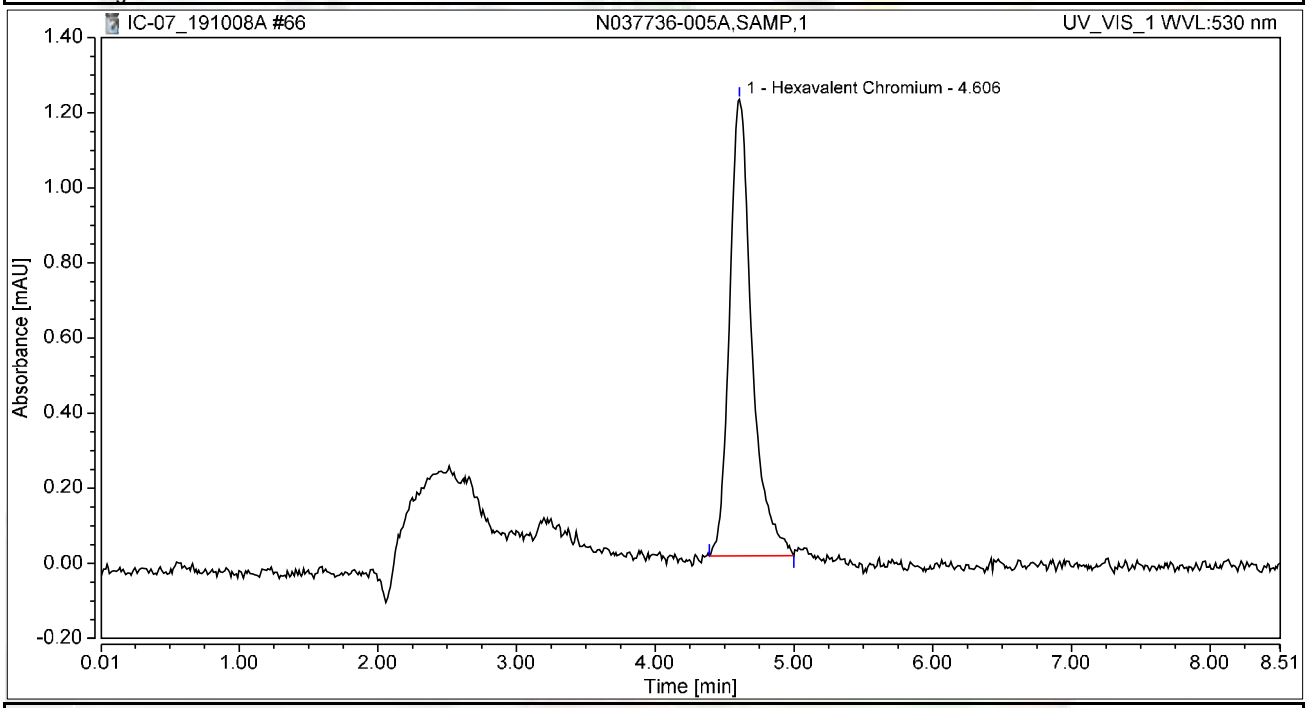
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.602	3.099	100.00	100.00	2.2352
Total:			**0.602**	**3.099**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

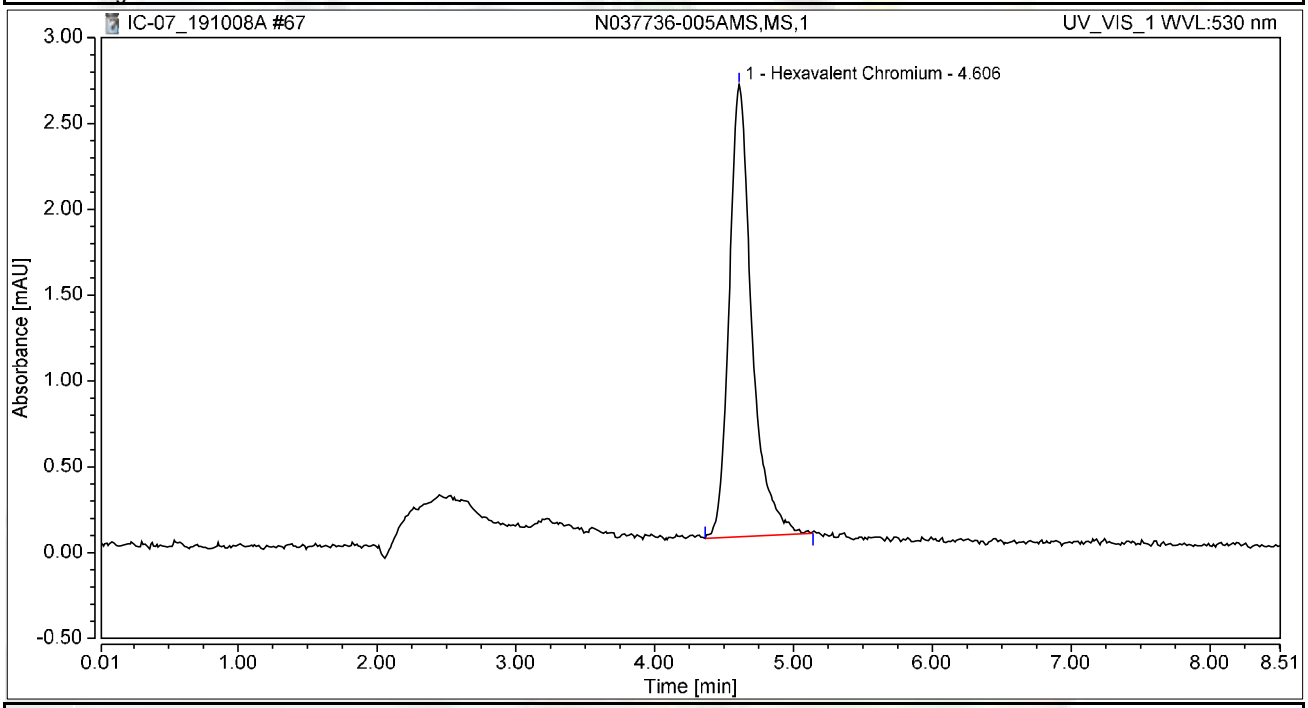
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.227	1.216	100.00	100.00	0.8416
Total:			**0.227**	**1.216**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

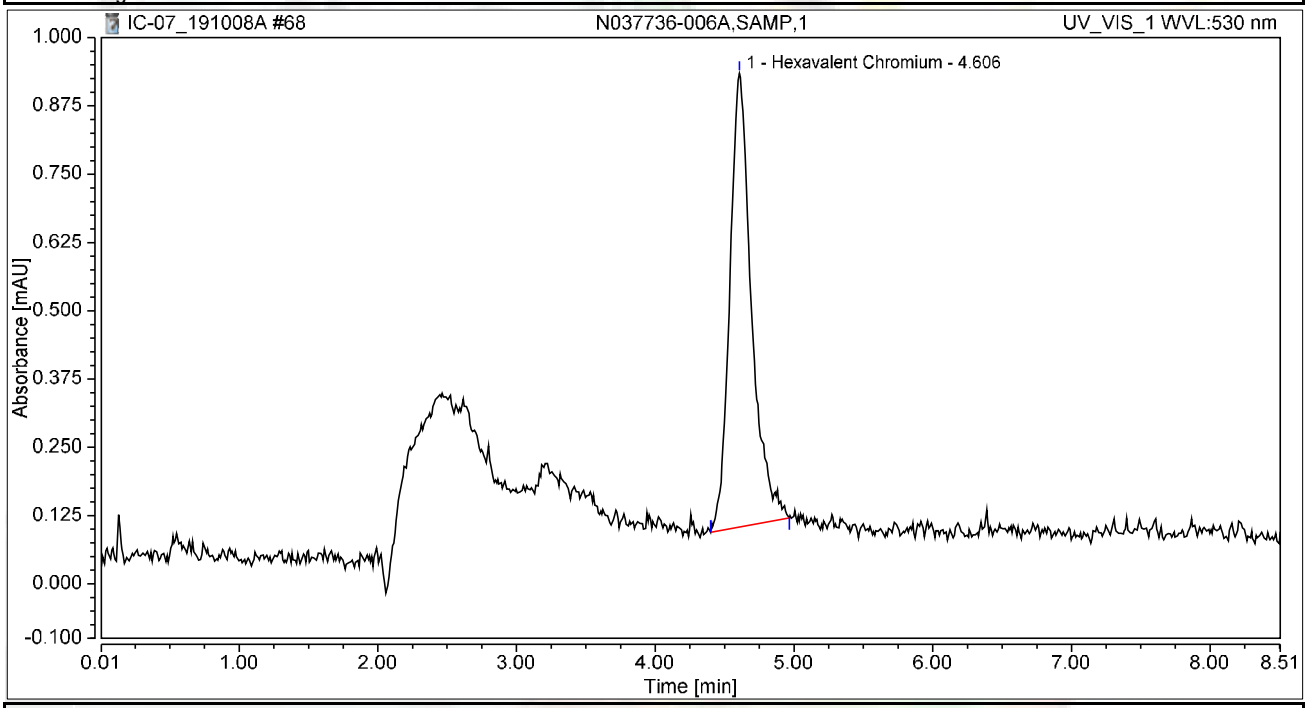
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.497	2.635	100.00	100.00	1.8469
Total:			**0.497**	**2.635**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

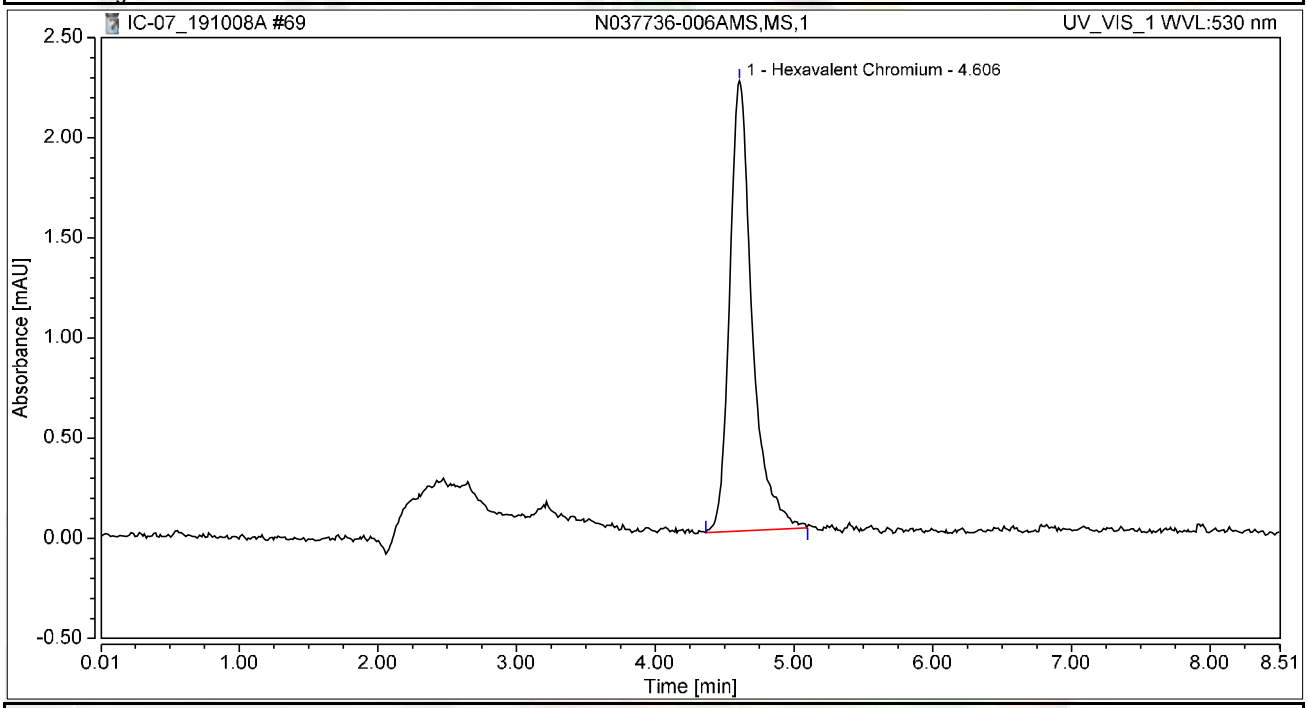
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.150	0.830	100.00	100.00	0.5591
Total:			**0.150**	**0.830**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

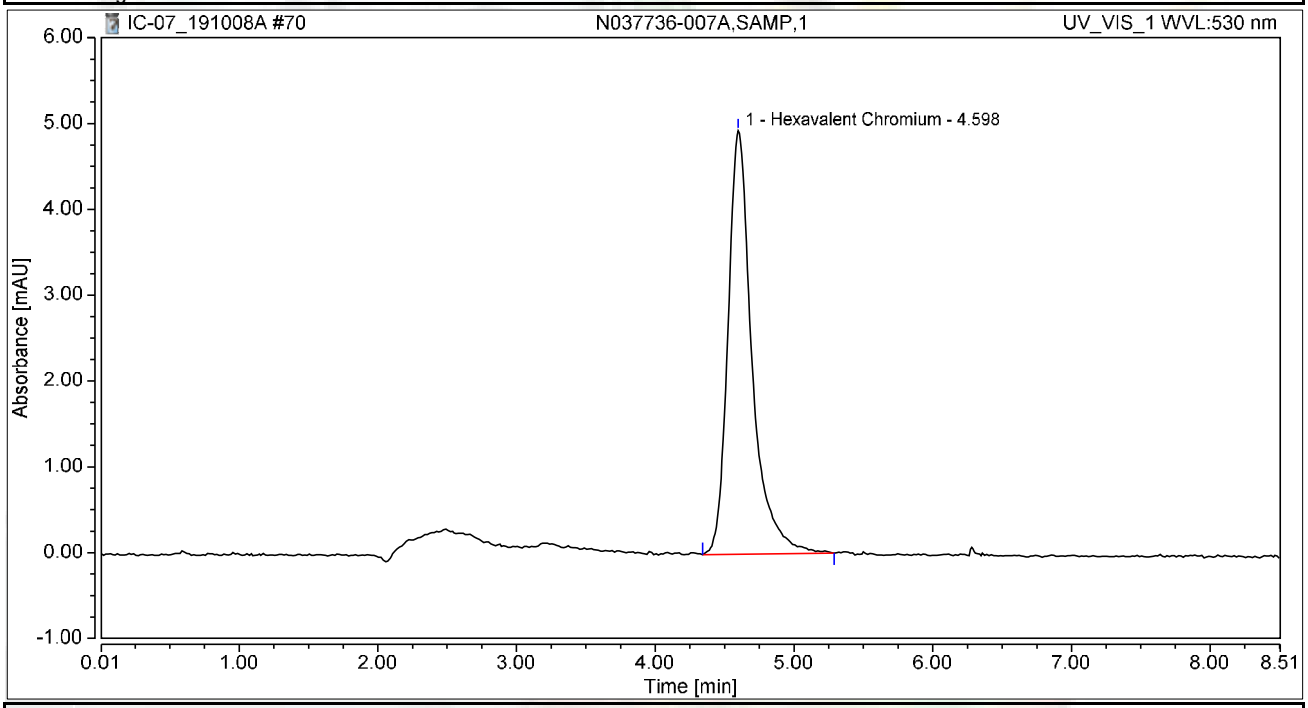
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.425	2.248	100.00	100.00	1.5776
Total:			**0.425**	**2.248**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 17:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

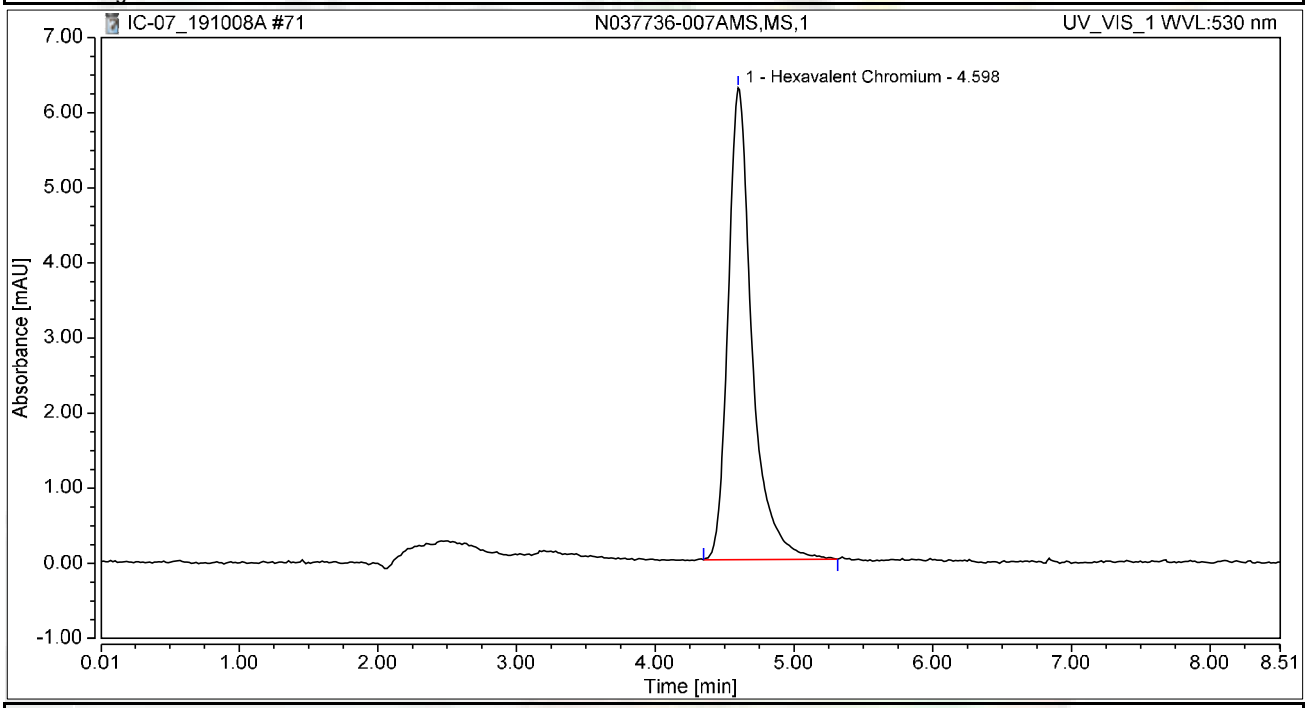
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.992	4.934	100.00	100.00	3.6850
Total:			**0.992**	**4.934**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

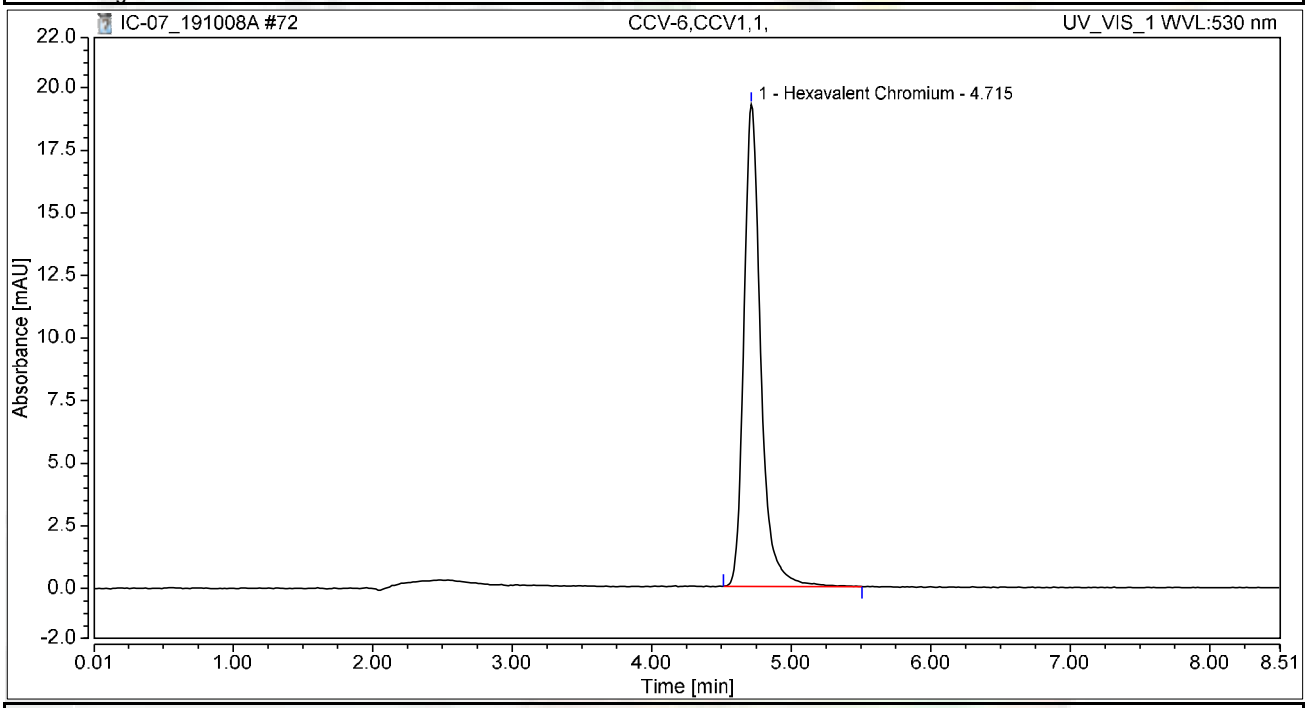
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	1.257	6.279	100.00	100.00	4.6693
Total:			**1.257**	**6.279**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

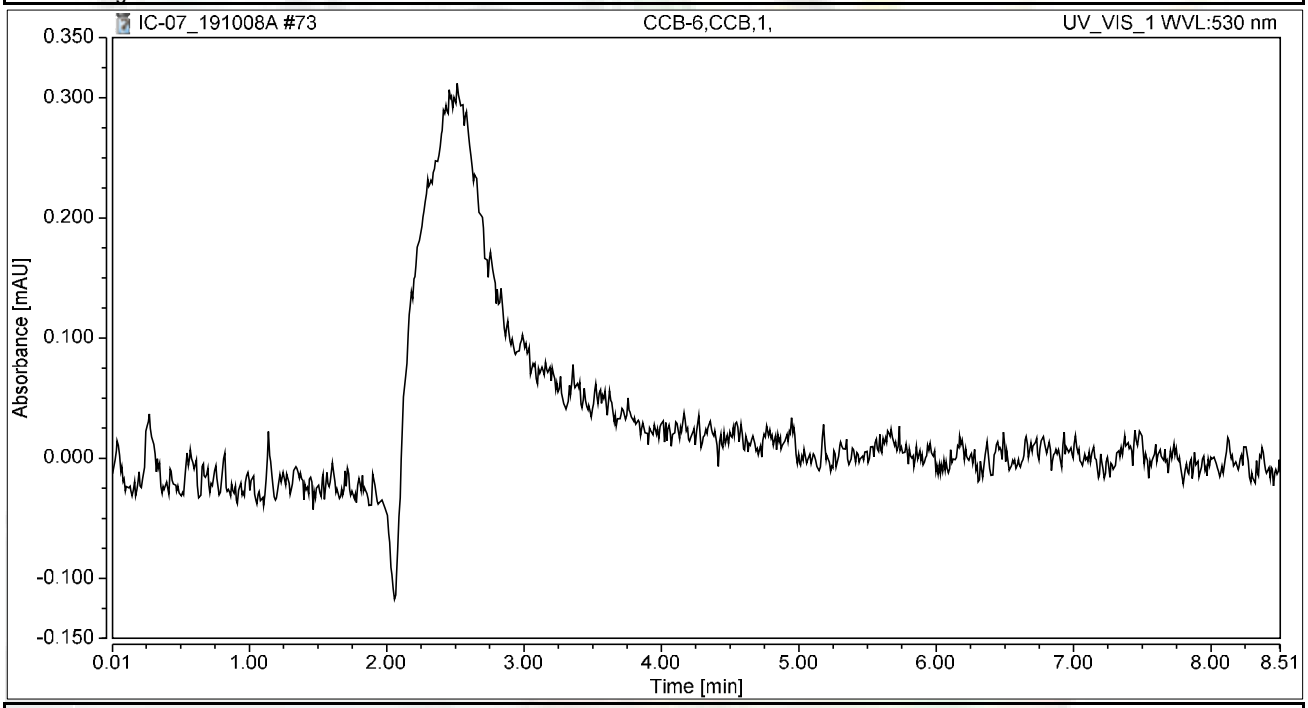
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.701	19.256	100.00	100.00	10.0331
Total:			**2.701**	**19.256**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

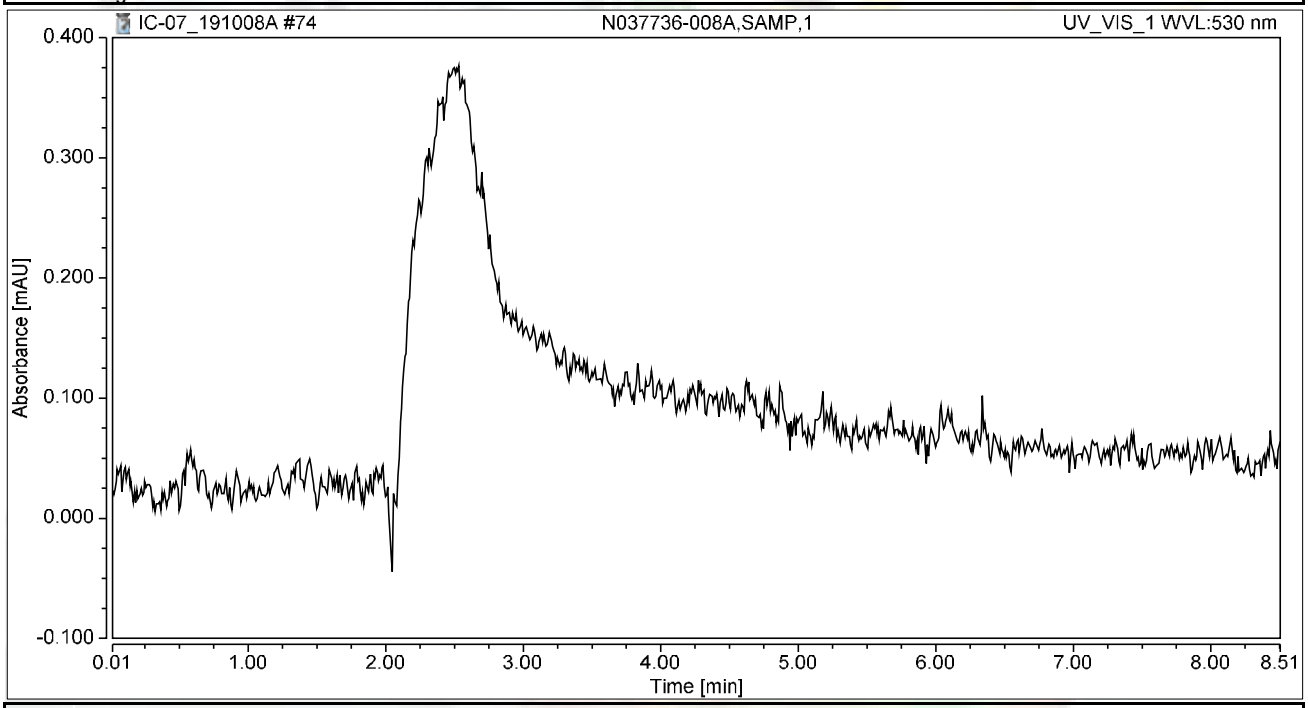
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-008A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

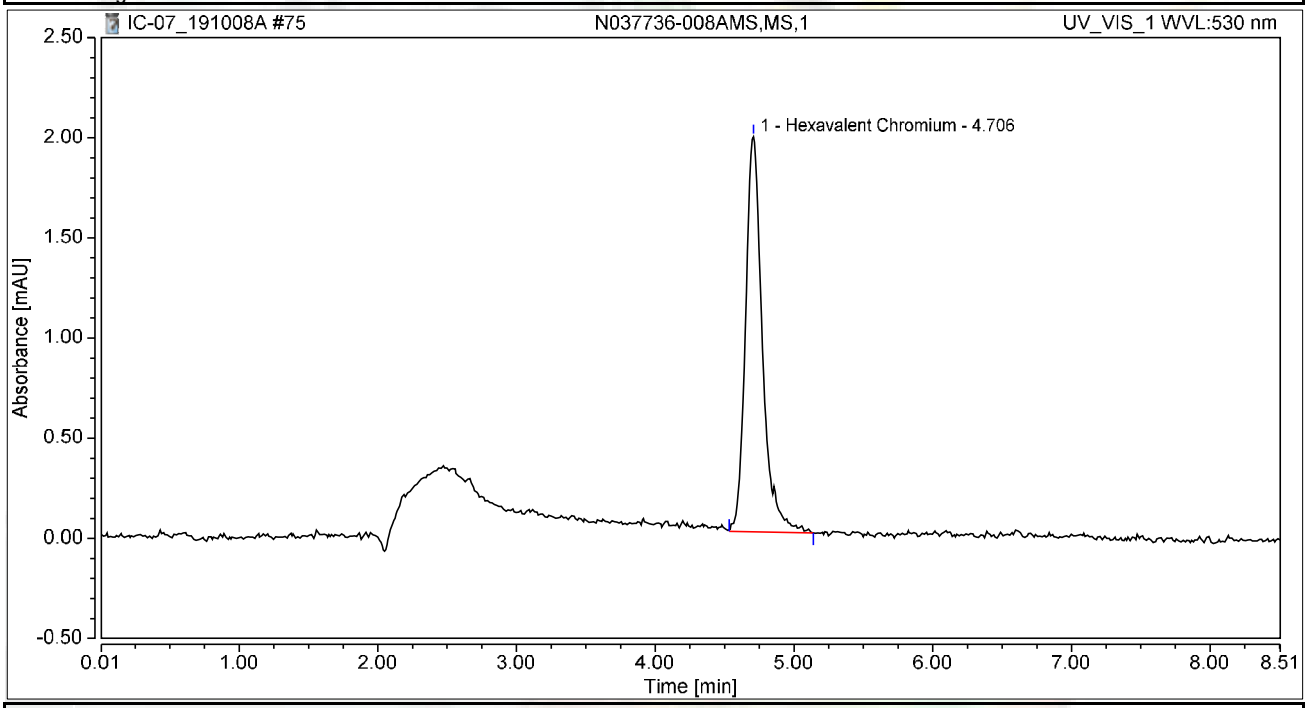
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037736-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

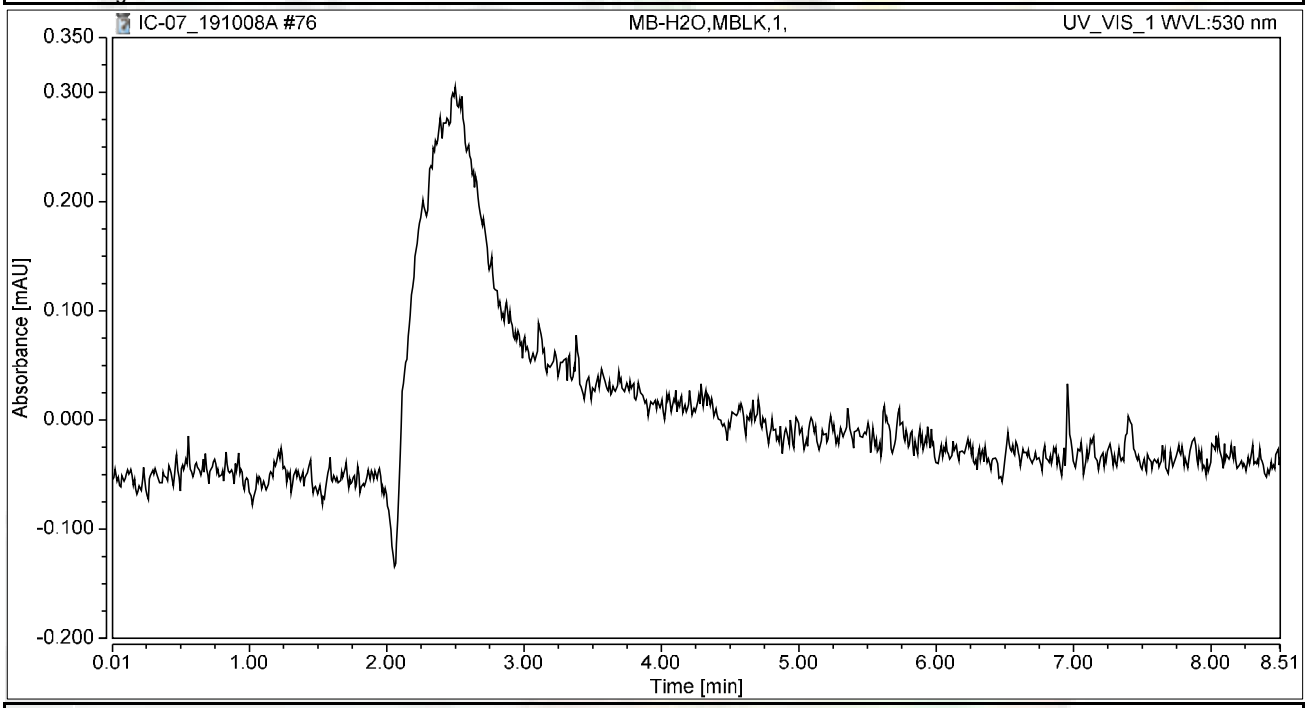
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.279	1.973	100.00	100.00	1.0354
Total:			**0.279**	**1.973**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 18:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

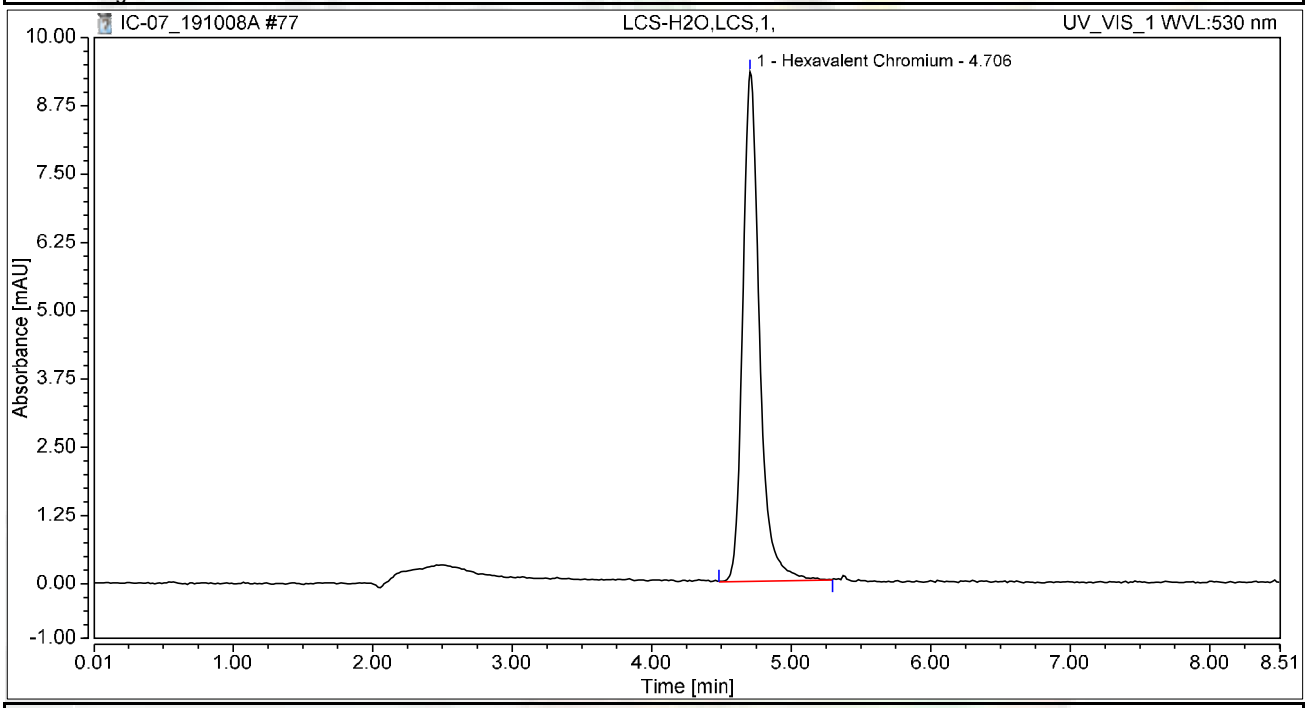
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

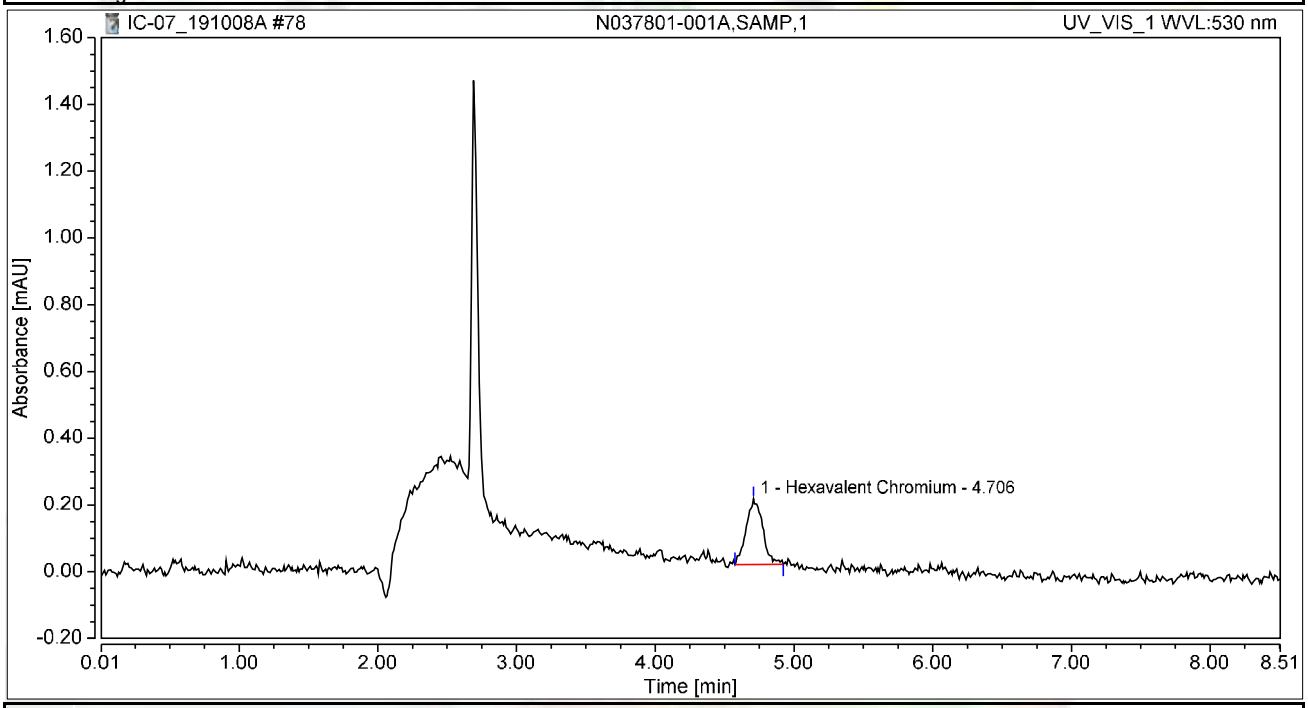
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.302	9.326	100.00	100.00	4.8386
Total:			**1.302**	**9.326**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

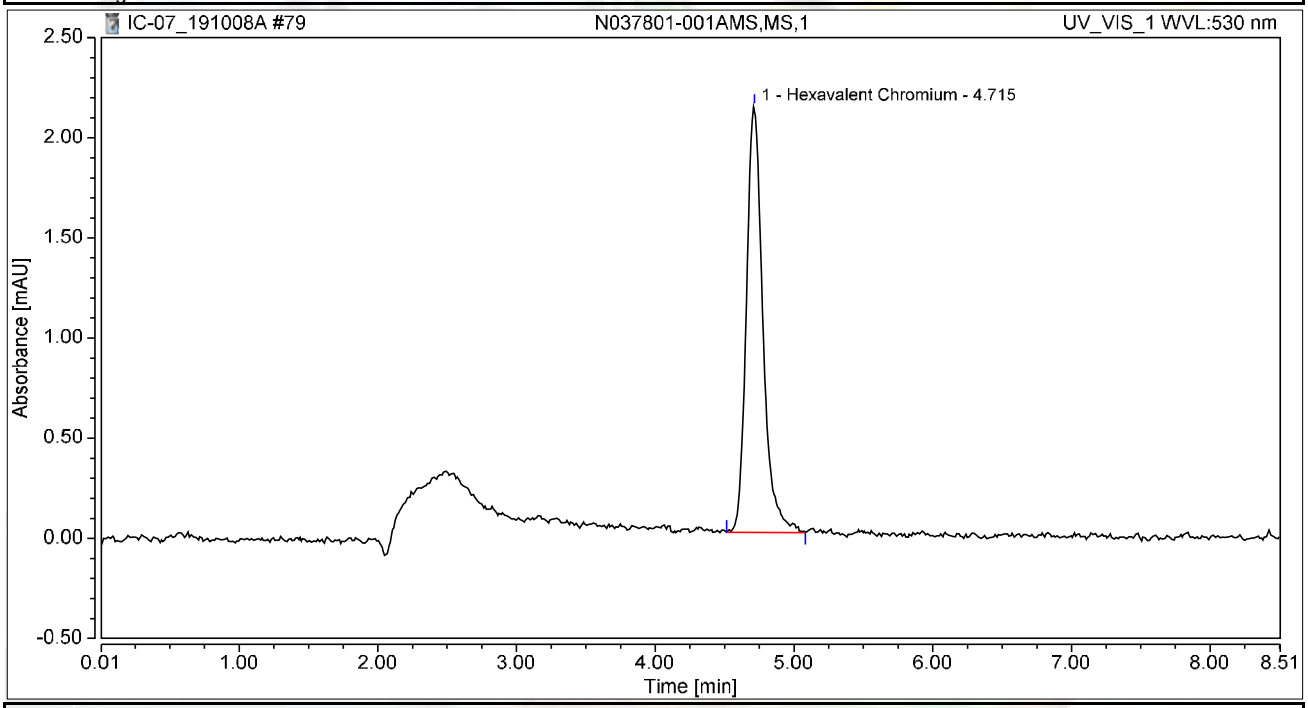
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.027	0.197	100.00	100.00	0.0999
Total:			**0.027**	**0.197**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

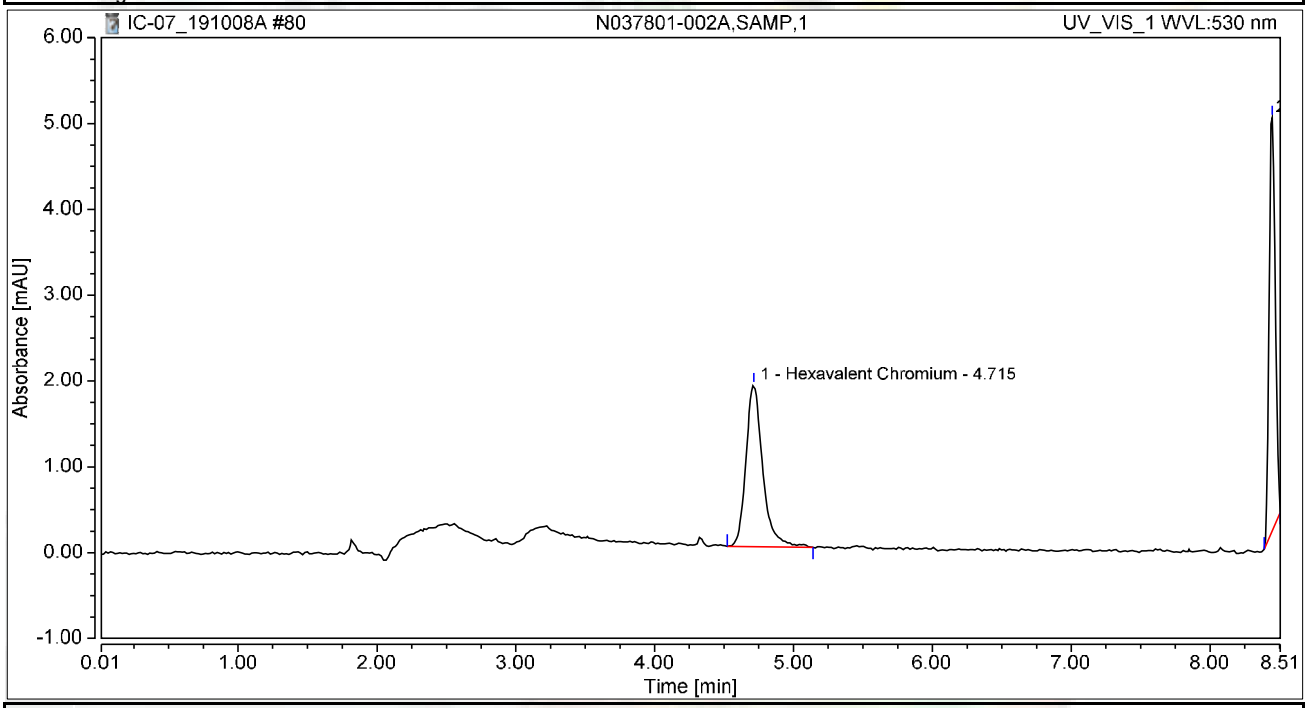
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.294	2.127	100.00	100.00	1.0906
Total:			**0.294**	**2.127**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

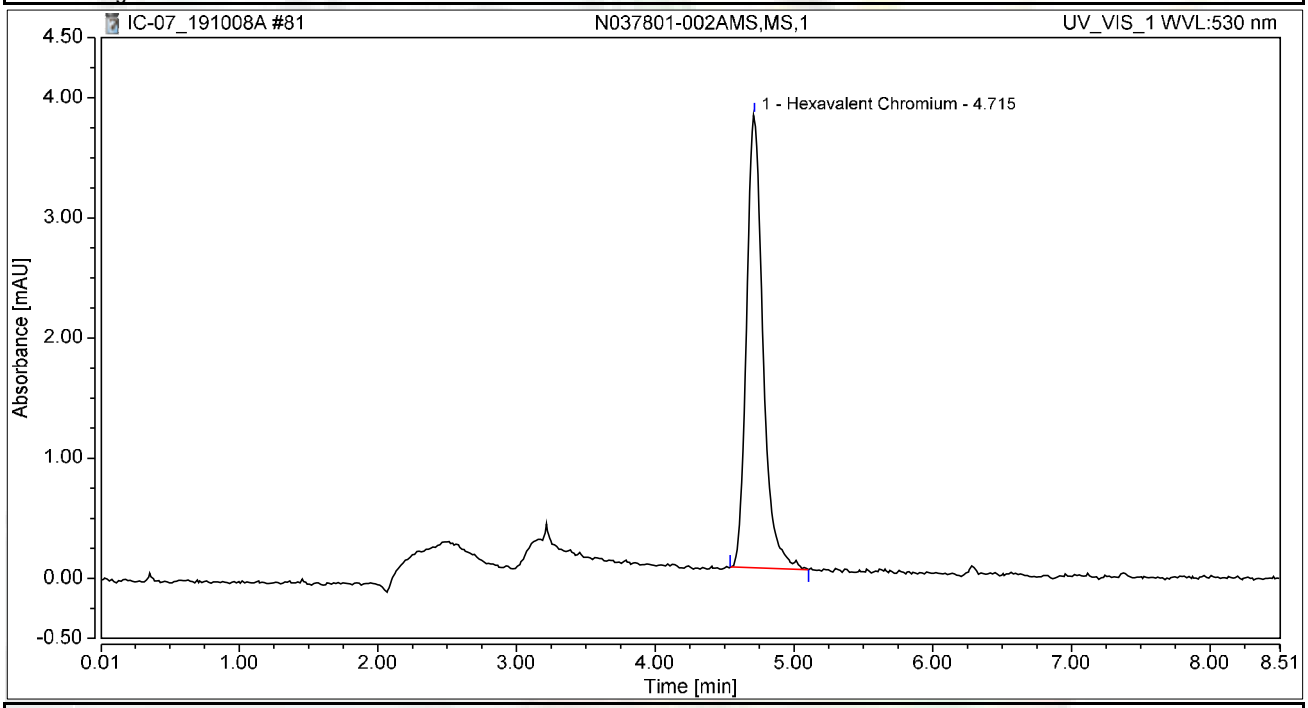
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.264	1.884	51.99	28.13	0.9826
2		8.448	0.244	4.814	48.01	71.87	n.a.
Total:			**0.509**	**6.698**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

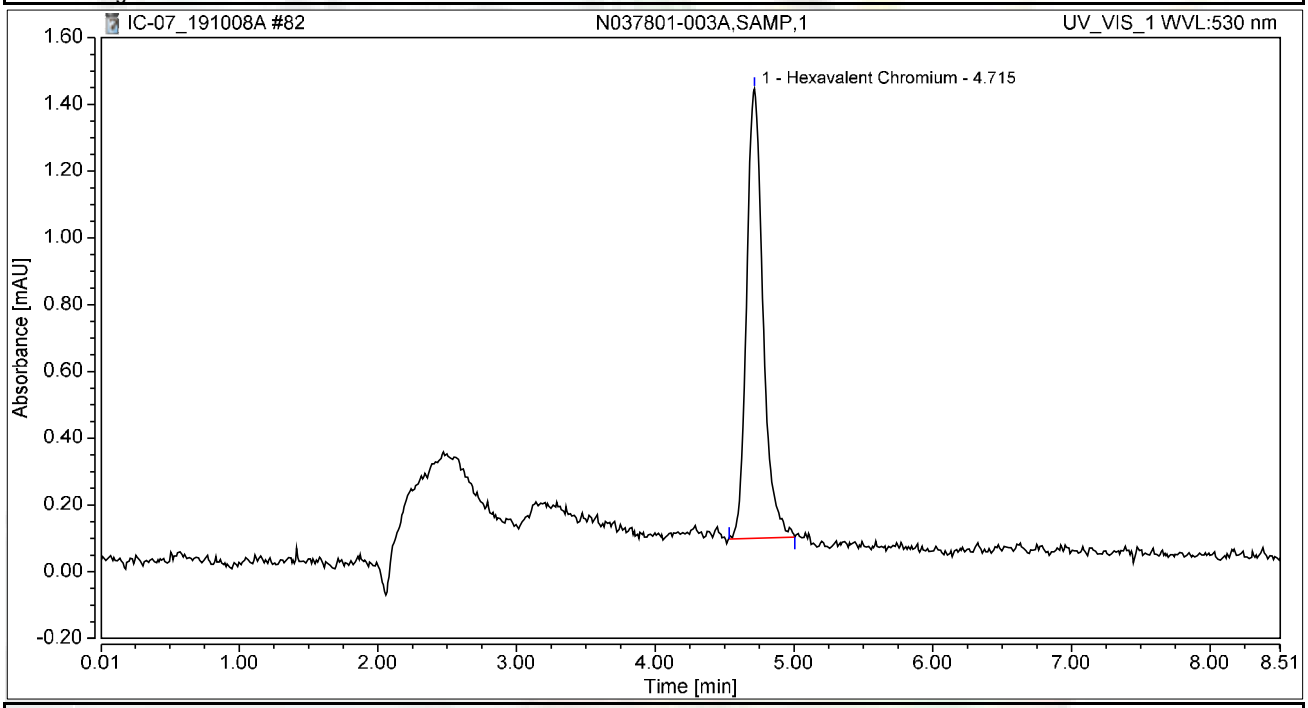
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.520	3.768	100.00	100.00	1.9314
Total:			**0.520**	**3.768**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 19:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

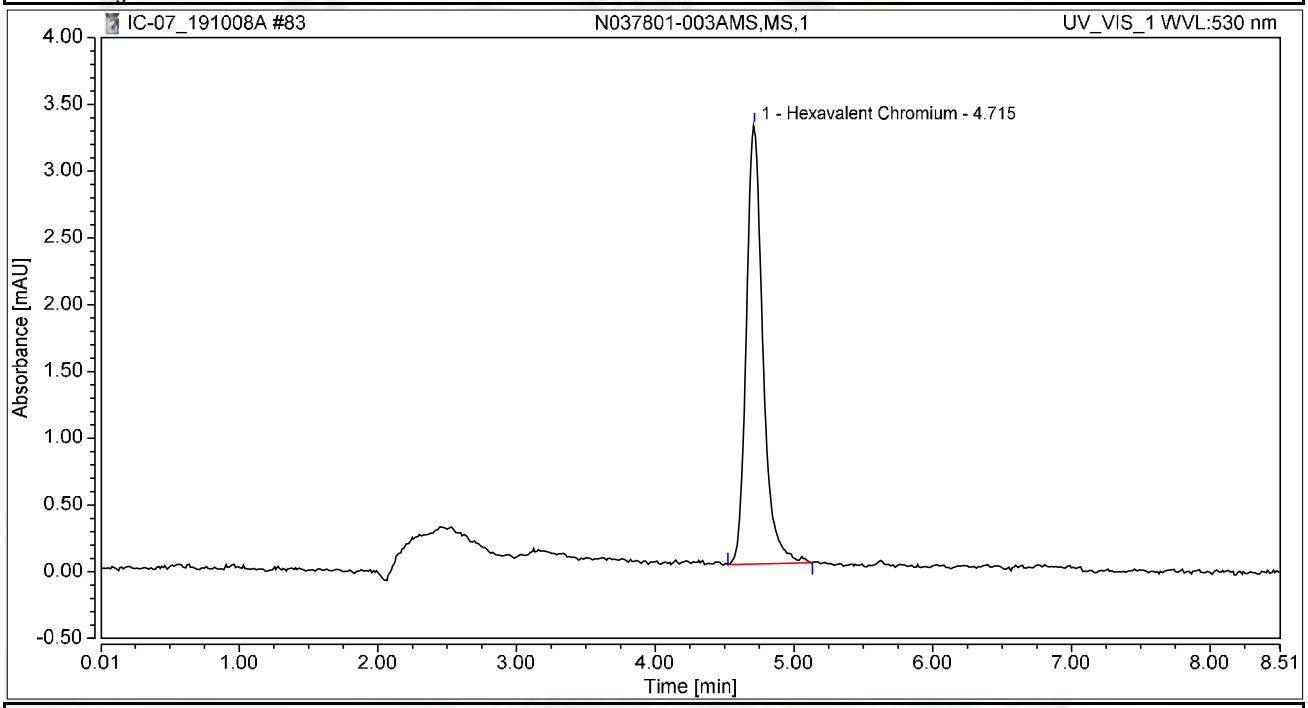
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.185	1.346	100.00	100.00	0.6877
Total:			**0.185**	**1.346**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

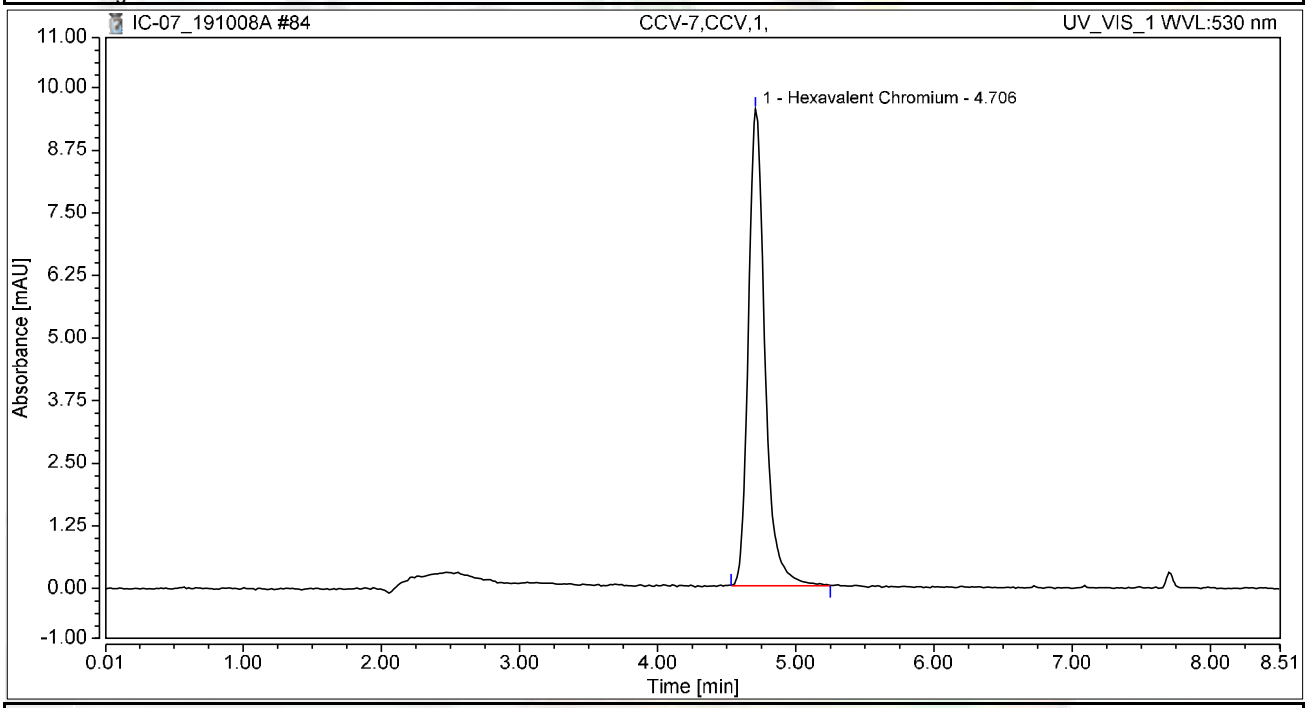
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.456	3.290	100.00	100.00	1.6926
Total:			**0.456**	**3.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

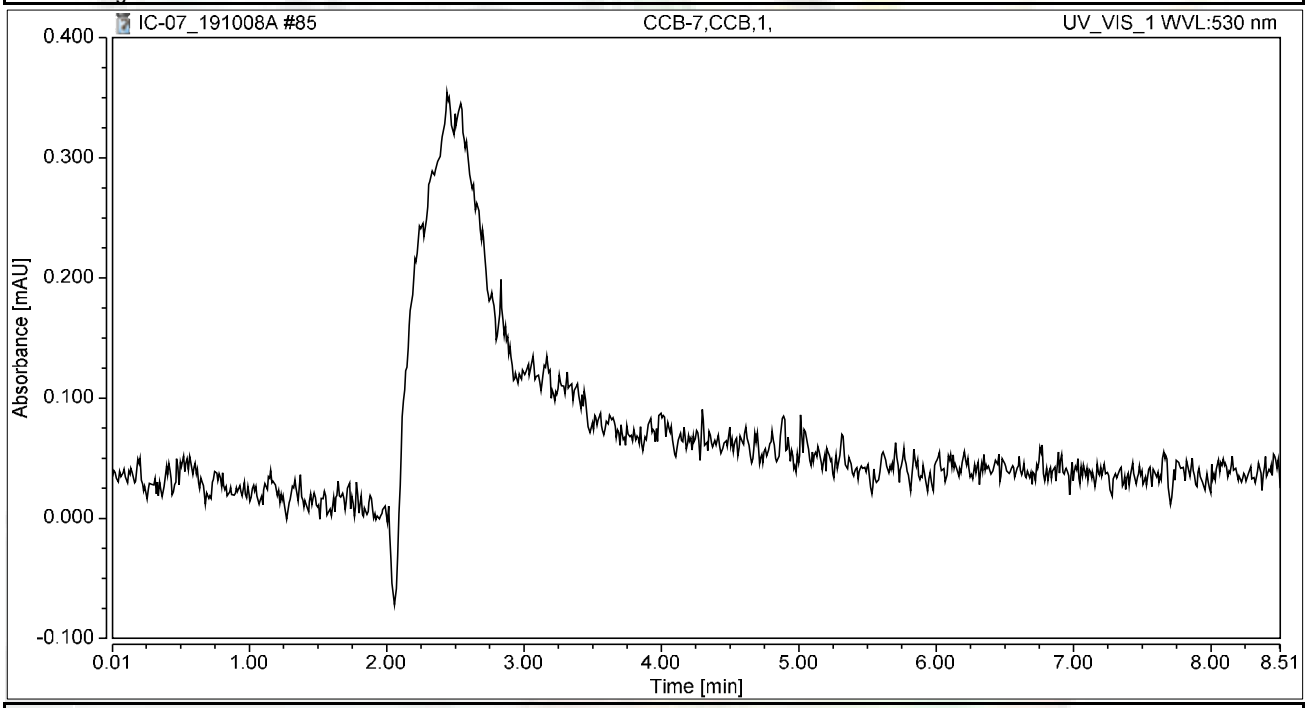
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.322	9.517	100.00	100.00	4.9133
Total:			**1.322**	**9.517**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

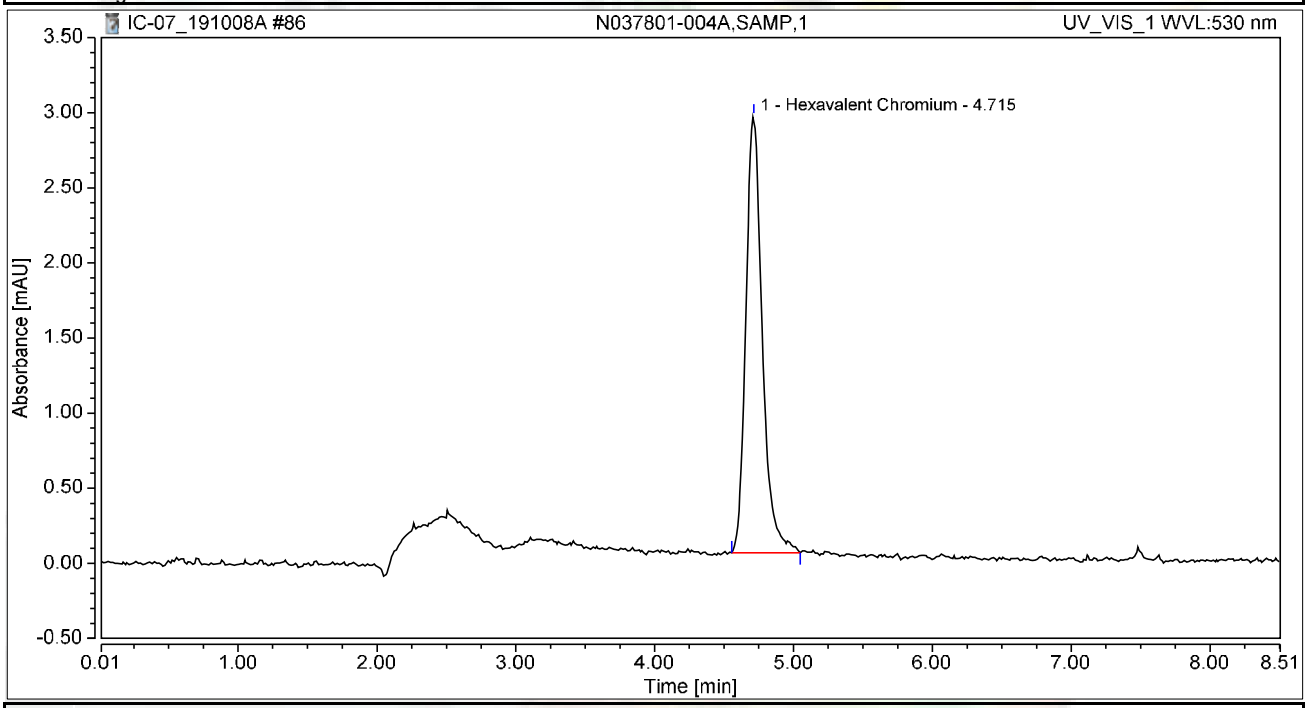
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

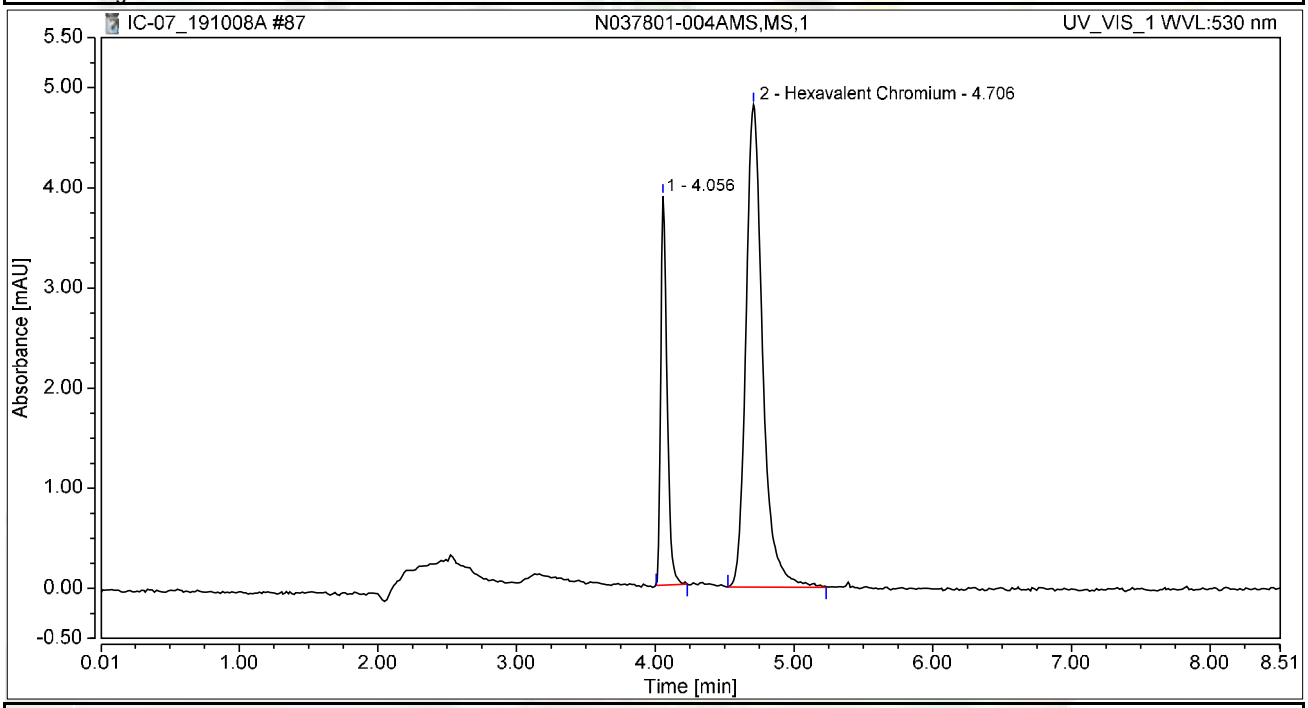
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.399	2.907	100.00	100.00	1.4817
Total:			**0.399**	**2.907**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

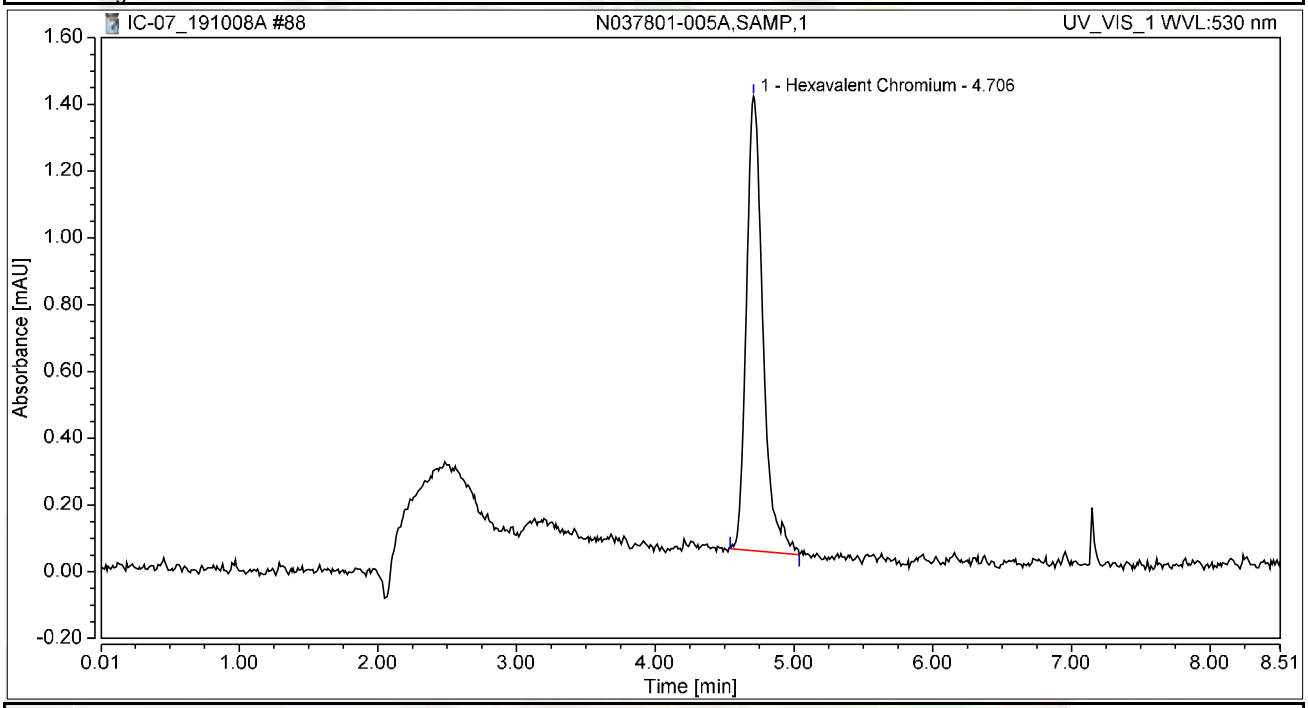
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.056	0.207	3.886	23.49	44.65	n.a.
2	Hexavalent Chromium	4.706	0.674	4.818	76.51	55.35	2.5041
Total:			**0.881**	**8.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

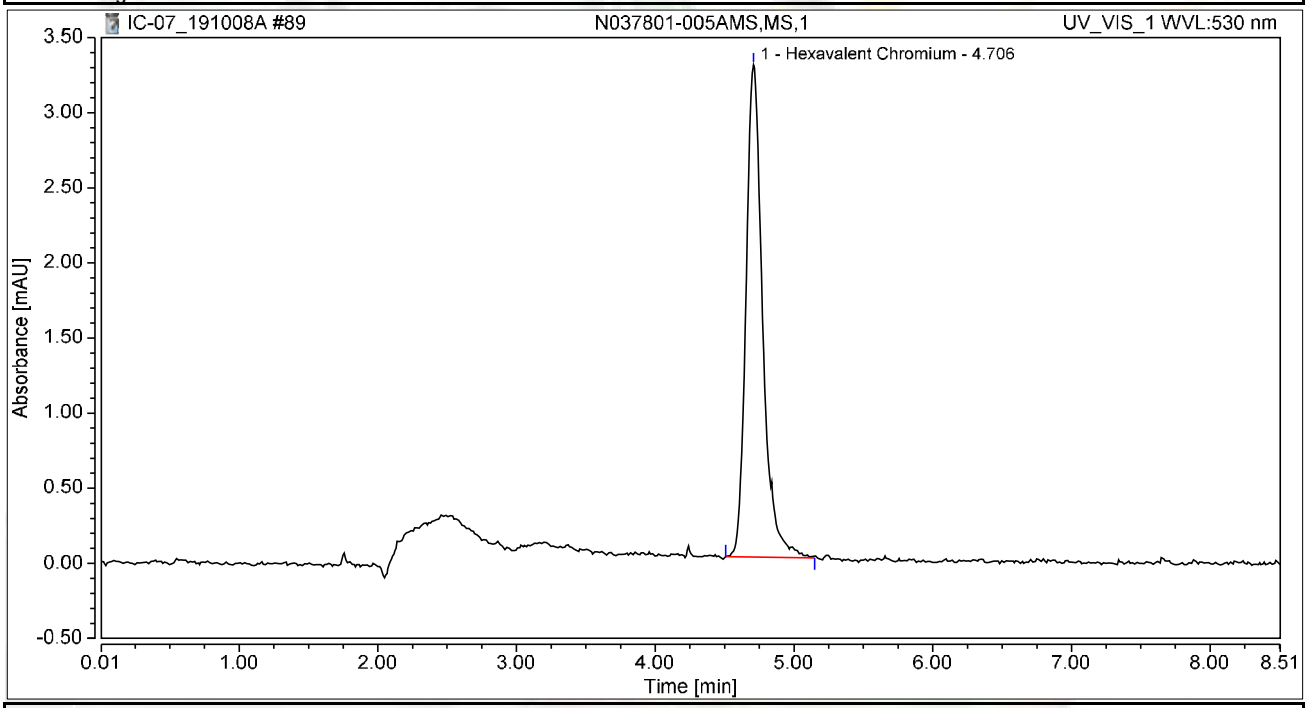
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.188	1.361	100.00	100.00	0.7001
Total:			**0.188**	**1.361**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 20:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

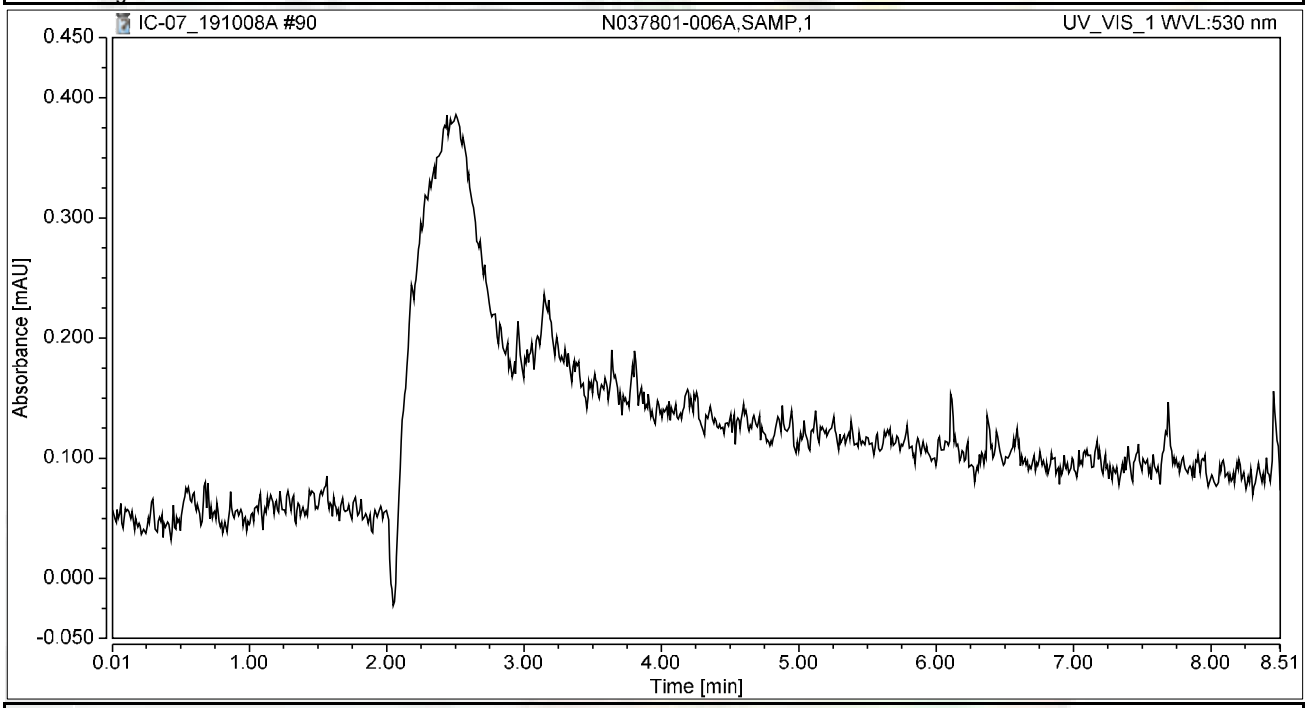
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.456	3.277	100.00	100.00	1.6928
Total:			**0.456**	**3.277**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

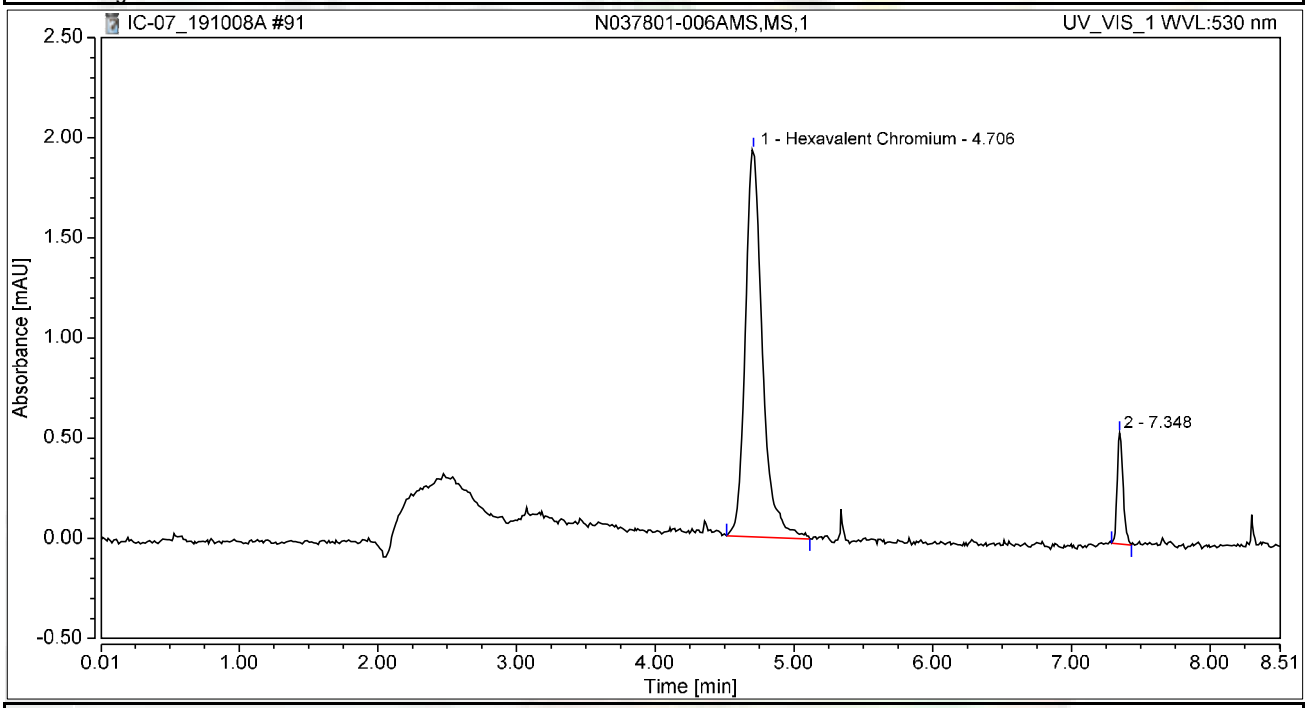
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

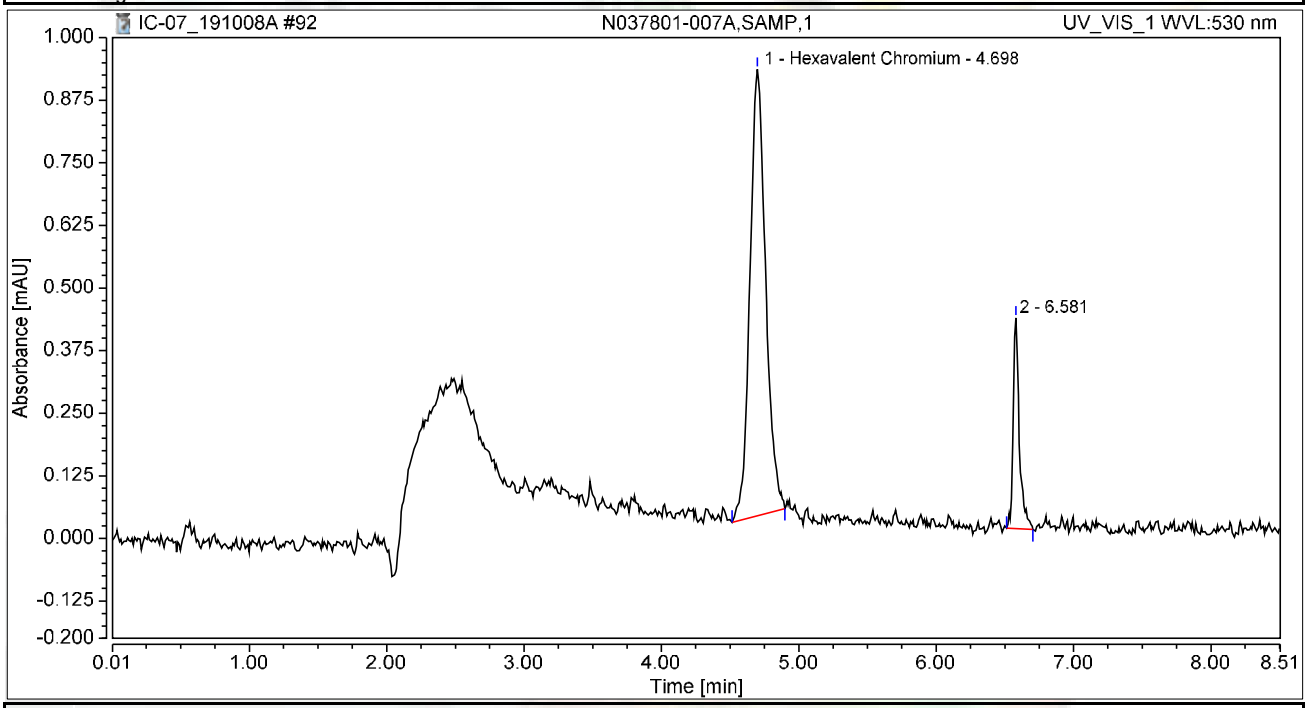
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.277	1.933	91.05	77.75	1.0287
2		7.348	0.027	0.553	8.95	22.25	n.a.
Total:			**0.304**	**2.486**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

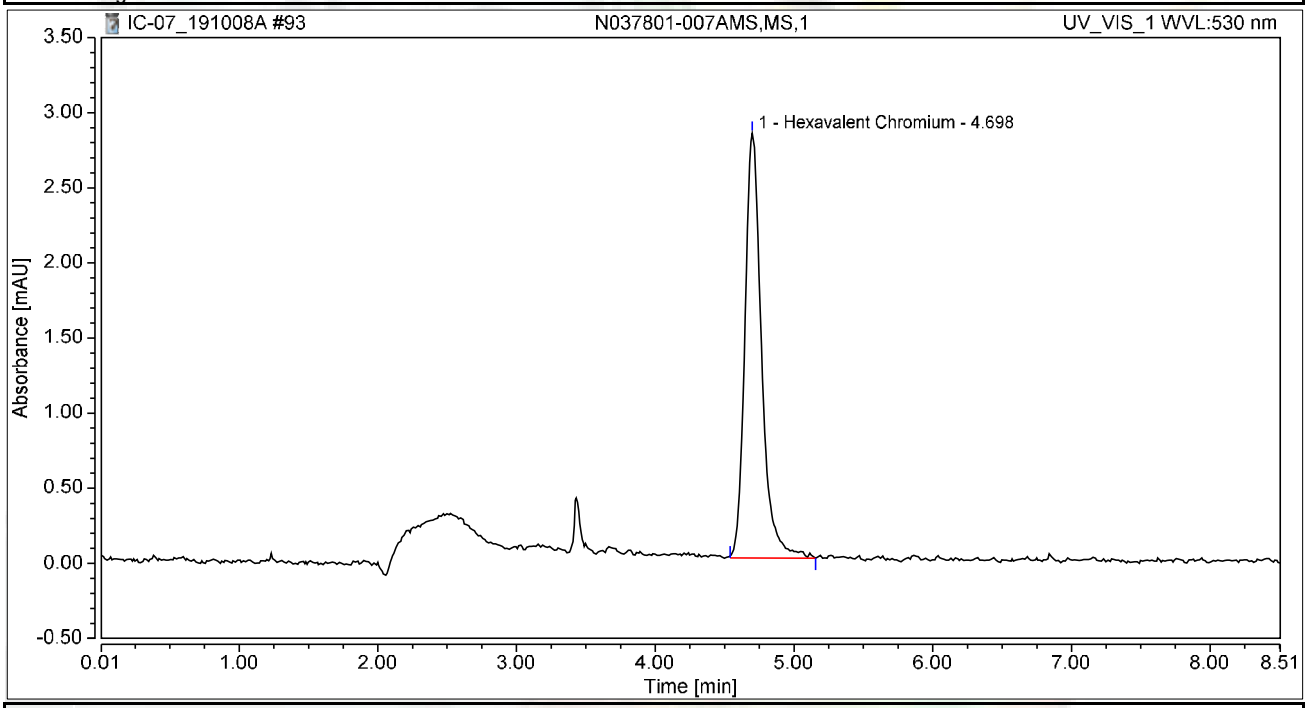
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.118	0.891	84.32	67.92	0.4390
2		6.581	0.022	0.421	15.68	32.08	n.a.
Total:			**0.140**	**1.312**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

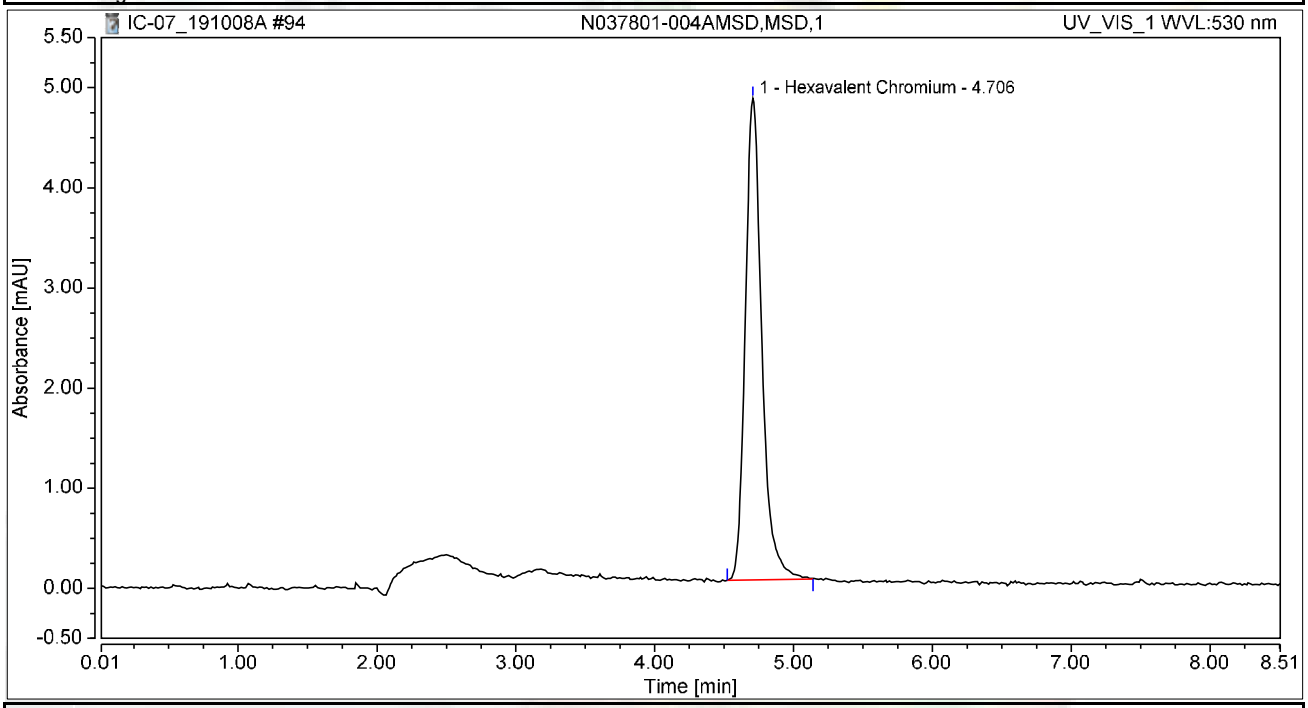
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.395	2.827	100.00	100.00	1.4661
Total:			**0.395**	**2.827**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-004AMSD,MSD,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

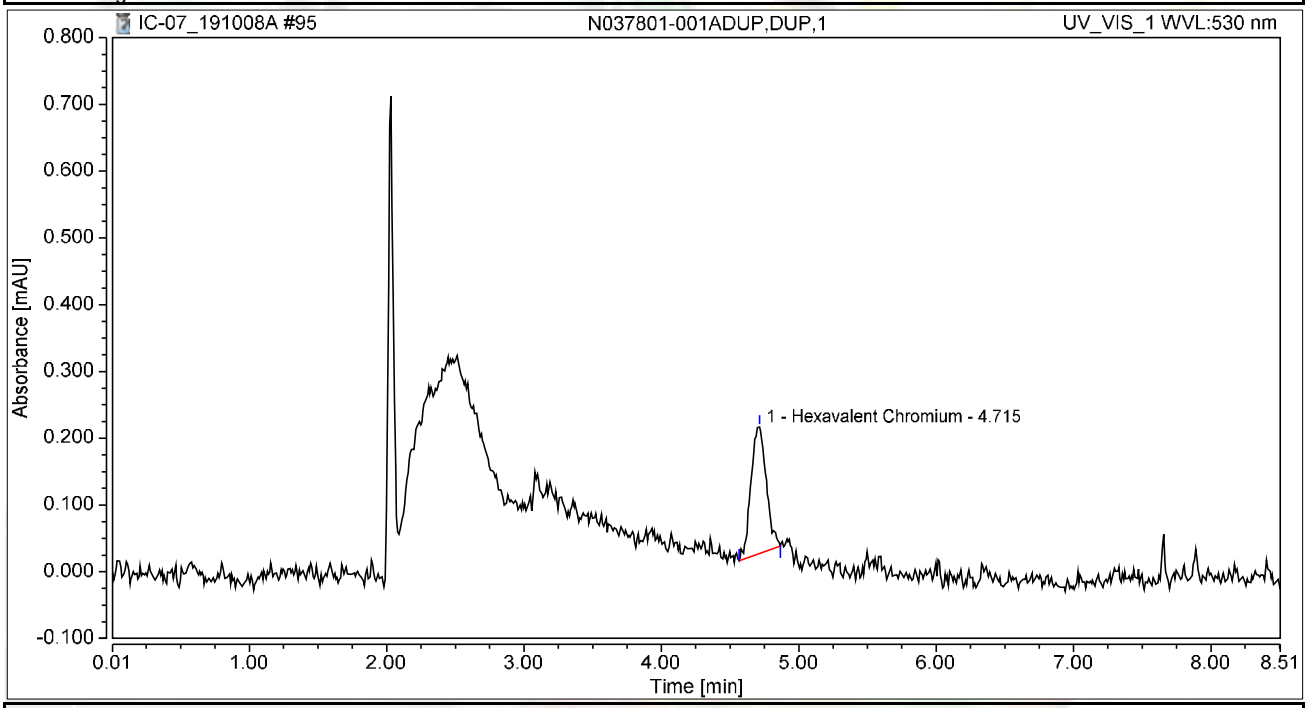
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.664	4.808	100.00	100.00	2.4673
Total:			**0.664**	**4.808**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037801-001ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 21:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

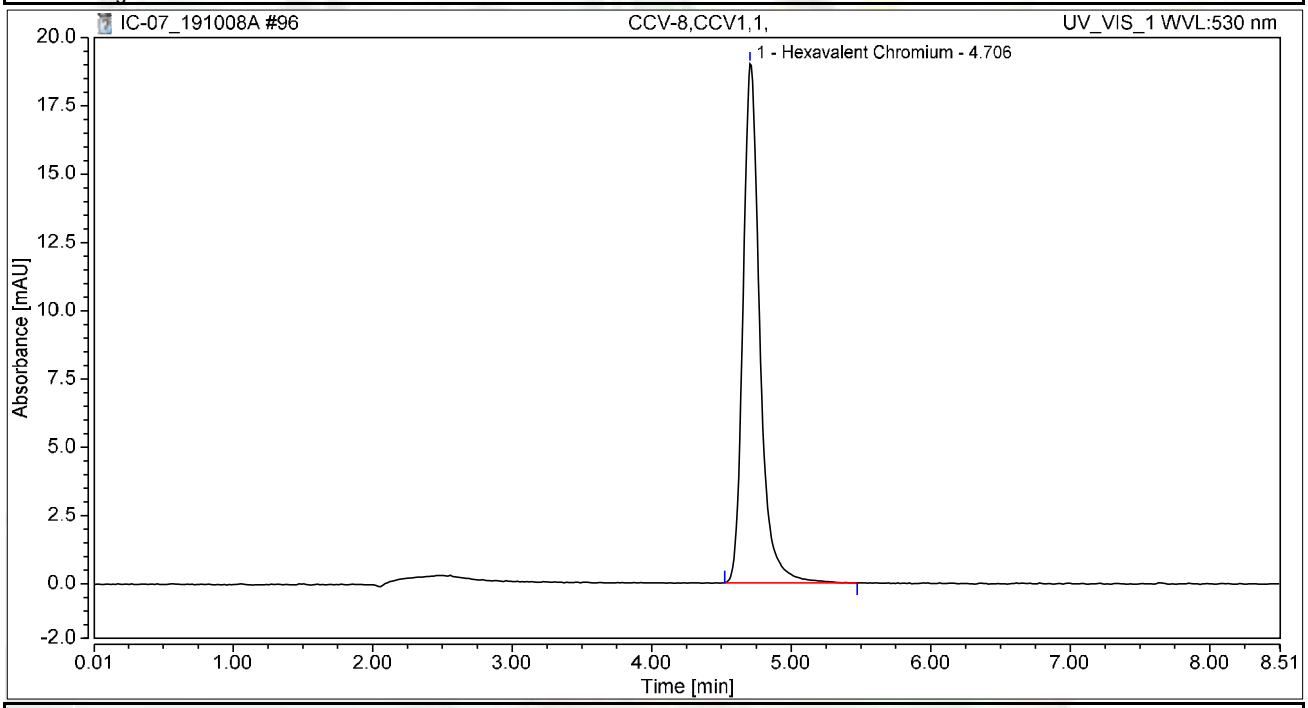
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.025	0.189	100.00	100.00	0.0919
Total:			**0.025**	**0.189**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-8,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

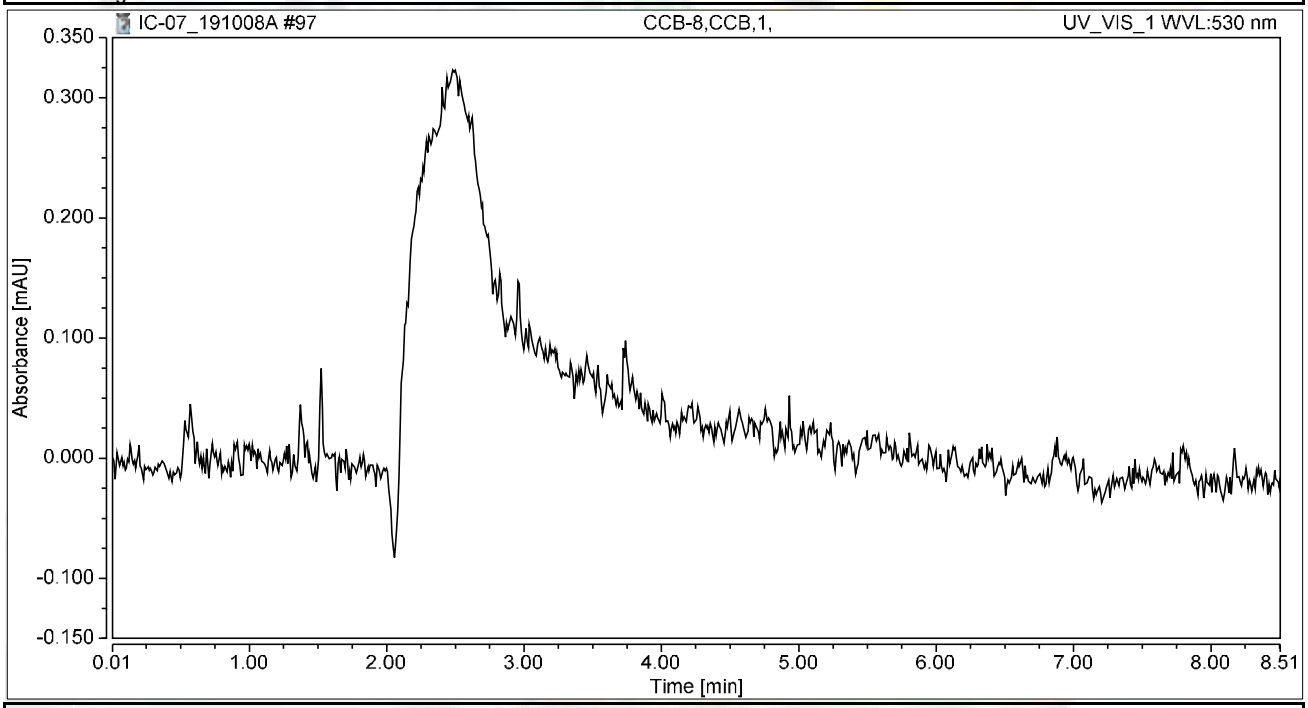
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.658	19.005	100.00	100.00	9.8757
Total:			**2.658**	**19.005**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-8,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

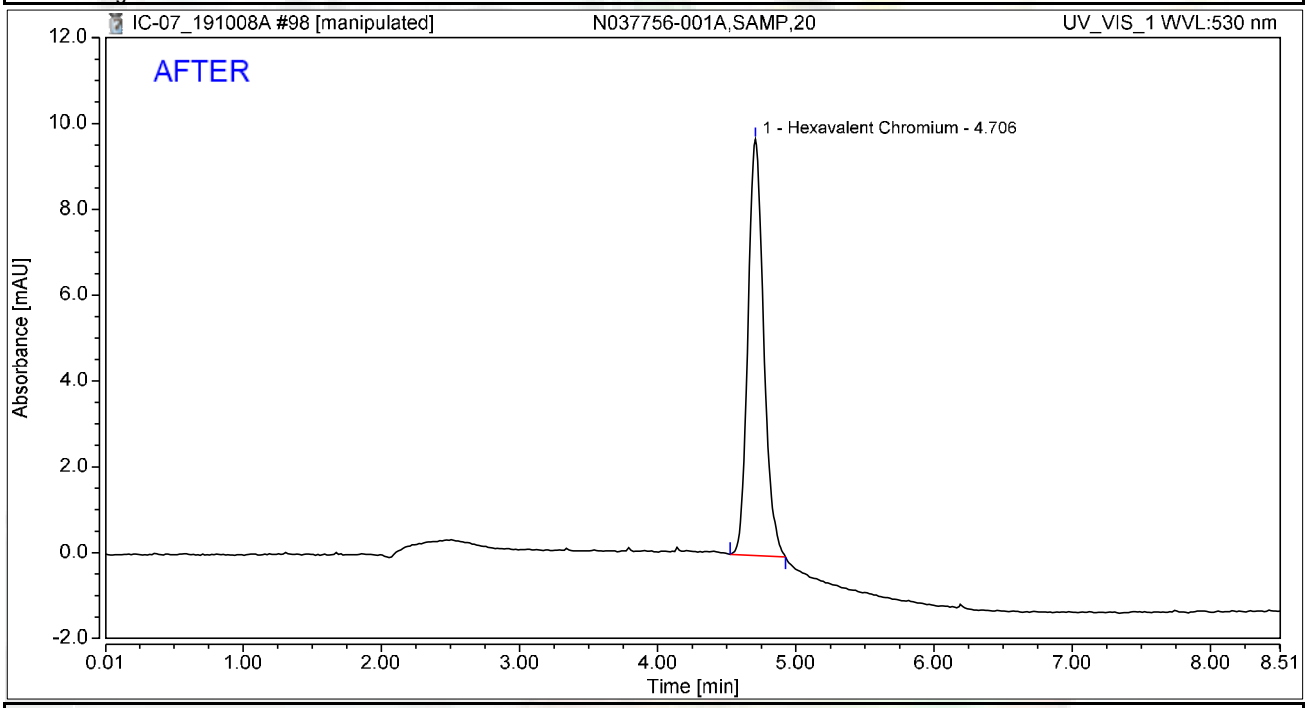
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037756-001A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.280	9.697	100.00	100.00	4.7540
Total:			**1.280**	**9.697**	**100.00**	**100.00**	

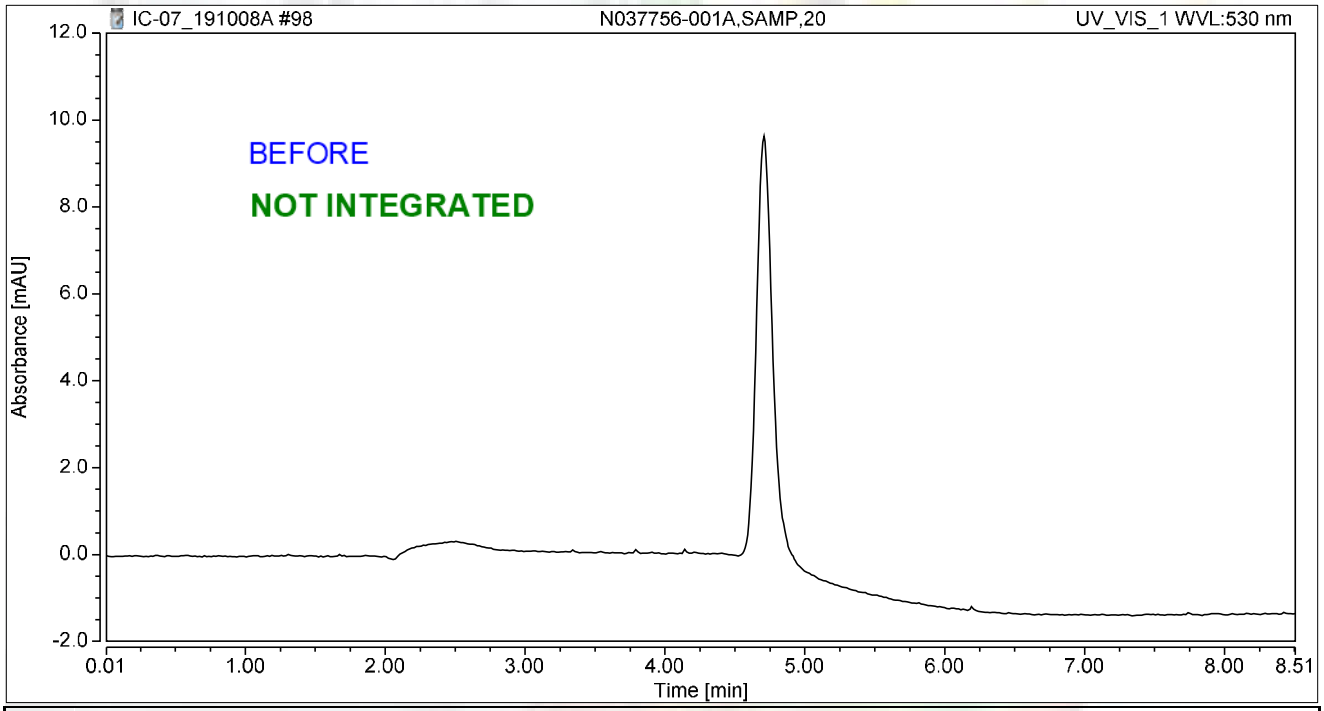
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037756-001A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

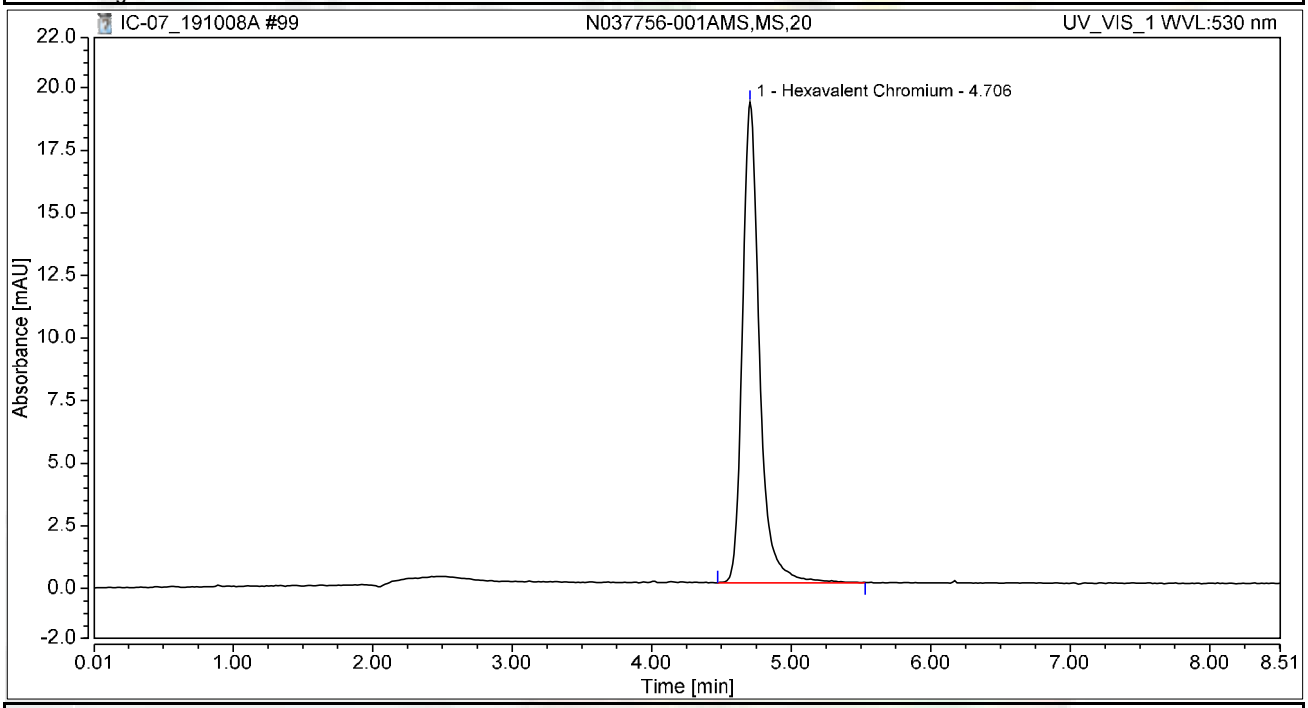
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037756-001AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

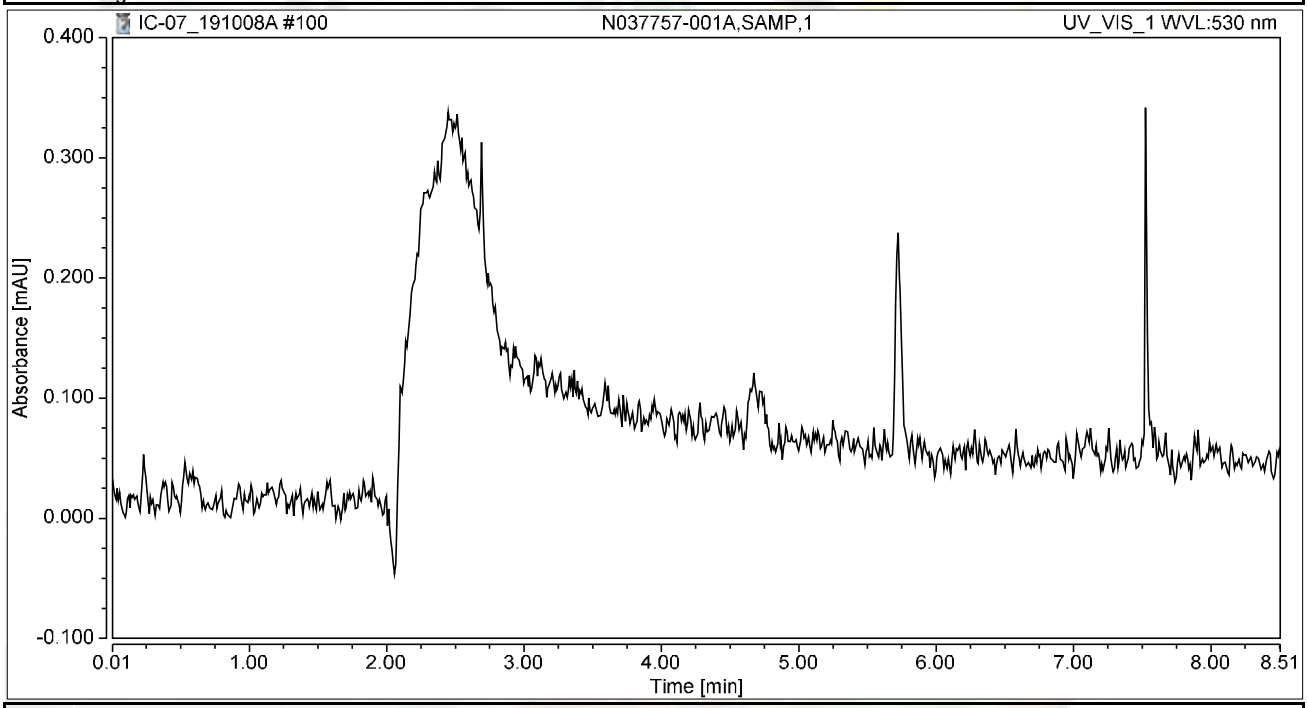
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.721	19.193	100.00	100.00	10.1095
Total:			**2.721**	**19.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

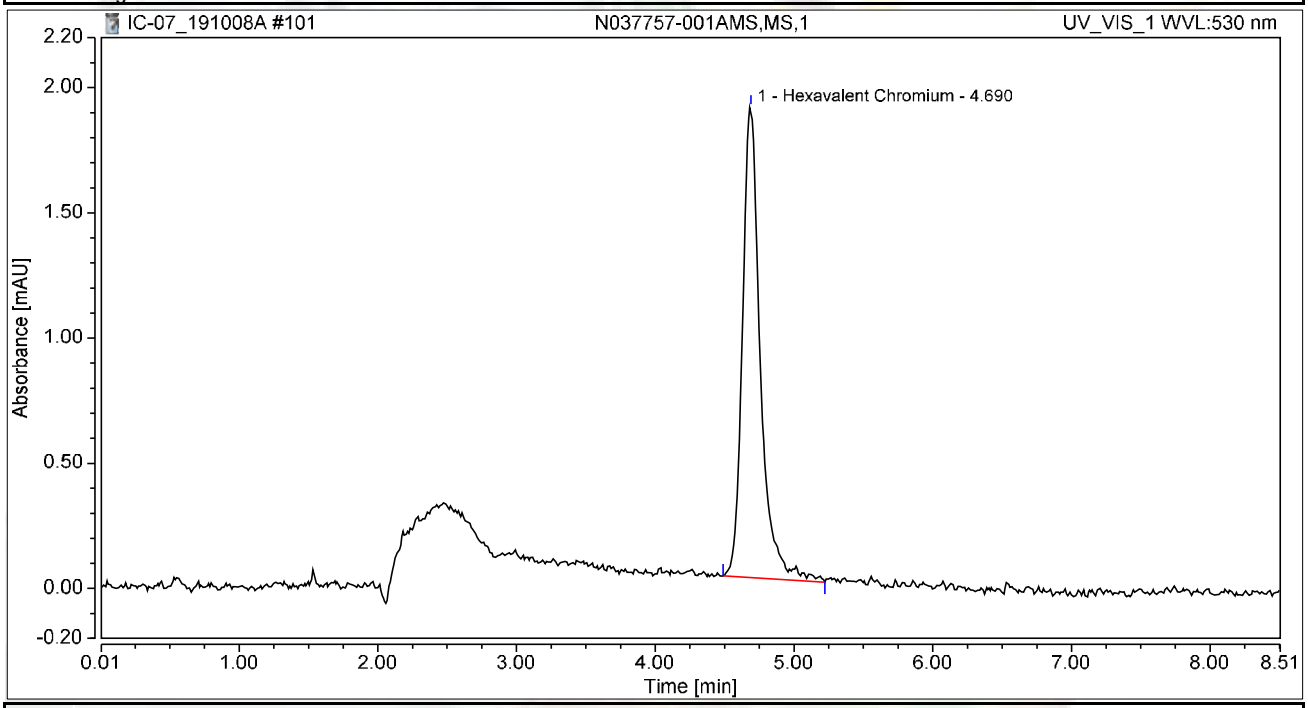
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 22:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

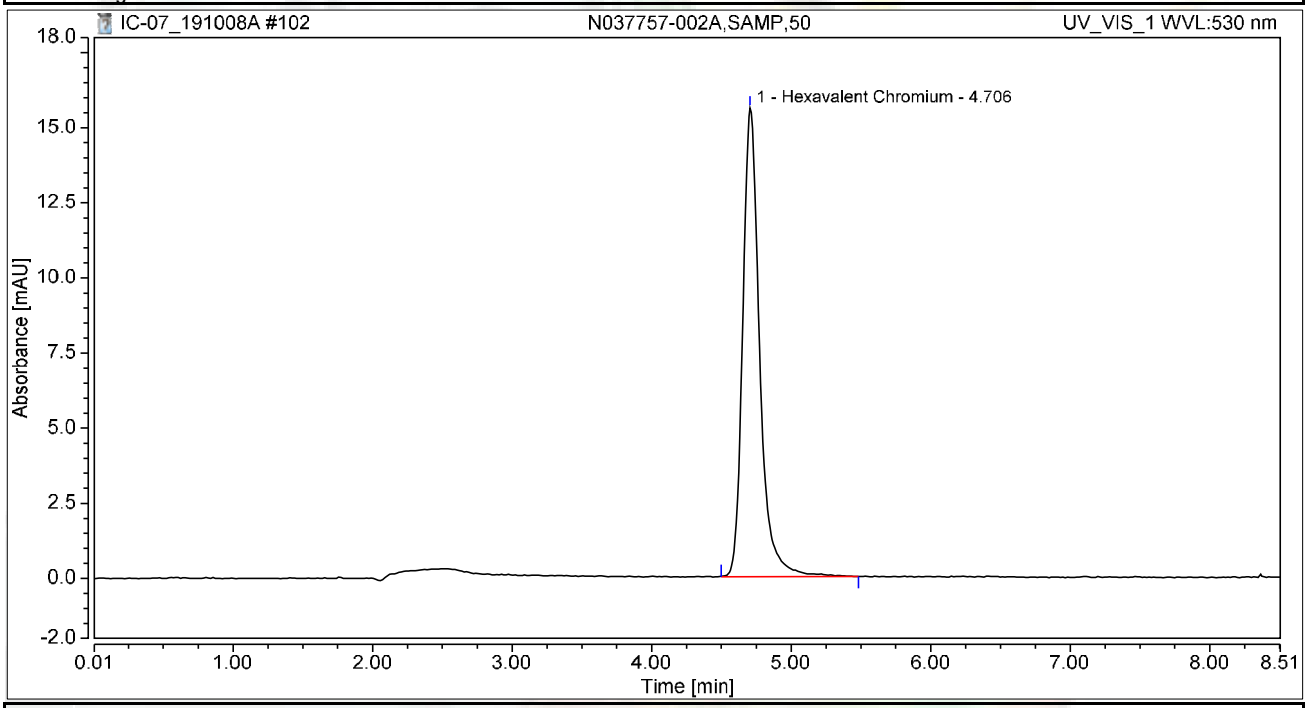
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.282	1.880	100.00	100.00	1.0459
Total:			**0.282**	**1.880**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-002A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

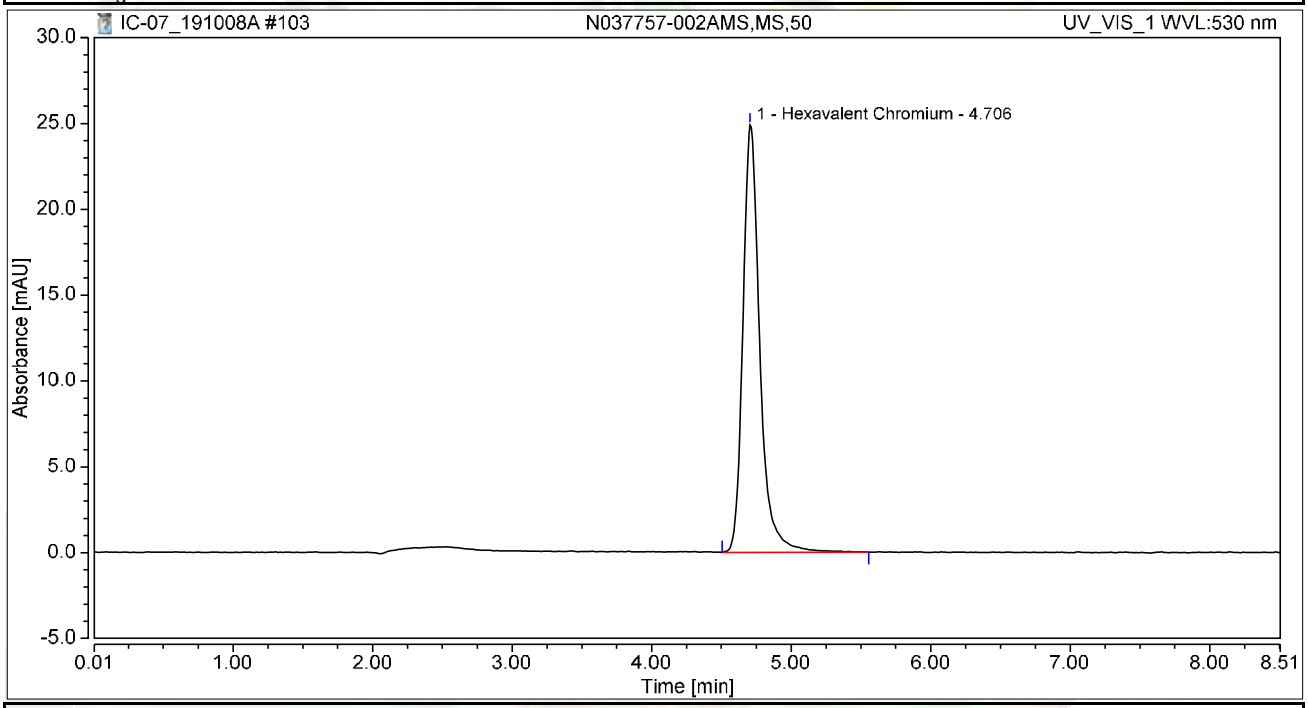
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.197	15.601	100.00	100.00	8.1628
Total:			**2.197**	**15.601**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037757-002AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

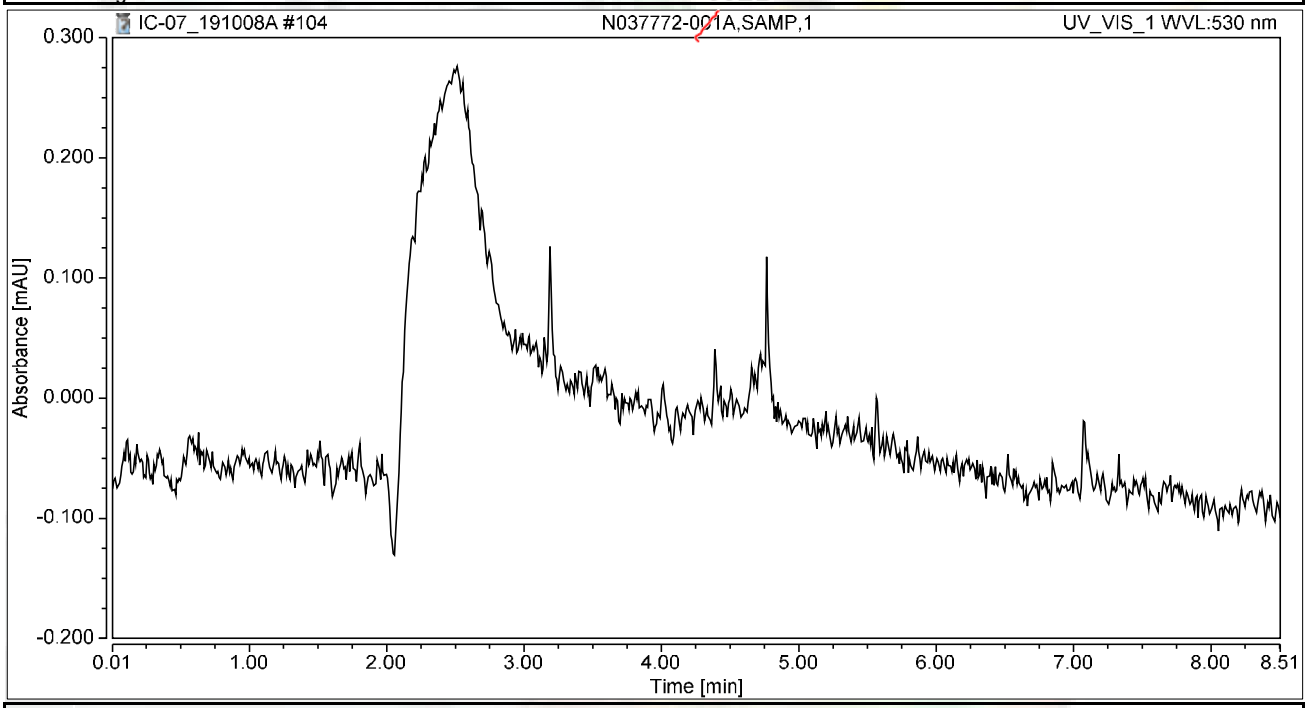
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	3.500	24.906	100.00	100.00	13.0029
Total:			**3.500**	**24.906**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details -002B

Injection Name:	**N037772-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:20**	*Sample Weight:*	**1.0000**

Chromatogram -002B



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

10/14/2019
for

Chromatogram and Results

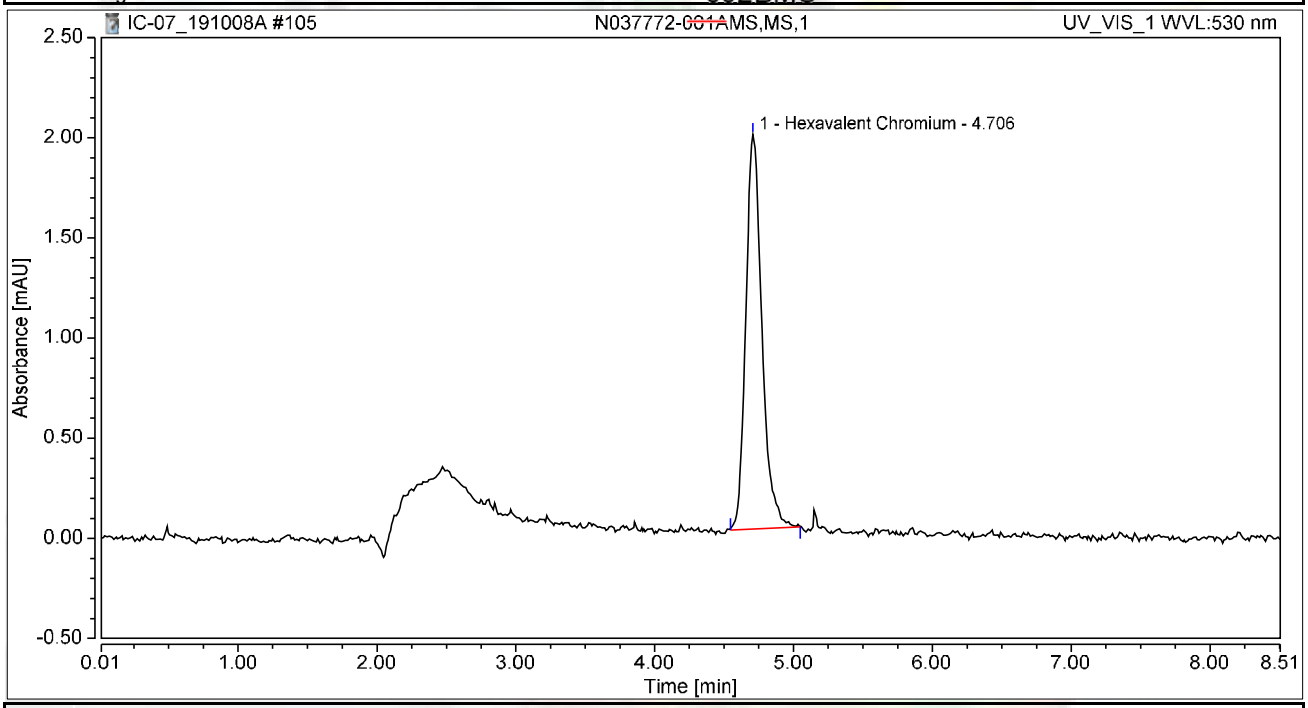
Injection Details

-002BMS

Injection Name:	**N037772-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:29**	*Sample Weight:*	**1.0000**

Chromatogram

-002BMS



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.264	1.968	100.00	100.00	0.9816
Total:			**0.264**	**1.968**	**100.00**	**100.00**	

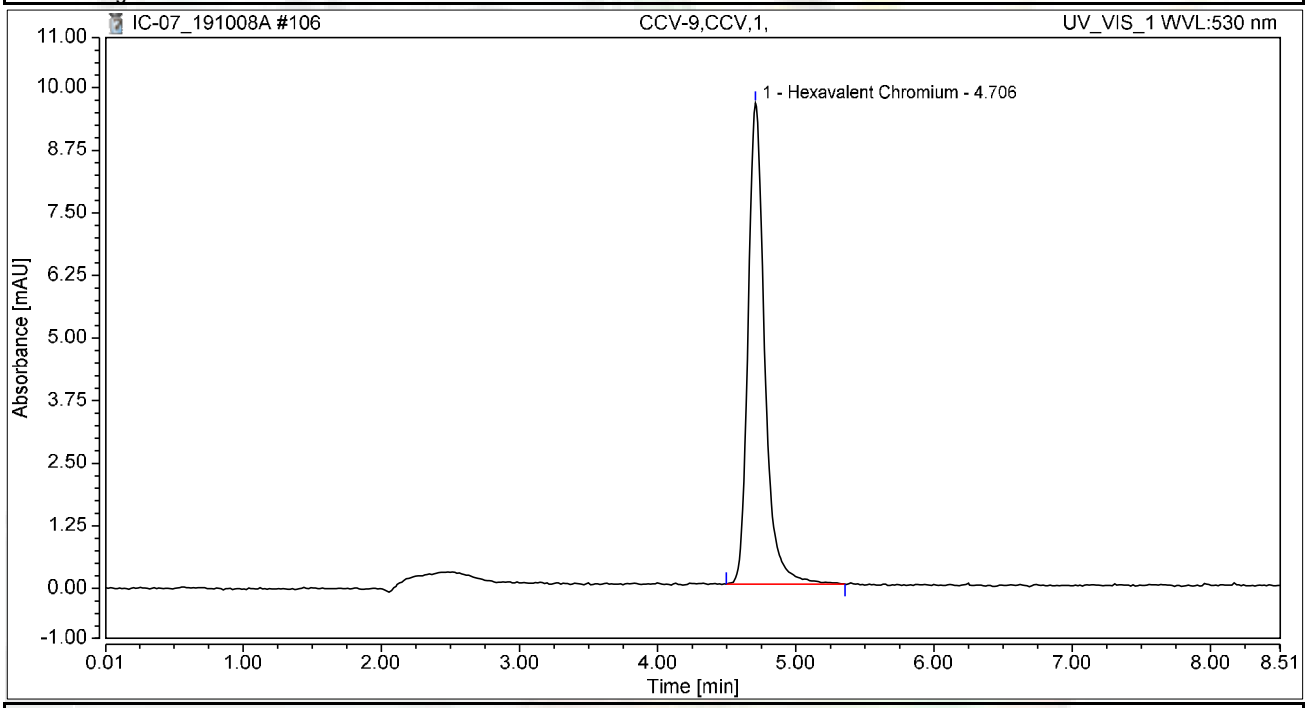
10/14/2019
for

Chromatogram and Results

Injection Details

Injection Name:	**CCV-9,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

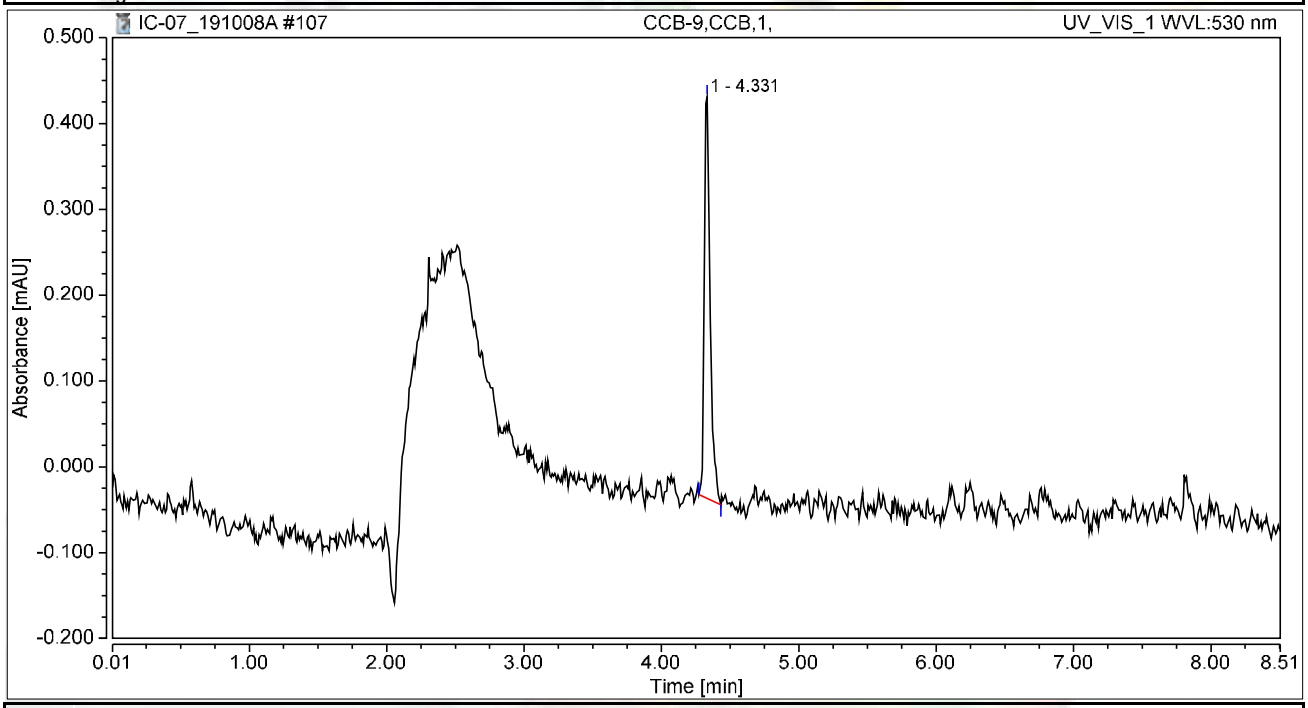
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.341	9.605	100.00	100.00	4.9820
Total:			**1.341**	**9.605**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-9,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

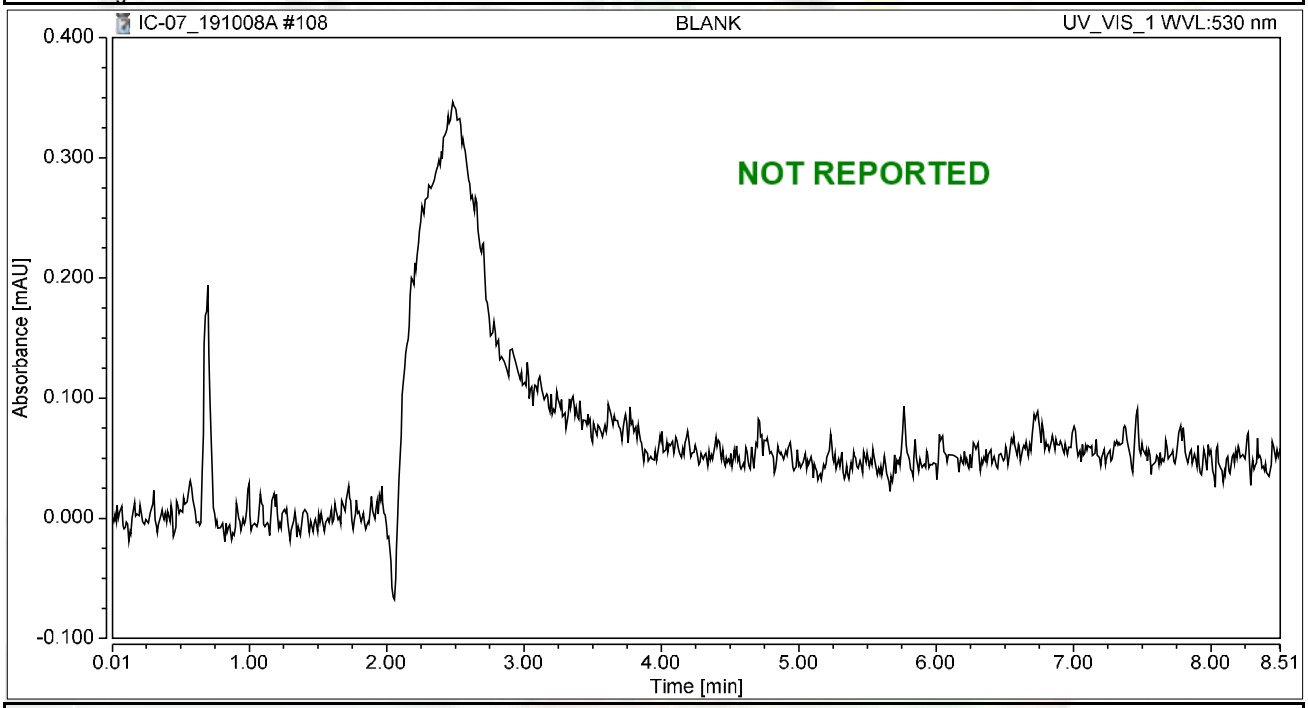
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.331	0.023	0.468	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.023**	**0.468**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**191003_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Oct/19 23:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320 B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136779 **Analyst:** LSR

ASSET #: N037757 **Date Analyzed:** 4-Oct

Method: EPA 2320

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 10/7/2019

2nd Level Reviewer: 10/22/2019 Date: —

SAMPLE CALCULATION

Sample ID: **N037757-001C @ pH 7.85**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.525 mL)

= **0.02169 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (11.70) (0.02169 N) (1) * 1000

= 253.7730 mg**/L**

Reporting results in two significant figures,

=**250 as CaCO3**

Julia Ramit 10/7/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02169 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (11.70 mL) (0.02169) (1) * 1000

= 253.7730 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ =253.7730 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **250 mg/L**

Shilpa Ramit 10/7/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.63	50	0.00	0.050	MBLK
LCS-1	8.45	50	0.05	4.75	LCS
N037756-001C	7.49	50	0.00	7.20	SAMP
N037757-001C	7.85	50	0.00	11.70	SAMP
N037757-002C	7.95	50	0.00	7.70	SAMP
N037758-001D	7.01	50	0.00	2.80	SAMP
N037758-002D	7.70	50	0.00	3.35	SAMP
N037758-003D	7.15	50	0.00	12.80	SAMP
N037758-005D	7.60	50	0.00	3.40	SAMP
N037758-006D	7.58	50	0.00	6.20	SAMP
N037758-008D	7.88	50	0.00	3.65	SAMP
N037758-009D	7.75	50	0.00	3.75	SAMP
N037758-010D	7.78	50	0.00	3.65	SAMP
N037758-003DDUP	7.28	50	0.00	12.95	DUP
N037758-005DMS	8.14	50	0.00	7.85	MS
N037758-005DMSD	8.14	50	0.00	7.90	MSD

Standardization:

Spike amt:	**5**	ml
Titrant used:	**11.525**	ml
N H2SO4	**0.02169**	Normal
Date Analyzed:	**10/4/19**	
Time:	**9:20 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190930B**	

Julia Ramit 10/7/2019

Date Analyzed:	10/4/19		Reagents:					Standardization:					P = 0
Time Started:	9:20 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.525	mL		P = 1/2 T
				Sulfuric Acid:		R190930B							P > 1/2 T
									N H2SO4	0.02169	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.63				0.02169	0.00	0.05	0.05	1	0.00	1.08	
LCS-1	50	8.45				0.02169	0.05	4.70	4.75	1	1.08	103.04	
N037756-001C	50	7.49				0.02169	0.00	7.20	7.20	1	0.00	156.18	
N037757-001C	50	7.85				0.02169	0.00	11.70	11.70	1	0.00	253.80	
N037757-002C	50	7.95				0.02169	0.00	7.70	7.70	1	0.00	167.03	
N037758-001D	50	7.01				0.02169	0.00	2.80	2.80	1	0.00	60.74	
N037758-002D	50	7.7				0.02169	0.00	3.35	3.35	1	0.00	72.67	
N037758-003D	50	7.15				0.02169	0.00	12.80	12.80	1	0.00	277.66	
N037758-005D	50	7.6				0.02169	0.00	3.40	3.40	1	0.00	73.75	
N037758-006D	50	7.58				0.02169	0.00	6.20	6.20	1	0.00	134.49	
N037758-008D	50	7.88				0.02169	0.00	3.65	3.65	1	0.00	79.18	
N037758-009D	50	7.75				0.02169	0.00	3.75	3.75	1	0.00	81.34	
N037758-010D	50	7.78				0.02169	0.00	3.65	3.65	1	0.00	79.18	
N037758-003DDU	50	7.28				0.02169	0.00	12.95	12.95	1	0.00	280.91	
N037758-005DMS	50	8.14				0.02169	0.00	7.85	7.85	1	0.00	170.28	
N037758-005DMS	50	8.14				0.02169	0.00	7.90	7.90	1	0.00	171.37	

Julia Ramit 10/7/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	10/4/19
Time:	9:20 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.08	1.08	1.08		P = 0
LCS-1	0.00	2.17	100.87	103.04	103.04		P < 1/2 T
N037756-001C	0.00	0.00	156.18	156.18	156.18		P = 0
N037757-001C	0.00	0.00	253.80	253.80	253.80		P = 0
N037757-002C	0.00	0.00	167.03	167.03	167.03		P = 0
N037758-001D	0.00	0.00	60.74	60.74	60.74		P = 0
N037758-002D	0.00	0.00	72.67	72.67	72.67		P = 0
N037758-003D	0.00	0.00	277.66	277.66	277.66		P = 0
N037758-005D	0.00	0.00	73.75	73.75	73.75		P = 0
N037758-006D	0.00	0.00	134.49	134.49	134.49		P = 0
N037758-008D	0.00	0.00	79.18	79.18	79.18		P = 0
N037758-009D	0.00	0.00	81.34	81.34	81.34		P = 0
N037758-010D	0.00	0.00	79.18	79.18	79.18		P = 0
N037758-003DDUP	0.00	0.00	280.91	280.91	280.91		P = 0
N037758-005DMS	0.00	0.00	170.28	170.28	170.28		P = 0
N037758-005DMSD	0.00	0.00	171.37	171.37	171.37		P = 0

Divia Ramit 10/7/2019

Alkalinity Preparation and Runlog

Matrix: H2O

Date Extracted: 10/4/19
Time Extracted: 1520
Extracted By: LBR

Date Analyzed: 10/4/19
Time Analyzed: 920
Analyzed By: LBR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV-161205A
Hydrochloric Acid: —
Sulfuric Acid: R190930B
Sodium Bicarbonate: CINV190515A

pH meter Calibration:
SLOPE: 97.7%
pH 7 - 7.02 CINV-190724H
4 - 4.01 J
10 - 10.02 CINV-190801A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50mL	10.66	WST190923DA	5mL	0.05N	-	-	11.50	50/50	$N_{H_2SO_4} = \frac{(2.65g/L)(5mL)}{(53)(V\ titrant)}$	= 0.02173913
	#2	↓	10.74	↓	↓	↓	-	-	11.55	↓		= 0.02164502
1)	MBLK	50mL	5.63	-	-	-	0.02169		0.05	50/50		Ave: 0.02169205
2)	LCS		8.45	WST191003A	1mL	0.05N			4.75			
3)	N037756-1C		7.49						7.20			
4)	N037757-1C		7.85						11.70			
5)	↓ 2C		7.95						7.70			
6)	N037758-1D		7.01						2.80			
7)	2D		7.70						3.35			
8)	3D		7.15						12.80			
9)	5D		7.60						3.40			
10)	6D		7.58						6.20			
11)	8D		7.88						3.65			
12)	9D		7.75						3.75			
13)	10D		7.78						12953.65	WP 1014		
14)	300MP		7.28						12.95			
15)	5DMS		8.14	WST191003A	1mL	0.05N			7.85			
16)	5DMSD	↓	8.14	↓	↓	↓			7.90			
17)												
18)				$P = \frac{(V\ pH\ 8.3)(N_{H_2SO_4})(50,000)}{V_{SX}}$								
19)												
20)											Julia Ramit 10/7/2019	
	MS			$T = \frac{(V\ pH\ 4.5)(N_{H_2SO_4})(50,000)}{V_{SX}}$								
	MSD											
	LCS											

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136993
ASSET #: N037757

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 10/14/2019

Method:

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?			X			
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: rba 10/23/2019 Date: —

2nd Level Reviewer: 10/23/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N037757-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.7944 * 50

= 289.72

Reporting result in two significant values,

Sulfate, mg/L = 290

ANALYSIS RUN LOG

Sequence: IC-08_191014A
Operator: IC-05
Printed: 10/16/2019 12:16:31 AM

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
Created: 10/14/2019 10:21:17 AM by IC-05
#Samples: 32
(Modified, not saved)

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
2	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_191014	Finished
3	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_191014	Finished
4	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_191014	Finished
5	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_191014	Finished
6	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_191014	Finished
7	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_191014	Finished
8	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
9	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
12	N037757-001C,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
13	N037757-002C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
14	N037757-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
15	N037757-002C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
16	N037836-001B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
17	N037836-002B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
18	N037836-003B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
19	N037836-004B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
20	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
21	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
22	N037836-005B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
23	N037836-006B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
24	N037836-007B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
25	N037836-008B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
26	N037836-009B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
27	N037836-002BMS,MS,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
28	N037836-002BMSD,MSD,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
29	N037836-006BMS,MS,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
30	N037836-003BDUP,DUP,20	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
31	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished
32	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_191014	Finished

PROCESSED BY:



Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 32
Created: 10/14/2019 10:21:17 AM by IC-05
(Modified, not saved)

No.	Name	Inj. Date/Time	Comment
1	BLANK	10/14/2019 10:22:53 AM	BLANK
2	Std - 0	10/14/2019 10:38:11 AM	IBLANK
3	Std - 1	10/14/2019 11:24:45 AM	STD-LOW
4	Std - 2	10/14/2019 11:55:34 AM	STD
5	Std - 3	10/14/2019 12:10:52 PM	STD
6	Std - 4	10/14/2019 12:26:11 PM	STD
7	Std - 5	10/14/2019 12:41:29 PM	STD-HIGH
8	ICV,ICV,1	10/14/2019 12:58:52 PM	ICV
9	ICB,ICB,1	10/14/2019 1:16:00 PM	ICB
10	MB-H2O,MBLK,1	10/14/2019 1:31:18 PM	METHOD BLANK
11	LCS-H2O,LCS,1	10/14/2019 2:20:35 PM	LCS
12	N037757-001C,SAMP,100	10/14/2019 2:36:37 PM	SAMP,0.1>10mL
13	N037757-002C,SAMP,500	10/14/2019 2:51:55 PM	SAMP,0.02>10mL
14	N037757-001C,SAMP,50	10/14/2019 3:07:13 PM	SAMP,0.2>10mL
15	N037757-002C,SAMP,50	10/14/2019 3:22:30 PM	SAMP,0.2>10mL
16	N037836-001B,SAMP,20	10/14/2019 3:37:48 PM	SAMP,0.5>10mL 9056
17	N037836-002B,SAMP,20	10/14/2019 3:53:07 PM	SAMP,0.5>10mL 9056
18	N037836-003B,SAMP,20	10/14/2019 4:08:25 PM	SAMP,0.5>10mL 9056
19	N037836-004B,SAMP,20	10/14/2019 4:23:43 PM	SAMP,0.5>10mL 9056
20	CCV-1,CCV,1	10/14/2019 4:39:01 PM	CCV
21	CCB-1,CCB,1	10/14/2019 4:54:19 PM	CCB
22	N037836-005B,SAMP,20	10/14/2019 5:09:37 PM	SAMP,0.5>10mL 9056
23	N037836-006B,SAMP,20	10/14/2019 5:24:54 PM	SAMP,0.5>10mL 9056
24	N037836-007B,SAMP,20	10/14/2019 5:40:12 PM	SAMP,0.5>10mL 9056
25	N037836-008B,SAMP,20	10/14/2019 5:55:30 PM	SAMP,0.5>10mL 9056
26	N037836-009B,SAMP,20	10/14/2019 6:10:48 PM	SAMP,0.5>10mL 9056
27	N037836-002BMS,MS,20	10/14/2019 7:11:50 PM	MS,0.5>10mL 9056
28	N037836-002BMSD,MSD,20	10/14/2019 7:27:08 PM	MSD,0.5>10mL 9056
29	N037836-006BMS,MS,20	10/14/2019 7:42:27 PM	MS,0.5>10mL 9056
30	N037836-003BDUP,DUP,20	10/14/2019 7:57:45 PM	DUP,0.5>10mL 9056
31	CCV-2,CCV,1	10/14/2019 8:13:02 PM	CCV
32	CCB-2,CCB,1	10/14/2019 8:28:20 PM	CCB

10/16/2019

INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/14/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0778	0.1546	0.3122	0.7954	1.6894	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST190913B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/14/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0528	0.2265	0.4622	1.1614	2.4477	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST191004D

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **ICV**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.010	0.50	2.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCV**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.935	0.50	2.000	0	96.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCV**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.944	0.50	2.000	0	97.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **ICV**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.168	0.50	4.000	0	104	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCV**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537419**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.957	0.50	4.000	0	98.9	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCV**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.987	0.50	4.000	0	99.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **ICB**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537387**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCB**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCB**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **ICB**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537410**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCB**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537420**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136993**
Client ID: **CCB**	Batch ID: **R136993**	TestNo: **EPA 300.0**		Analysis Date: **10/14/2019**	SeqNo: **3537431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/14/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	11.230	
CCV-1	Sulfate	11.210	
CCV-2	Sulfate	11.197	

Average 11.212

Applied RT Window 11.012 - 11.412

MB-R136993_SO4	Sulfate	N.A.	N.A.
LCS-R136993_SO4	Sulfate	11.217	PASS
N037757-001C	Sulfate	11.217	PASS
N037757-002C	Sulfate	11.220	PASS
N037836-002BMS	Sulfate	11.217	PASS
N037836-002BMSD	Sulfate	11.217	PASS
N037836-006BMS	Sulfate	11.217	PASS
N037836-003BDUP	Sulfate	11.214	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/14/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.557	
CCV-1	Chloride	4.554	
CCV-2	Chloride	4.557	
	Average	4.556	
	Applied RT Window	4.356 - 4.756	
MB-R136993_CL	Chloride	N.A.	N.A.
LCS-R136993_CL	Chloride	4.557	PASS
N037757-001C	Chloride	4.560	PASS
N037757-002C	Chloride	4.557	PASS
N037836-002BMS	Chloride	4.554	PASS
N037836-002BMSD	Chloride	4.554	PASS
N037836-006BMS	Chloride	4.557	PASS
N037836-003BDUP	Chloride	4.557	PASS

MDL STUDY

METHOD DETECTION LIMIT 2019

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 1/7/2019 ; 1/9/2019 ; 5/6/2019
Analyst/Technician: Ria Abes / Hanah Glodoviza

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	190107A D51	190107A D52	190107A D53	190109A D79	190109A D80	190506A D16	190506A D17					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.034	0.039	0.039	0.038	0.038	0.043	0.043	0.020	0.0031	**0.0096**	0.020	0.10
Chloride	0.201	0.201	0.200	0.200	0.202	0.178	0.179	0.050	0.0111	**0.0348**	0.080	0.50
Nitrite	0.033	0.032	0.032	0.035	0.035	0.031	0.031	0.020	0.0016	**0.0050**	0.010	0.05
Bromide	0.040	0.043	0.044	0.043	0.043	0.025	0.022	0.040	0.0095	**0.0300**	0.060	0.50
Nitrate	0.037	0.035	0.035	0.037	0.042	0.040	0.040	0.020	0.0028	**0.0087**	0.020	0.05
Phosphate	0.067	0.069	0.061	0.066	0.069	0.080	0.097	0.040	0.0120	**0.0378**	0.080	0.10
Sulfate	0.294	0.291	0.289	0.325	0.305	0.309	0.306	0.100	0.0127	**0.0399**	0.080	0.50

Note: All 7 Method Blanks analyzed together with the MDL samples have 0 ug/L concentrations

MDL/LOD & PQL Verification 2019 (1st Quarter)

Method Name: **Inorganic Anions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/8/2019
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD actual Conc., mg/L	PQL Spike Conc., mg/L	PQL actual Conc., mg/L	%Recovery
Fluoride	**0.0096**	0.02	0.038	0.100	0.114	**114**
Chloride	**0.0348**	0.08	0.207	0.500	0.550	**110**
Nitrite	**0.0050**	0.01	0.023	0.050	0.057	**114**
Bromide	**0.0300**	0.06	0.048	0.500	0.503	**101**
Nitrate	**0.0087**	0.02	0.032	0.050	0.064	**129**
Phosphate	**0.0378**	0.08	0.139	0.100	0.141	**141**
Sulfate	**0.0399**	0.08	0.291	0.500	0.661	**132**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136950 **Analyst:** MBC

ASSET #: N037613, 757, 646, 648, 736, 758, 771 **Date Analyzed:** 10/14/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer MBC Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037757-002D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.5643	*	5
	=	2.8215	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.8 mg/L

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

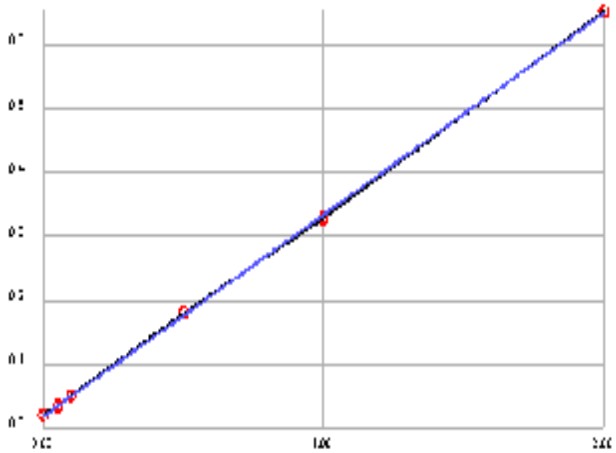
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3154x + 0.0192
Correlation	.999902

Calibrant	Energy	Set	Conc
1	0.0198	0.0000	0.0018
2	0.0351	0.0500	0.0503
3	0.0517	0.1000	0.1030
4	0.1793	0.5000	0.5076
5	0.3279	1.0000	0.9787
6	0.6527	2.0000	2.0086

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136950**
Client ID: **ICV**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**	SeqNo: **3535528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.470	0.050	0.5000	0	94.0	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136950**
Client ID: **CCV**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**	SeqNo: **3535776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.488	0.050	0.5000	0	97.6	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136950**
Client ID: **CCV**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**	SeqNo: **3535788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.486	0.050	0.5000	0	97.3	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136950**
Client ID: **CCV**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**	SeqNo: **3535798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.481	0.050	0.5000	0	96.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037757
Project: PG&E Topock - PMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	**ICB**	SampType:	**ICB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136950**
Client ID:	**ICB**	Batch ID:	**R136950**	TestNo:	**SM4500-NO3**			Analysis Date:	**10/14/2019**	SeqNo:	**3535530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**CCB-1**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136950**
Client ID:	**CCB**	Batch ID:	**R136950**	TestNo:	**SM4500-NO3**			Analysis Date:	**10/14/2019**	SeqNo:	**3535777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**CCB-2**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136950**
Client ID:	**CCB**	Batch ID:	**R136950**	TestNo:	**SM4500-NO3**			Analysis Date:	**10/14/2019**	SeqNo:	**3535789**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**CCB-3**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136950**
Client ID:	**CCB**	Batch ID:	**R136950**	TestNo:	**SM4500-NO3**			Analysis Date:	**10/14/2019**	SeqNo:	**3535802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-14-2019 20:55
Time end: 10-14-2019 23:46

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	23:06:51	0.0205		0.0257
2	<BLANK>	23:07:50	0.0063		0.0212
3	<CAL1>	23:08:45	0.0018	[0]	0.0198
4	<CAL2>	23:09:41	0.0503	[0.05]	0.0351
5	<CAL3>	23:10:41	0.1030	[0.1]	0.0517
6	<CAL4>	23:11:36	0.5076	[0.5]	0.1793
7	<CAL5>	23:12:32	0.9787	[1]	0.3279
8	<CAL6>	23:13:33	2.0086	[2]	0.6527
9	,BLANK,BLANK,1, NOT REPORTED	23:14:28	0.0494		0.0348
10	,ICV,ICV,1,	23:15:23	0.4701		0.1675
11	,ICB,ICB,1,	23:16:25	0.0094		0.0222
12	,MB-H2O,MBLK,1,	23:17:19	0.0002		0.0193
13	,LCS-H2O,LCS,1,	23:18:14	0.4644		0.1657
14	,N037613-003B,SAMP,1,	23:19:10	0.8966		0.3020
15	,N037613-002BDUP,DUP,1,	23:20:12	0.9213		0.3098
16	,N037757-002D,SAMP,5,	23:21:06	0.5643		0.1972
17	,N037757-002DMS,MS,5,	23:22:02	1.0431		0.3482
18	,N037757-002DMSD,MSD,5,	23:22:58	1.1062		0.3681
19	,N037646-002C,SAMP,1,	23:23:58	0.0966		0.0497
20	,N037648-004B,SAMP,1,	23:24:53	0.1832		0.0770
21	,BLANK, NOT REPORTED	23:25:49	0.0056		0.0210
22	,CCV-1,CCV,1,	23:26:51	0.4879		0.1731
23	,CCB-1,CCB,1,	23:27:45	0.0117		0.0229
24	,N037736-007E,SAMP,5,	23:28:40	0.4727		0.1683
25	,N037757-001D,SAMP,1,	23:29:42	0.0300		0.0287
26	,N037758-001E,SAMP,5,	23:30:36	0.5732		0.2000

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N037758-002E,SAMP,5,	23:31:20	0.5795		0.2020
28	,N037758-003E,SAMP,5,	23:32:09	0.6052		0.2101
29	,N037758-004D,SAMP,5,	23:32:51	0.6338		0.2191
30	,N037758-005E,SAMP,5,	23:33:41	0.6122		0.2123
31	,N037758-006E,SAMP,5,	23:34:23	0.5573		0.1950
32	,N037758-007D,SAMP,5,	23:35:06	0.6131		0.2126
33	,BLANK, NOT REPORTED	23:35:54	0.0094		0.0222
34	,CCV-2,CCV,1,	23:36:38	0.4863		0.1726
35	,CCB-2,CCB,1,	23:37:21	0.0069		0.0214
36	,N037758-008E,SAMP,5,	23:38:03	0.5250		0.1848
37	,N037758-009E,SAMP,5,	23:38:47	0.5697		0.1989
38	,N037758-010E,SAMP,5,	23:39:35	0.5542		0.1940
39	,N037758-011D,SAMP,5,	23:40:18	0.6093		0.2114
40	,N037771-001B,SAMP,1,	23:41:07	0.9825		0.3291
41	,N037771-002B,SAMP,1,	23:41:50	1.4144		0.4653
42	,N037771-003B,SAMP,1,	23:42:32	0.2380		0.0943
43	,BLANK, NOT REPORTED	23:43:16	-0.0020		0.0186
44	,CCV-3,CCV,1,	23:43:59	0.4806		0.1708
45	,CCB-3,CCB,1,	23:44:47	0.0040		0.0205

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/14/2019
Time Analyzed: 8:55 PM ; 11:46 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R191012A
Color reagent: R191012B
2% Copper Sulfate: R191004A
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037613-003B		6.48							
N027757-002D		8.24							
N037646-002C		7.77							
N037648-004B		7.58							
N037736-007E		7.98							
N037757-001D		6.16							
N037758-001E		6.59							
N037758-002E		7.98							
N037758-003E		8.43							
N037758-004D		8.20							
N037758-005E		8.03							
N037758-006E		8.63							
N037758-007D		7.40							
N037758-008E		7.43							
N037758-009E		8.00							
N037758-010E		7.95							
N037758-011D		8.49							
N037771-001B		8.09							
N037771-002B		7.67							
N037771-003B		7.61							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Date: 09-23-2019
EMAX Batch No.: 19H243

Attn: Laura Madsen

ARCADIS
1410 Rocly Ridge Dr #330
Roseville CA 95661

Subject: Laboratory Report
Project: PG&E TOPOCK-GMP

Enclosed is the Laboratory report for samples received on 08/23/19.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-54-195-1FF-0819	H243-01	08/22/19	WATER	CHROMIUM HEXAVALENT BY IC DISSOLVED CHROMIUM
MW-54-195-2FF-0819	H243-02	08/22/19	WATER	CHROMIUM HEXAVALENT BY IC DISSOLVED CHROMIUM
MW-54-195-EB-0819	H243-03	08/22/19	WATER	CHROMIUM HEXAVALENT BY IC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912018-14
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

CHAIN OF CUSTODY

EMAX Laboratories, Inc.	1835 W. 205th Street, Torrance, CA 90501 Tel # : 310-618-8889 FAX#: 310-618-0818 Email: info@emaxlabs.com	**PO NUMBER: RC000753.801D** SAMPLE STORAGE	**EMAX CONTROL NO.** 19H243 **PROJECT CODE:**

CLIENT: Arcadis

PROJECT PG&E Topock - GMP

COORDINATOR: Laura Madsen

TEL 916-786-3302 FAX EMAIL: dan.bush@arcadis.com daniel.moore@critigen.com

SEND REPORT TO: Dan Bush

COMPANY: Arcadis

ADDRESS: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661

EMAX PM

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaO3
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H2SO4
O=	

ANALYSIS REQUIRED: Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH; Dissolved metals (SW 6020), HNO3 Cr

TAT
- ☐ Rush __24__hrs.
- ☐ Rush __48_hrs
- ☐ Rush_72_hrs
- ☐ 7 days
- ☑ 14 days
- ☐ 21 days

SAMPLE ID		SAMPLING			CONTAINER			MATRIX CODE	QC	PRESERVATIVE CODE									COMMENTS
LAB	CLIENT	LOCATION	DATE	TIME	NO.	SIZE	TYPE												
* 1	MW-54-195-1FF-0819	MW-54-195	8/22/2019	7:50	2	250 ml, 500 ml	Poly	GW		X	X								
* 2	MW-54-195-2FF-0819	MW-54-195	8/22/2019	7:55	2	250 ml, 500 ml	Poly	GW		X	X								
* 3	MW-54-195-EB-0819	MW-54-195	8/22/2019	7:15	1	250 ml	Poly	GW		X									
* 4																			
* 5																			
* 6																			
* 7																			
* 8																			
* 9																			
10																			

1 2 3

Instructions

Cooler #	Temp. (°C)	Sample #s
1	2.3 (B)	

SAMPLER

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
Peggy Tap	8/22/19	1600	Nava Tap
Nava Tap	8/23/19	1405	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

SAMPLE RECEIPT FORM 1

Reference: EMAX-SM02 Rev.11
Form: SM02F1

Type of Delivery	Airbill / Tracking Number	ECN 19H243
☐ Fedex ☐ UPS ☐ GSO ☐ Others		Recipient Milton Vuong
MV 8/23/19 ☒ EMAX Courier ☑ Client Delivery		Date 8/23/19 Time 1400

COC INSPECTION

☑ Client Name	☑ Client PM/FC	☐ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☑ Matrix
☑ Address	☑ Tel # / Fax #	☐ Courier Signature	☑ Analysis Required	☒ Preservative (if any)	☑ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required	MV 8/23/19	

Note:

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☑ Other Plastic bag		
Condition	☐ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☐ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 2.3 °C	☐ Cooler 2_____ °C	☐ Cooler 3_____ °C	☐ Cooler 4_____ °C	☐ Cooler 5_____ °C
	☐ Cooler 6_____ °C	☐ Cooler 7_____ °C	☐ Cooler 8_____ °C	☐ Cooler 9_____ °C	☐ Cooler 10_____ °C
Thermometer:	*A - S/N 170324872*	*B - S/N 150555522*	*C - S/N 170324888*	*D - S/N* _____	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note:

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
MV 8/23/19 ~~1-5~~ 1-3	1-5	D16		Am 8/2

a 8/23/19

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

LEGEND:

☐ **Continue to next page.**

Code	Description- Sample Management	Code	Description-Sample Management	Code	Description-Sample Management
D1	Analysis is not indicated in _____	D13	Out of Holding Time	R1	Proceed as indicated in ☐ COC ☐ Label
D2	Analysis mismatch COC vs label	D14	Bubble is >6mm	R2	Refer to attached instruction
D3	Sample ID mismatch COC vs label	D15	No trip blank in cooler	R3	Cancel the analysis
D4	Sample ID is not indicated in _____	D16	Preservation not indicated in COC	R4	Use vial with smallest bubble first
D5	Container -[improper] [leaking] [broken]	D17	Preservation mismatch COC vs label	R5	Log-in with latest sampling date and time+1 min
D6	Date/Time is not indicated in _____	D18	Insufficient chemical preservative	R6	Adjust pH as necessary
D7	Date/Time mismatch COC vs label	D19	Insufficient Sample	R7	Filter and preserved as necessary
D8	Sample listed in COC is not received	D20	No filtration info for dissolved analysis	R8	_____
D9	Sample received is not listed in COC	D21	No sample for moisture determination	R9	_____
D10	No initial/date on corrections in COC/label	D22	_____	R10	_____
D11	Container count mismatch COC vs received	D23	_____	R11	_____
D12	Container size mismatch COC vs received	D24	_____	R12	_____

REVIEWS:

Sample Labeling Milton Vuong / [signature] Date 8/23/19 / 8/23/19

SRF [signature] Date 8/23/19

PM [signature] Date 8/23/19

EMAX Laboratories, Inc. 1835 W. 205th St., Torrance, Ca 90501

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

ARCADIS

PG&E TOPOCK-GMP

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

SDG#: 19H243

CASE NARRATIVE

Client : ARCADIS

Project: PG&E TOPOCK-GMP

SDG : 19H243

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

A total of two (2) water samples were received on 08/23/19 to be analyzed for Dissolved Metals by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. IMH056WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. IMH056WL/IMH056WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of MS/MSD was analyzed. Chromium was within MS QC limits in H243-01M/S. Refer to Matrix QC summary form for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

Samples were reported from dilution due to matrix interference- internal standard QC deficiencies due to high Sodium concentrations.

LAB CHRONICLE
DISSOLVED METALS BY ICP-MS

Client : ARCADIS
Project : PG&E TOPOCK-GMP

SDG NO. : 19H243
Instrument ID : F6

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IMH056WB	1.00	NA	09/20/1915:57	08/26/1909:38	F6I17074	F6I17072	IMH056W	Method Blank
LCS1W	IMH056WL	1.00	NA	09/20/1916:02	08/26/1909:38	F6I17075	F6I17072	IMH056W	Lab Control Sample (LCS)
LCD1W	IMH056WC	1.00	NA	09/20/1916:06	08/26/1909:38	F6I17076	F6I17072	IMH056W	LCS Duplicate
MW-54-195-1FF-0819MS	H243-01M	10.00	NA	09/20/1916:11	08/26/1909:38	F6I17077	F6I17072	IMH056W	Matrix Spike Sample (MS)
MW-54-195-1FF-0819MSD	H243-01S	10.00	NA	09/20/1916:16	08/26/1909:38	F6I17078	F6I17072	IMH056W	MS Duplicate (MSD)
MW-54-195-1FF-0819	H243-01I	10.00	NA	09/20/1916:26	08/26/1909:38	F6I17080	F6I17072	IMH056W	Diluted Sample
MW-54-195-2FF-0819	H243-02I	10.00	NA	09/20/1916:35	08/26/1909:38	F6I17082	F6I17072	IMH056W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	08/22/19 07:50
Project	: PG&E TOPOCK-GMP	Date Received:	08/23/19
SDG NO.	: 19H243	Date Extracted:	08/26/19 09:38
Sample ID:	MW-54-195-1FF-0819	Date Analyzed:	09/20/19 16:26
Lab Samp ID:	H243-01I	Dilution Factor:	10
Lab File ID:	F6I17080	Matrix:	WATER
Ext Btch ID:	IMH056W	% Moisture:	NA
Calib. Ref.:	F6I17072	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	08/22/19 07:55
Project	: PG&E TOPOCK-GMP	Date Received:	08/23/19
SDG NO.	: 19H243	Date Extracted:	08/26/19 09:38
Sample ID:	MW-54-195-2FF-0819	Date Analyzed:	09/20/19 16:35
Lab Samp ID:	H243-02I	Dilution Factor:	10
Lab File ID:	F6I17082	Matrix:	WATER
Ext Btch ID:	IMH056W	% Moisture:	NA
Calib. Ref.:	F6I17072	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	NA
Project	: PG&E TOPOCK-GMP	Date Received:	NA
SDG NO.	: 19H243	Date Extracted:	08/26/19 09:38
Sample ID:	MBLK1W	Date Analyzed:	09/20/19 15:57
Lab Samp ID:	IMH056WB	Dilution Factor:	1
Lab File ID:	F6I17074	Matrix:	WATER
Ext Btch ID:	IMH056W	% Moisture:	NA
Calib. Ref.:	F6I17072	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19H243
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.00	1.00	1.00
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IMH056WB	IMH056WL	IMH056WC
LAB FILE ID	: F6I17074	F6I17075	F6I17076
DATE PREPARED	: 08/26/19 09:38	08/26/19 09:38	08/26/19 09:38
DATE ANALYZED	: 09/20/19 15:57	09/20/19 16:02	09/20/19 16:06
PREP BATCH	: IMH056W	IMH056W	IMH056W
CALIBRATION REF	: F6I17072	F6I17072	F6I17072

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Chromium	ND	30	32.0	107	30	32.2	107	1	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19H243
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 10	10	10
SAMPLE ID	: MW-54-195-1FF-0819	MW-54-195-1FF-0819MS	MW-54-195-1FF-0819MSD
LAB SAMPLE ID	: H243-01I	H243-01M	H243-01S
LAB FILE ID	: F6I17080	F6I17077	F6I17078
DATE PREPARED	: 08/26/19 09:38	08/26/19 09:38	08/26/19 09:38
DATE ANALYZED	: 09/20/19 16:26	09/20/19 16:11	09/20/19 16:16
PREP BATCH	: IMH056W	IMH056W	IMH056W
CALIBRATION REF	: F6I17072	F6I17072	F6I17072

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Chromium	ND	30	30.3	101	30	30.0	100	1	75-125	20

PSResult - Parent Sample Result

ICP-MS QC CHECK TABLE

QC	S4	ICV	CCV	ICSAB	ICSA
Limit%		90-110	90-110	80-120	80-120
Comp	ug/L	ug/L	ug/L	ug/L	ug/L
Al	50000	30000	25000	100000	100000
Sb	100	60	50	20	0
As	500	300	250	20	0
Ba	1000	300	500	20	0
Be	50	30	25	20	0
B	100	30	50	20	0
Cd	500	300	250	20	0
Ca	50000	30000	25000	100000	100000
Cr	500	300	250	20	0
Co	500	300	250	20	0
Cu	500	300	250	20	0
Fe	50000	30000	25000	100000	100000
Li	50	30	25	20	0
Pb	500	300	250	20	0
Mg	50000	30000	25000	100000	100000
Mn	3000	2000	1500	20	0
Mo	500	300	250	2000	2000
Ni	500	300	250	20	0
P	500	300	250	100000	100000
K	50000	30000	25000	100000	100000
Se	500	300	250	20	0
Si	5000	3000	2500	200	0
Ag	50	30	25	20	0
Na	50000	30000	25000	100000	100000
Sr	500	300	250	20	0
Tl	500	300	250	20	0
Sn	500	300	250	20	0
Ti	500	300	250	2000	2000
W	50	30	25	20	0
V	500	300	250	20	0
U	500	300	250	20	0
Zn	500	300	250	20	0
Zr	50	30	25	20	0

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ICP-MS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 09|20|19 10:04

End Date: 09|20|19 16:55

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: NA

CCV 6 Be fail
CCV 7 ↓
CCV 8 ↓
CCV 9 ↓

Book #:	AF6-025
Instrument No.:	F6
Analytical Batch:	IF6117
Analytical Sequence:	F6117
Method File:	EM6020119
Micropipette ID:	☐ 142781004
Micropipette ID:	☑ ICP-06
Micropipette ID:	☑ 339362028
Micropipette ID:	☑ GFAA-07
Micropipette ID:	☐ 339342032
Micropipette ID:	☑ 542780515
Micropipette ID:	☐ 542761827
Micropipette ID:	☐

SOP #	Rev. #
☑ EMAX-6020	10
☐ EMAX-200.8	6
☐ EMAX-	
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SM6B-17-01-01	MRL1 (1)	SM6B-17-100-01
S1	84-01	MRL2(0.4)	60-02
S2	84-02	MRL3(CAT)	81-01
S3	85-01	MRL4	NA
S4	85-02	MRL5	↓
S5	NA	MRL6	↓
S6	↓	Internal Standard	SM6B-17-67-02
S7	↓	Post-Spike 1	SM6A-007-06-09
ICV	SM6B-17-99-02	Post-Spike 2	06-10
CCV	86-01	Post-Spike 3	NA
ICSA	SM6B-18-15-02	Post-Spike 4	↓
ICSAB	16-01		
6020 TUNE SOLN.	09-01		
200.8 TUNE SOLN.	09-02		

Analyzed By: LY

Date: 09|20|19

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19H243
Method : METHOD SW6020A
Sequence : IF6I17
InstrumentID: F6

Lab Samp ID :	ICV	ICSA	ICSAB
QC Limit :	%R:90-110/RSD:<5	%R:80-120/<LOD	%R:80-120
Lab File ID :	F6I17009	F6I17013	F6I17014
DateAnalyed :	09/20/1910:32	09/20/1910:51	09/20/1910:56

Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium		30.29	30	1.04	101	.534	0	>0	21.78	20	109
Beryllium		28.92	30	1.30	96	.002404	0	<0.1	20.96	20	105
Boron		27.29	30	1.51	91	.383	0	<5.0	18.51	20	93
Sodium		30870	30000	0.93	103	107700	100000	108	105100	100000	105
Magnesium		30480	30000	0.23	102	105000	100000	105	103800	100000	104
Aluminum		30500	30000	0.57	102	103600	100000	104	102800	100000	103
Silicon		3035	3000	0.36	101	10.33	0	<20	221.6	200	111
Phosphorus		307.1	300	0.17	102	106100	100000	106	102400	100000	102
Potassium		30490	30000	0.70	102	105500	100000	105	103900	100000	104
Calcium		28830	30000	1.13	96	99570	100000	100	98360	100000	98
Titanium		318.3	300	0.71	106	2213	2000	111	2208	2000	110
Vanadium		309.9	300	0.78	103	-.01171	0	<0.5	20.33	20	102
Chromium	T	301.6	300	0.44	101	.2339	0	>0.2	20.15	20	101
Manganese		1976	2000	0.39	99	.3126	0	>0.2	20.56	20	103
Iron		28550	30000	0.51	95	96490	100000	96	96760	100000	97
Cobalt		294.2	300	0.90	98	.4918	0	>0.2	19.79	20	99
Nickel		292.8	300	0.39	98	.2981	0	>0.2	18.97	20	95
Copper		303	300	0.50	101	.1924	0	<0.5	19.35	20	97
Zinc		288.5	300	0.75	96	6.882	0	<10	19.63	20	98
Arsenic		306.6	300	0.41	102	.2565	0	>0.2	19.92	20	100
Selenium		317.9	300	0.72	106	.121	0	<0.3	22.27	20	111
Strontium		320.4	300	0.16	107	.8435	0	<1.0	20.93	20	105
Zirconium		26.35	30	0.49	88*	.05469	0	<2.0	12.46	20	62*
Molybdenum		317	300	0.69	106	2109	2000	105	2119	2000	106
Silver		29.54	30	0.48	98	.0126	0	<0.2	19.42	20	97
Cadmium		322.7	300	0.47	108	.3105	0	>0.2	20.61	20	103
Tin		317	300	0.20	106	.05232	0	<0.2	20.91	20	105
Antimony		60.65	60	0.38	101	.1666	0	<0.5	21.2	20	106
Barium		320.7	300	0.49	107	.1731	0	<0.5	21.38	20	107
Tungsten		34.85	30	0.18	116*	.2374	0	<1.0	22.08	20	110
Thallium		312.9	300	0.50	104	.002084	0	<0.2	20.4	20	102
Lead		307.6	300	0.21	103	.07921	0	<0.1	20.62	20	103
Uranium		305.4	300	1.02	102	.004023	0	<0.1	20.59	20	103

Unit:	ug/L
	T: Target analyte
	EV: Expected Value
Comment:	* Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19H243
Method : METHOD SW6020A
Sequence : IF6I17
Instrument ID: F6

CCV SampleID		: CCV8			CCV9		
CCV DataFileID		: F6I17072			F6I17083		
CCV DateTime		: 09/20/19 15:47			09/20/19 16:40		
PARAMETER	CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium	25	23.6	94	0.32	23.1	92	1.41
Beryllium	25	20.8	83*	0.86	20.5	82*	0.24
Boron	50	38.0	76*	1.17	38.6	77*	0.38
Sodium	25000	27000	108	0.36	26900	108	0.32
Magnesium	25000	25100	100	0.36	24400	97	0.86
Aluminum	25000	25400	101	0.49	24700	99	0.49
Silicon	2500	2910	117*	0.38	2950	118*	0.14
Phosphorus	250	272	109	0.19	271	108	0.49
Potassium	25000	27300	109	0.52	27400	110	0.31
Calcium	25000	25000	100	0.45	24900	100	0.46
Titanium	250	258	103	0.31	258	103	0.23
Vanadium	250	253	101	1.17	251	101	1.00
Chromium T	250	237	95	0.75	234	93	0.53
Manganese	1500	1500	100	0.40	1490	100	0.44
Iron	25000	24400	97	0.22	24200	97	0.32
Cobalt	250	240	96	0.29	240	96	0.16
Nickel	250	237	95	0.49	232	93	0.36
Copper	250	238	95	0.82	234	94	0.68
Zinc	250	234	93	0.71	231	92	0.51
Arsenic	250	257	103	0.43	256	102	0.41
Selenium	250	263	105	0.14	257	103	0.35
Strontium	250	271	109	0.78	272	109	0.75
Zirconium	25	23.0	92	0.43	23.1	92	0.18
Molybdenum	250	266	106	1.78	264	105	0.17
Silver	25	25.4	102	0.48	25.5	102	0.35
Cadmium	250	257	103	0.76	257	103	0.37
Tin	250	259	104	0.43	260	104	0.60
Antimony	50	49.6	99	0.39	49.7	99	0.09
Barium	500	520	104	0.41	523	105	0.37
Tungsten	25	26.8	107	0.26	26.6	106	0.41
Thallium	250	246	98	0.94	245	98	0.78
Lead	250	244	98	0.76	243	97	0.91
Uranium	250	223	89*	0.37	220	88*	0.51

| Unit: ug/L
| T: Target analyte
|%Rec QC Limit: 90-110
| RSD QC Limit: <5
| CCV EV: CCV Expected Value ug/L
| Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19H243
Method : SW6020A
Sequence : IF6I17
Instrument ID: F6

CB SampleID		: ICB		CCB8		CCB9	
CB DataFileID		: F6I17010		F6I17073		F6I17084	
CB DateTime		: 09/20/1910:37		09/20/1915:52		09/20/1916:45	
PARAMETER	LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium	0	0.08	>0	0.5	>0	0.5	>0
Beryllium	0.1	0.003	<0.1	0.002	<0.1	0.002	<0.1
Boron	5.0	0.1	<5.0	0.1	<5.0	1	<5.0
Sodium	50	2	<50	3	<50	20	<50
Magnesium	10	3	<10	5	<10	3	<10
Aluminum	20	3	<20	4	<20	3	<20
Silicon	20	0.9	<20	2	<20	0.5	<20
Phosphorus	25	0.07	<25	4	<25	4	<25
Potassium	20	4	<20	4	<20	5	<20
Calcium	25	2	<25	10	<25	4	<25
Titanium	0.5	0.02	<0.5	0.0006	<0.5	0.02	<0.5
Vanadium	0.5	0.02	<0.5	0.07	<0.5	0.08	<0.5
Chromium T	0.2	0.03	<0.2	0.02	<0.2	0.02	<0.2
Manganese	0.2	0.2	<0.2	0.3	>0.2	0.1	<0.2
Iron	10	3	<10	4	<10	2	<10
Cobalt	0.2	0.02	<0.2	0.03	<0.2	0.01	<0.2
Nickel	0.2	0.008	<0.2	0.003	<0.2	0.0007	<0.2
Copper	0.5	0.04	<0.5	0.004	<0.5	0.03	<0.5
Zinc	10	0.4	<10	0.3	<10	0.2	<10
Arsenic	0.2	0.06	<0.2	0.06	<0.2	0.06	<0.2
Selenium	0.3	0.06	<0.3	0.06	<0.3	0.05	<0.3
Strontium	1.0	0.03	<1.0	0.1	<1.0	0.07	<1.0
Zirconium	2.0	0.001	<2.0	0.01	<2.0	0.01	<2.0
Molybdenum	0.5	0.1	<0.5	0.09	<0.5	0.06	<0.5
Silver	0.2	0.002	<0.2	0.005	<0.2	0.002	<0.2
Cadmium	0.2	0.03	<0.2	0.04	<0.2	0.03	<0.2
Tin	0.2	0.09	<0.2	0.08	<0.2	0.05	<0.2
Antimony	0.5	0.010	<0.5	0.10	<0.5	0.08	<0.5
Barium	0.5	0.05	<0.5	0.1	<0.5	0.07	<0.5
Tungsten	1.0	0.09	<1.0	0.03	<1.0	0.02	<1.0
Thallium	0.2	0.05	<0.2	0.04	<0.2	0.03	<0.2
Lead	0.1	0.03	<0.1	0.04	<0.1	0.02	<0.1
Uranium	0.1	0.04	<0.1	0.05	<0.1	0.03	<0.1

Unit: ug/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

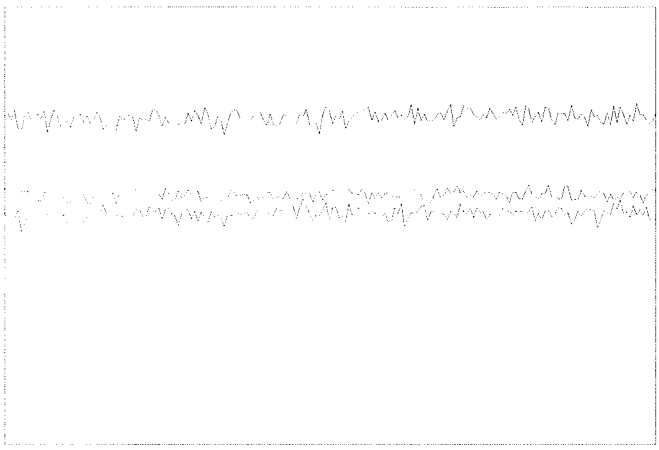
	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		TUNBEG	Start of TUNE						
2	C:\ICPCHEM\1\METHODS\TN6020_C.M	Tun6	1301	F6I17001	6020tunchk		1.000				
3	C:\ICPCHEM\1\METHODS\TN200_8C.M	Tun2	1302	F6I17002	2008tunchk		1.000				
4		Keyword		TUNEND	End of TUNE						
5		Keyword		CALBEG	Start of CALIB						
6	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalBlk	1101	F6I17003	BLNK		Level 1				
7	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalBlk	1102	F6I17004	S0		Level 1				
8	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1104	F6I17005	S1 0.5		Level 2				
9	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1105	F6I17006	S2 50		Level 3				
10	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1106	F6I17007	S3 250		Level 4				
11	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1107	F6I17008	S4 500		Level 5				
12	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICV1	1204	F6I17009	ICV		1.000				
13	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICB	1102	F6I17010	ICB		1.000				
14	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1305	F6I17011	MRLI2001 ✓	1/100/10 ppb	1.000				
15	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1306	F6I17012	MRLI2002	0.4/40/4 ppb	1.000				
16	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICS-A	1303	F6I17013	ICSA		1.000				
17	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICS-AB	1304	F6I17014	ICSAB		1.000				
18	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1307	F6I17015	MRLI2003	500 ppb CAT	1.000				
19	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17016	CCV1		1.000				
20	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17017	CCB1		1.000				
21		Keyword		CALEND	End of CALIB						
22		Keyword		SMPLBEG	Start of SMPL						
23	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2101	F6I17018	H297-02M		1.000				
24	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2102	F6I17019	H297-02S		1.000				
25	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2103	F6I17020	H297-02A ✓		1.000				
26	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2104	F6I17021	H297-02N		1.000				
27	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2105	F6I17022	H297-02J ✓		5.000				
28	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17023	CCV2		1.000				
29	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17024	CCB2		1.000				
30	C:\ICPCHEM\1\METHODS\EM6020Hg.M	MBS	2106	F6I17025	IMI054SB		1.000				
31	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCSS	2107	F6I17026	IMI054SL		1.000				
32	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCSS	2108	F6I17027	IMI054SC		1.000				
33	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2109	F6I17028	I176-01		1.000				
34	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2110	F6I17029	I176-02		1.000				
35	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2111	F6I17030	I176-03		1.000				
36	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2112	F6I17031	I176-04		1.000				
37	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2201	F6I17032	I176-05		1.000				
38	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2202	F6I17033	I176-06		1.000				
39	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17034	CCV3		1.000				
40	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17035	CCB3		1.000				
41	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1305	F6I17036	MRLI2004 ✓	1/100/10 ppb	1.000				
42	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1306	F6I17037	MRLI2005	0.4/40/4 ppb	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
43	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2203	F6I17038	H217-02N	TCLP	1.000				
44	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2204	F6I17039	H217-03N	TCLP	1.000				
45	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2205	F6I17040	H217-04N	TCLP	1.000				
46	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2206	F6I17041	H217-05N	TCLP	1.000				
47	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17042	CCV4		1.000				
48	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17043	CCB4		1.000				
49	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2207	F6I17044	H217-06N	TCLP	1.000				
50	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2208	F6I17045	H217-07	TCLP	1.000				
51	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2209	F6I17046	H217-08	TCLP	1.000				
52	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2210	F6I17047	H217-09	TCLP	1.000				
53	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17048	CCV5		1.000				
54	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17049	CCB5		1.000				
55	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2211	F6I17050	TXI004SB		1.000				
56	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2212	F6I17051	H217-10	TCLP	1.000				
57	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2301	F6I17052	H217-11	TCLP	1.000				
58	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2302	F6I17053	H217-12	TCLP	1.000				
59	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2303	F6I17054	H217-13	TCLP	1.000				
60	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2304	F6I17055	H217-14	TCLP	1.000				
61	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17056	CCV6 Be fail		1.000				
62	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17057	CCB6		1.000				
63	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2305	F6I17058	H217-15M	TCLP	1.000				
64	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2306	F6I17059	H217-15S	TCLP	1.000				
65	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2307	F6I17060	H217-15A ✓	TCLP	1.000				
66	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2308	F6I17061	H217-15	TCLP	1.000				
67	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2309	F6I17062	H217-15J Zn X	TCLP	5.000				
68	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17063	CCV7 Be fail		1.000				
69	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17064	CCB7		1.000				
70	C:\ICPCHEM\1\METHODS\EM6020Hg.M	MBW	2310	F6I17065	IMI022WB		1.000				
71	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCS	2311	F6I17066	IMI022WL		1.000				
72	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCS	2312	F6I17067	IMI022WC		1.000				
73	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2401	F6I17068	TXI005SB		1.000				
74	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2402	F6I17069	H217-16	TCLP	1.000				
75	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2403	F6I17070	H217-17	TCLP	1.000				
76	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2404	F6I17071	H217-18	TCLP	1.000				
77	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17072	CCV8 Be fail		1.000				
78	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17073	CCB8		1.000				
79	C:\ICPCHEM\1\METHODS\EM6020Hg.M	MBW	2405	F6I17074	IMH056WB		1.000				
80	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCS	2406	F6I17075	IMH056WL		1.000				
81	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCS	2407	F6I17076	IMH056WC		1.000				
82	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2408	F6I17077	H243-01M 3 Cr✓		10.00				
83	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2409	F6I17078	H243-01S		10.00				
84	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2410	F6I17079	H243-01A		10.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
85	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2411	F6I17080	H243-01I		10.00				
86	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2412	F6I17081	H243-01J		50.00				
87	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2501	F6I17082	H243-02I		10.00				
88	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6I17083	CCV9 Be fail		1.000				
89	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6I17084	CCB9		1.000				
90	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICS-A	1303	F6I17085	ICSA2		1.000				
91	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICS-AB	1304	F6I17086	ICSAB2		1.000				
92		Keyword		SMPLEND	End of SMPL						
93		Keyword		End	End of Sequence						
94		Keyword		BLKBEG	Start of BLANK						
95		Keyword		BLKEND	End of BLANK						
96		Keyword		ERRBEG	Start of ERRTERM						
97		Keyword		ERREND	End of ERRTERM						

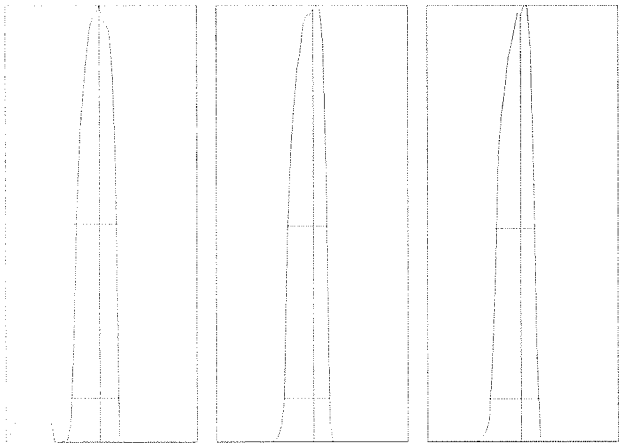
Tune Report

Tune File : NORM.U
Comment : IF6I17



Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	1.584%
Doubly Charged:	70/140	1.546%

m/z	Range	Count	Mean	RSD%	Background
7	100,000	51526.0	52782.8	2.30	1.30
89	100,000	75692.0	74846.1	1.92	1.50
205	100,000	58109.0	57045.8	1.63	3.20
156/140	2	1.470%	1.555%	4.26	
70/140	2	1.440%	1.505%	4.19	



m/z:	7	89	205
Height:	16,148	22,870	16,932
Axis:	7.00	89.05	205.00
W-50%:	0.70	0.65	0.65
W-10%:	0.7500	0.700	0.800

Integration Time:	0.0300 sec
Acquisition Time:	10.1600 sec

Y axis : Linear

Generated : Sep 20, 2019 09:44:43
Printed : Sep 20, 2019 09:44:45

Tune Report

Tune File : NORM.U
Comment : IF6I17

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===		
RF Power	:	1500	W	Extract 1	:	0	V	AMU Gain	:	129
RF Matching	:	1.74	V	Extract 2	:	-130	V	AMU Offset	:	125
Smpl Depth	:	8	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	0.9995
Torch-H	:	-0.6	mm	Omega Lens-ce	:	0.4	V	Axis Offset	:	-0.03
Torch-V	:	-0.1	mm	Cell Entrance	:	-30	V	QP Bias	:	-3 V
Carrier Gas	:	0.9	L/min	QP Focus	:	2	V			
Makeup Gas	:	0.13	L/min	Cell Exit	:	-30	V	===Detector Parameters===		
Optional Gas	:	---	%					Discriminator	:	8 mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	2110 V
Sample Pump	:	---	rps	OctP RF	:	169	V	Pulse HV	:	1500 V
S/C Temp	:	2	degC	OctP Bias	:	-6	V			

===Reaction Cell===										
Reaction Mode	:	OFF								
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	--- %

Generated : Sep 20, 2019 09:44:43
Printed : Sep 20, 2019 09:44:48

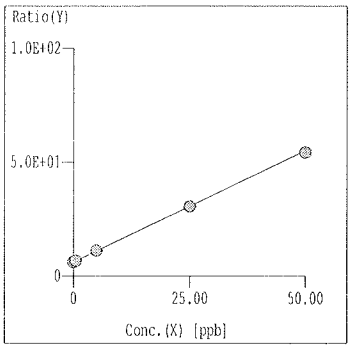
Last Calib: Sep 20, 2019 10:30 am
Calibration Type: External Calibration Method
Calibration Title:
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Multi Tune: #1 h2.u
#2 he.u
#3 norm.u

=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\data\if62019\i\if6i17.b\f6i17004.d\f6i17004.d#	S0	Sep 20 2019 10:09 am
2	c:\data\if62019\i\if6i17.b\f6i17005.d\f6i17005.d#	S1 0.5	Sep 20 2019 10:13 am
3	c:\data\if62019\i\if6i17.b\f6i17006.d\f6i17006.d#	S2 50	Sep 20 2019 10:18 am
4	c:\data\if62019\i\if6i17.b\f6i17007.d\f6i17007.d#	S3 250	Sep 20 2019 10:23 am
5	c:\data\if62019\i\if6i17.b\f6i17008.d\f6i17008.d#	S4 500	Sep 20 2019 10:28 am
6	---		
7	---		
8	---		
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

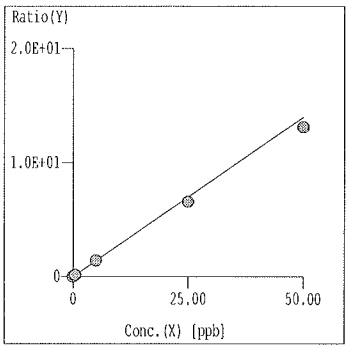
=== Graph Detail ===

Step Mass Element ISTD Unit
(3) 7 Li 6 ppb



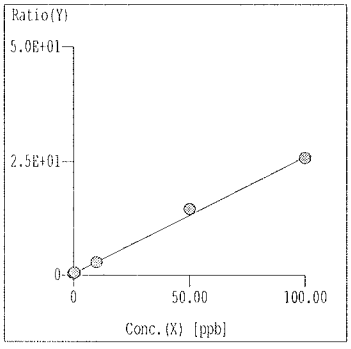
Curve Fit: Y=aX+b
r = 1.0000
Y = 9.813E-001*X +6.101E+000
X = 1.019E+000*Y -6.217E+000
DL = 1.518E-01 ppb
BEC = 6.217 ppb

Step Mass Element ISTD Unit
(3) 9 Be 6 ppb



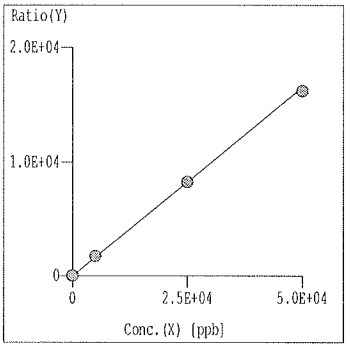
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.797E-001*X +1.872E-003
X = 3.575E+000*Y -6.694E-003
DL = 3.335E-03 ppb
BEC = 6.694E-03 ppb

Step Mass Element ISTD Unit
(3) 11 B 6 ppb



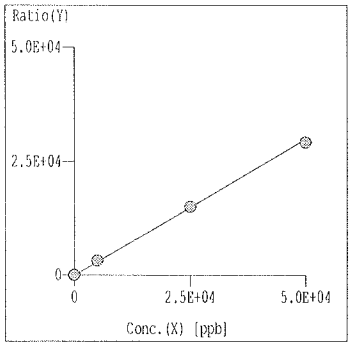
Curve Fit: Y=aX+b
r = 0.9982
Y = 2.574E-001*X +3.263E-001
X = 3.886E+000*Y -1.268E+000
DL = 5.962E-02 ppb
BEC = 1.268 ppb

Step Mass Element ISTD Unit
(1) 23 Na 45 ppb



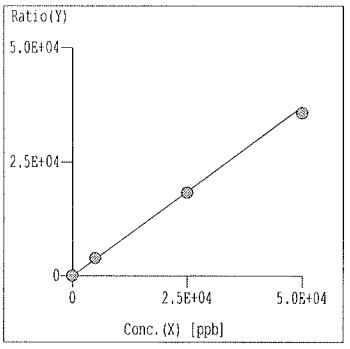
Curve Fit: Y=aX+b
r = 0.9999
Y = 3.304E-001*X +5.068E+000
X = 3.026E+000*Y -1.534E+001
DL = 8.430 ppb
BEC = 15.34 ppb

Step Mass Element ISTD Unit
(3) 24 Mg 45 ppb



Curve Fit: Y=aX+b
r = 0.9998
Y = 5.984E-001*X +2.153E-001
X = 1.671E+000*Y -3.598E-001
DL = 1.320E-02 ppb
BEC = 3.598E-01 ppb

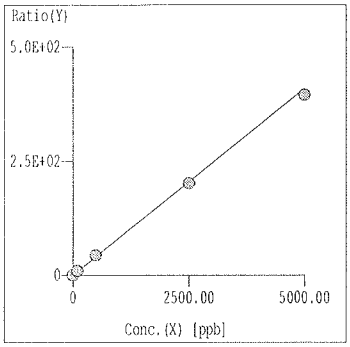
Step Mass Element ISTD Unit
(3) 27 Al 45 ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 7.412E-001*X +6.775E-001
X = 1.349E+000*Y -9.140E-001
DL = 3.948E-02 ppb
BEC = 9.140E-01 ppb

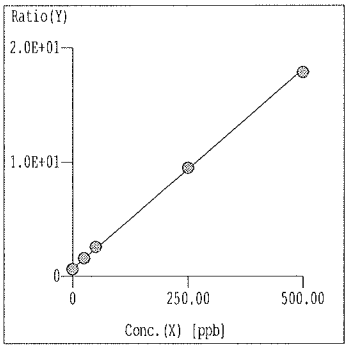
=== Graph Detail ===

Step Mass Element (1) 28 Si | ISTD 45 | Unit ppb



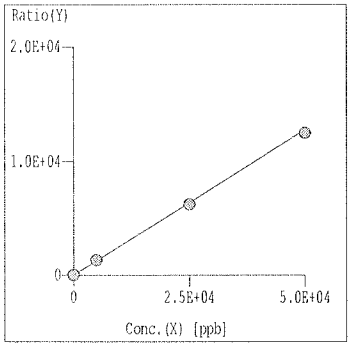
Curve Fit: Y=aX+b
r = 0.9999
Y = 8.192E-002*X +1.466E-001
X = 1.221E+001*Y -1.789E+000
DL = 1.726E-01 ppb
BEC = 1.789 ppb

Step Mass Element (3) 31 P | ISTD 45 | Unit ppb



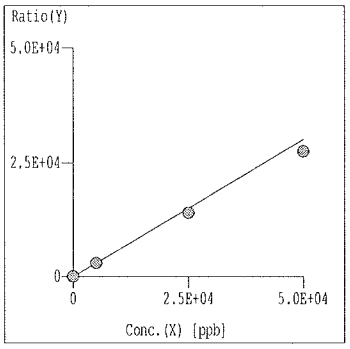
Curve Fit: Y=aX+b
r = 0.9999
Y = 3.488E-002*X +6.761E-001
X = 2.867E+001*Y -1.938E+001
DL = 1.301 ppb
BEC = 19.38 ppb

Step Mass Element (2) 39 K | ISTD 45 | Unit ppb



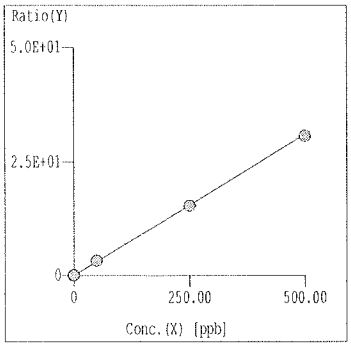
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.555E-001*X +1.470E+001
X = 3.914E+000*Y -5.752E+001
DL = 8.099E-01 ppb
BEC = 57.52 ppb

Step Mass Element (1) 40 Ca | ISTD 45 | Unit ppb



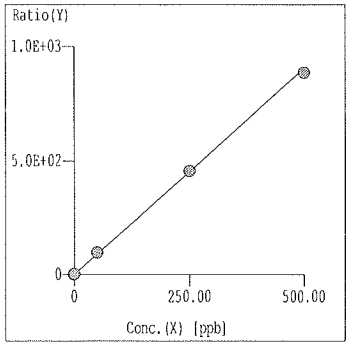
Curve Fit: Y=aX+b
r = 0.9999
Y = 6.014E-001*X +3.412E+000
X = 1.663E+000*Y -5.673E+000
DL = 1.518E-01 ppb
BEC = 5.673 ppb

Step Mass Element (3) 47 Ti | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 6.216E-002*X +5.991E-003
X = 1.609E+001*Y -9.639E-002
DL = 1.795E-02 ppb
BEC = 9.639E-02 ppb

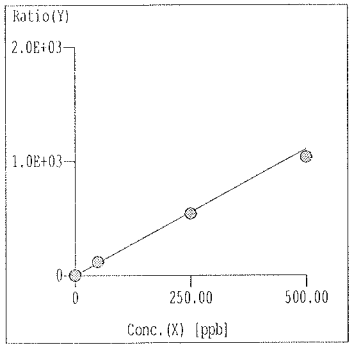
Step Mass Element (2) 51 V | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 1.807E+000*X +8.478E-001
X = 5.533E-001*Y -4.691E-001
DL = 2.349E-02 ppb
BEC = 4.691E-01 ppb

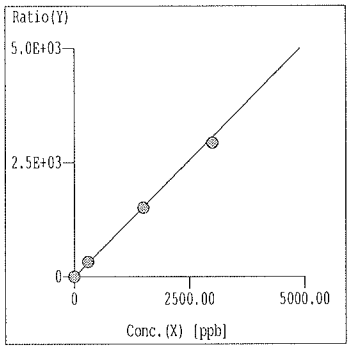
=== Graph Detail ===

Step Mass Element (2) 52 Cr | ISTD 45 | Unit ppb



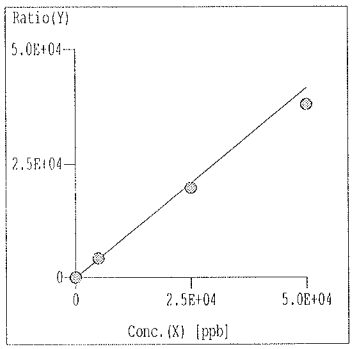
Curve Fit: Y=aX+b
r = 0.9997
Y = 2.218E+000*X +3.099E-001
X = 4.509E-001*Y -1.397E-001
DL = 9.963E-03 ppb
BEC = 1.397E-01 ppb

Step Mass Element (3) 55 Mn | ISTD 45 | Unit ppb



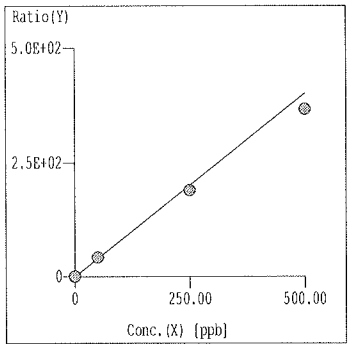
Curve Fit: Y=aX+b
r = 0.9999
Y = 1.021E+000*X +1.200E-001
X = 9.795E-001*Y -1.175E-001
DL = 1.433E-02 ppb
BEC = 1.175E-01 ppb

Step Mass Element (1) 56 Fe | ISTD 45 | Unit ppb



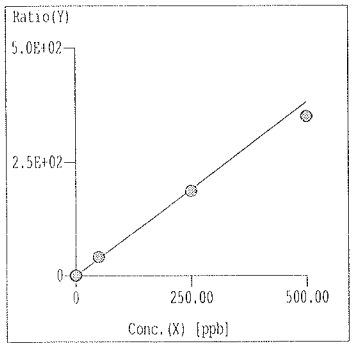
Curve Fit: Y=aX+b
r = 0.9998
Y = 8.308E-001*X +1.218E+000
X = 1.204E+000*Y -1.466E+000
DL = 8.638E-02 ppb
BEC = 1.466 ppb

Step Mass Element (3) 59 Co | ISTD 45 | Unit ppb



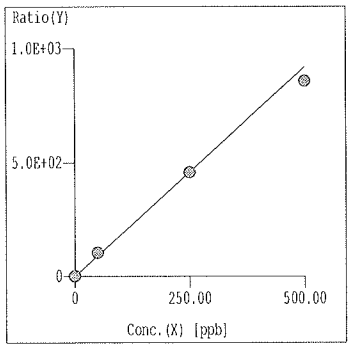
Curve Fit: Y=aX+b
r = 0.9998
Y = 8.033E-001*X +2.551E-002
X = 1.245E+000*Y -3.175E-002
DL = 5.341E-03 ppb
BEC = 3.175E-02 ppb

Step Mass Element (2) 60 Ni | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9994
Y = 7.622E-001*X +3.325E-002
X = 1.312E+000*Y -4.362E-002
DL = 9.050E-03 ppb
BEC = 4.362E-02 ppb

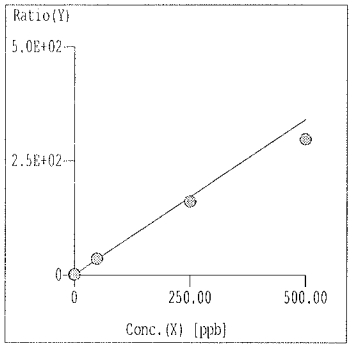
Step Mass Element (2) 63 Cu | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9993
Y = 1.838E+000*X +1.292E-001
X = 5.442E-001*Y -7.031E-002
DL = 6.263E-03 ppb
BEC = 7.031E-02 ppb

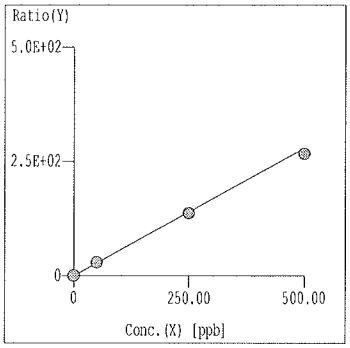
=== Graph Detail ===

Step Mass Element (3) 66 Zn | ISTD 72 | Unit ppb



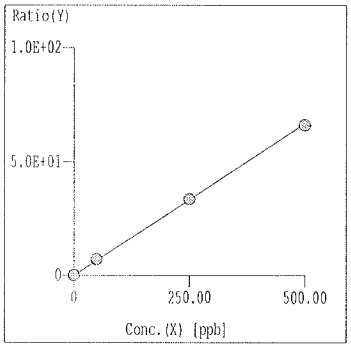
Curve Fit: Y=aX+b
r = 0.9993
Y = 6.800E-001*X +7.567E-001
X = 1.471E+000*Y -1.113E+000
DL = 1.211E-01 ppb
BEC = 1.113 ppb

Step Mass Element (2) 75 As | ISTD 72 | Unit ppb



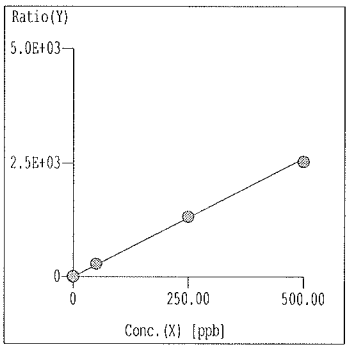
Curve Fit: Y=aX+b
r = 0.9999
Y = 5.566E-001*X +3.705E-002
X = 1.797E+000*Y -6.657E-002
DL = 1.089E-02 ppb
BEC = 6.657E-02 ppb

Step Mass Element (1) 78 Se | ISTD 72 | Unit ppb



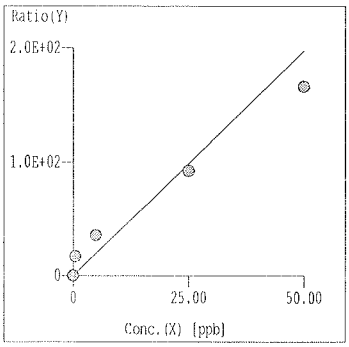
Curve Fit: Y=aX+b
r = 0.9999
Y = 1.339E-001*X +1.476E-003
X = 7.469E+000*Y -1.102E-002
DL = 8.888E-03 ppb
BEC = 1.102E-02 ppb

Step Mass Element (3) 88 Sr | ISTD 72 | Unit ppb



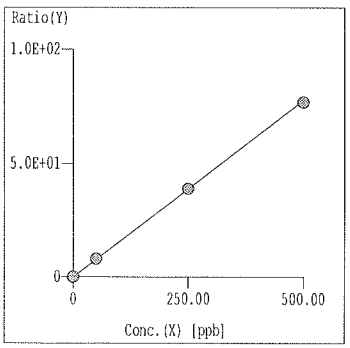
Curve Fit: Y=aX+b
r = 0.9998
Y = 5.206E+000*X +8.016E-002
X = 1.921E-001*Y -1.540E-002
DL = 5.211E-04 ppb
BEC = 1.540E-02 ppb

Step Mass Element (3) 90 Zr | ISTD 72 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9937
Y = 3.952E+000*X +4.348E-002
X = 2.530E-001*Y -1.100E-002
DL = 1.652E-03 ppb
BEC = 1.100E-02 ppb

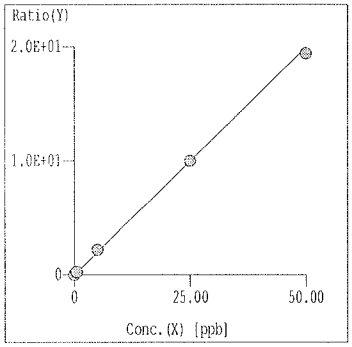
Step Mass Element (3) 95 Mo | ISTD 115 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 1.553E-001*X +7.225E-004
X = 6.441E+000*Y -4.654E-003
DL = 4.796E-03 ppb
BEC = 4.654E-03 ppb

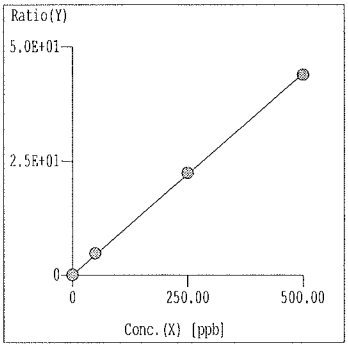
=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 107 Ag	115	ppb



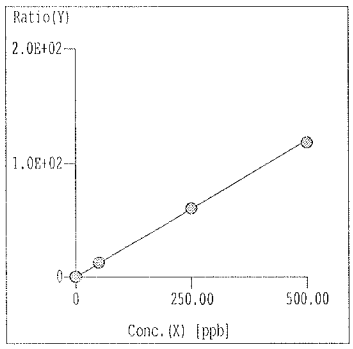
Curve Fit: Y=aX+b
r = 0.9999
Y = 3.991E-001*X +8.541E-004
X = 2.506E+000*Y -2.140E-003
DL = 1.494E-03 ppb
BEC = 2.140E-03 ppb

Step Mass Element	ISTD	Unit
(3) 111 Cd	115	ppb



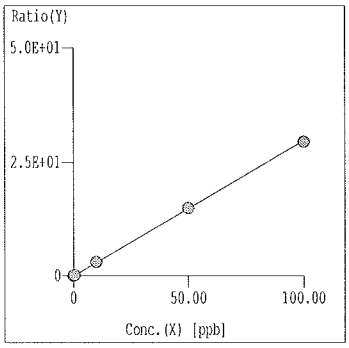
Curve Fit: Y=aX+b
r = 0.9999
Y = 8.827E-002*X +3.225E-004
X = 1.133E+001*Y -3.653E-003
DL = 2.799E-03 ppb
BEC = 3.653E-03 ppb

Step Mass Element	ISTD	Unit
(3) 118 Sn	115	ppb



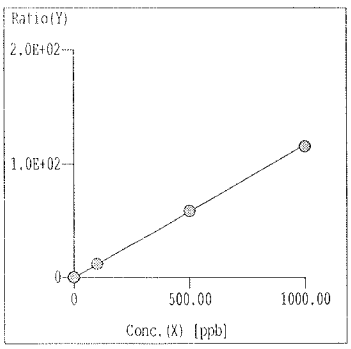
Curve Fit: Y=aX+b
r = 0.9999
Y = 2.410E-001*X +8.256E-003
X = 4.149E+000*Y -3.426E-002
DL = 1.026E-02 ppb
BEC = 3.426E-02 ppb

Step Mass Element	ISTD	Unit
(3) 121 Sb	115	ppb



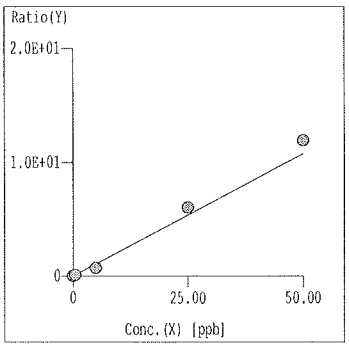
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.971E-001*X +3.330E-003
X = 3.366E+000*Y -1.121E-002
DL = 4.229E-03 ppb
BEC = 1.121E-02 ppb

Step Mass Element	ISTD	Unit
(3) 137 Ba	115	ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 1.169E-001*X +5.825E-003
X = 8.555E+000*Y -4.983E-002
DL = 4.303E-03 ppb
BEC = 4.983E-02 ppb

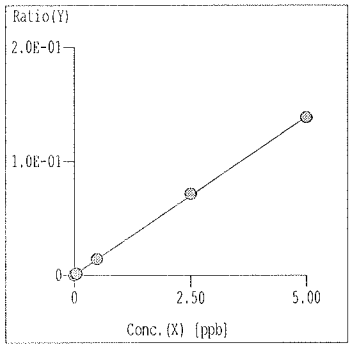
Step Mass Element	ISTD	Unit
(3) 182 W	159	ppb



Curve Fit: Y=aX+b
r = 0.9991
Y = 2.151E-001*X +2.010E-004
X = 4.649E+000*Y -9.343E-004
DL = 7.515E-03 ppb
BEC = 9.343E-04 ppb

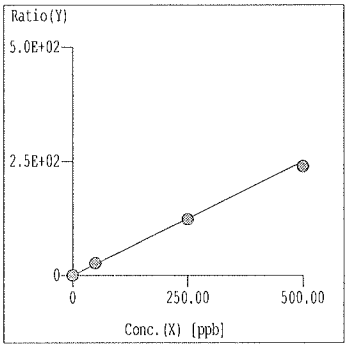
=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 201 Hg	159	ppb



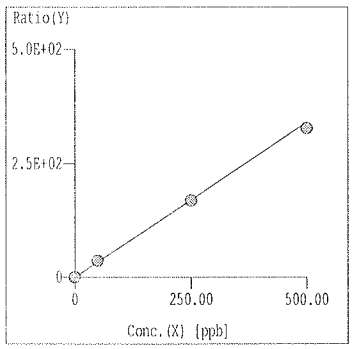
Curve Fit: Y=aX+b
r = 0.9999
Y = 2.774E-002*X +5.357E-004
X = 3.605E+001*Y -1.931E-002
DL = 3.794E-03 ppb
BEC = 1.931E-02 ppb

Step Mass Element	ISTD	Unit
(3) 205 Tl	159	ppb



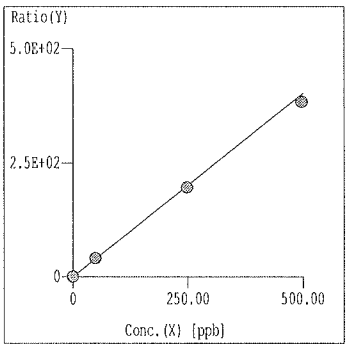
Curve Fit: Y=aX+b
r = 0.9999
Y = 4.990E-001*X +5.470E-003
X = 2.004E+000*Y -1.096E-002
DL = 1.347E-03 ppb
BEC = 1.096E-02 ppb

Step Mass Element	ISTD	Unit
(3) 208 Pb	159	ppb



Curve Fit: Y=aX+b
r = 0.9998
Y = 6.817E-001*X +1.150E-002
X = 1.467E+000*Y -1.687E-002
DL = 2.984E-03 ppb
BEC = 1.687E-02 ppb

Step Mass Element	ISTD	Unit
(3) 238 U	159	ppb



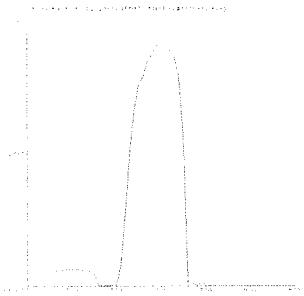
Curve Fit: Y=aX+b
r = 0.9999
Y = 8.041E-001*X +1.305E-003
X = 1.244E+000*Y -1.623E-003
DL = 7.336E-04 ppb
BEC = 1.623E-03 ppb

6020 QC Tune Report

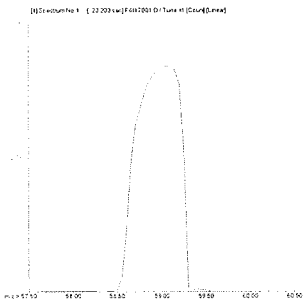
Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17001.D
Date Acquired: Sep 20 2019 09:55 am
Acq. Method: TN6020_C.M
Operator: LYaman
Sample Name: 6020tunchk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020_C.M

RSD (%)

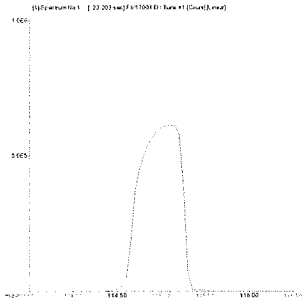
Element	Actual	Required	Flag
7 Li	3.05	5.00	
59 Co	2.50	5.00	
115 In	2.43	5.00	
205 Tl	4.50	5.00	



7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



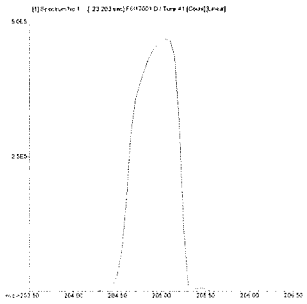
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width-10%

Actual:	0.65
Limit	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width-10%

Actual:	0.65
Limit	0.90
Flag:	

Calibration Blank QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17003
Date Acquired: Sep 20 2019 10:04 am
Operator: LYaman
Sample Name: BLNK
Misc Info:
Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG
Last Cal Update: Sep 20 2019 10:07 am
Sample Type: CalBlk
Total Dil Factor: 1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4760654.00	A	56260.00	1.18
7	Li	289795.41	P	7885.00	2.72
9	Be	260.01	P	17.32	6.66
11	B	19549.67	P	218.20	1.12
23	Na	124630.90	P	4087.00	3.28
24	Mg	92770.91	P	506.50	0.55
27	Al	126448.90	P	4829.00	3.82
28	Si	15859.91	P	205.00	1.29
31	P	37152.16	P	279.70	0.75
39	K	80432.00	P	671.50	0.83
40	Ca	1965080.00	A	29510.00	1.50
45	Sc	2490277.00	A	28570.00	1.15
45	Sc	516680.09	P	7275.00	1.41
45	Sc	5140379.00	A	72610.00	1.41
47	Ti	276.68	P	28.48	10.29
51	V	4261.53	P	65.66	1.54
52	Cr	1748.34	P	34.35	1.96
55	Mn	9186.45	P	159.70	1.74
56	Fe	109781.60	P	617.80	0.56
59	Co	1766.84	P	38.45	2.18
60	Ni	181.56	P	9.46	5.21
63	Cu	1742.56	P	35.37	2.03
66	Zn	39829.85	P	296.90	0.75
72	Ge	518648.59	P	3667.00	0.71
72	Ge	230638.30	P	2895.00	1.26
72	Ge	946674.31	P	16100.00	1.70
75	As	95.56	P	5.67	5.93
78	Se	13.11	P	5.55	42.34
88	Sr	3446.08	P	245.90	7.14
90	Zr	501.14	P	12.62	2.52
95	Mo	331.13	P	15.03	4.54
107	Ag	146.67	P	38.44	26.21
111	Cd	37.31	P	14.12	37.84
115	In	6109882.00	A	150500.00	2.46
118	Sn	700.04	P	33.83	4.83
121	Sb	268.90	P	8.39	3.12
137	Ba	502.25	P	20.37	4.06
159	Tb	8490174.00	A	135700.00	1.60
182	W	427.80	P	26.94	6.30
201	Hg	21.78	P	1.78	8.18
205	Tl	753.38	P	90.75	12.05
208	Pb	2196.82	P	84.14	3.83
209	Bi	5371891.00	A	84930.00	1.58
235	U	6.67	P	3.33	49.99
238	U	431.13	P	35.95	8.34

Calibration Blank QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17004
Date Acquired:	Sep 20 2019 10:09 am
Operator:	LYaman
Sample Name:	S0
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG
Last Cal Update:	Sep 20 2019 10:07 am
Sample Type:	CalBlk
Total Dil Factor:	1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4705448.00	A	60210.00	1.28
7	Li	284512.19	P	5830.00	2.05
9	Be	84.45	P	13.47	15.95
11	B	14988.90	P	151.80	1.01
23	Na	98738.44	P	22810.00	23.10
24	Mg	10829.74	P	65.05	0.60
27	Al	33852.84	P	148.00	0.44
28	Si	3618.33	P	79.00	2.18
31	P	30824.48	P	263.60	0.86
39	K	74346.44	P	559.50	0.75
40	Ca	82689.21	P	341.70	0.41
45	Sc	2505567.00	A	27650.00	1.10
45	Sc	517912.09	P	5642.00	1.09
45	Sc	5032752.00	A	86950.00	1.73
47	Ti	123.34	P	18.56	15.05
51	V	4079.25	P	110.90	2.72
52	Cr	1243.17	P	42.55	3.42
55	Mn	4759.81	P	174.10	3.66
56	Fe	30223.60	P	296.60	0.98
59	Co	890.06	P	81.86	9.20
60	Ni	48.67	P	11.57	23.77
63	Cu	494.23	P	14.38	2.91
66	Zn	8755.11	P	133.60	1.53
72	Ge	518790.69	P	1755.00	0.34
72	Ge	230129.09	P	2658.00	1.16
72	Ge	919312.31	P	14140.00	1.54
75	As	84.22	P	3.67	4.36
78	Se	6.89	P	2.04	29.57
88	Sr	727.82	P	13.47	1.85
90	Zr	352.24	P	20.37	5.78
95	Mo	40.00	P	14.53	36.32
107	Ag	33.33	P	12.02	36.06
111	Cd	15.88	P	4.69	29.51
115	In	5865894.00	A	74750.00	1.27
118	Sn	454.47	P	53.89	11.86
121	Sb	171.12	P	23.65	13.82
137	Ba	340.02	P	5.77	1.70
159	Tb	8018076.00	A	188500.00	2.35
182	W	261.12	P	38.64	14.80
201	Hg	17.22	P	2.38	13.83
205	Tl	426.69	P	15.28	3.58
208	Pb	847.82	P	70.74	8.34
209	Bi	5006329.00	A	104300.00	2.08
235	U	5.56	P	5.09	91.65
238	U	103.34	P	13.33	12.90

Calibration Standard QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17005.D\F6I17005.D#
Date Acquired: Sep 20 2019 10:13 am
Operator: LYaman
Sample Name: S1 0.5
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal Update: Sep 20 2019 10:12 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4723633.00	A	77570.00	1.64
7 Li	311247.69	P	5030.00	1.62
9 Be	6768.36	P	58.42	0.86
11 B	25324.91	P	187.70	0.74
23 Na	529234.19	P	3310.00	0.63
24 Mg	1740531.00	A	26520.00	1.52
27 Al	2102861.00	A	16080.00	0.76
28 Si	235713.41	P	2479.00	1.05
31 P	79029.51	P	1279.00	1.62
39 K	149889.50	P	1926.00	1.28
40 Ca	927951.00	A	16190.00	1.74
45 Sc	2445263.00	A	36890.00	1.51
45 Sc	521789.00	P	9165.00	1.76
45 Sc	5047153.00	A	67070.00	1.33
47 Ti	2179.12	P	15.76	0.72
51 V	10060.09	P	182.90	1.82
52 Cr	7712.47	P	108.20	1.40
55 Mn	34144.25	P	222.30	0.65
56 Fe	1118058.00	A	7609.00	0.68
59 Co	23620.54	P	235.30	1.00
60 Ni	2332.20	P	46.63	2.00
63 Cu	7063.27	P	130.00	1.84
66 Zn	11908.54	P	279.80	2.35
72 Ge	500326.00	P	2620.00	0.52
72 Ge	232581.80	P	5153.00	2.22
72 Ge	931948.19	P	9533.00	1.02
75 As	767.58	P	18.36	2.39
78 Se	360.01	P	10.41	2.89
88 Sr	27945.26	P	293.10	1.05
90 Zr	159038.09	P	2491.00	1.57
95 Mo	4799.84	P	91.58	1.91
107 Ag	13861.56	P	262.50	1.89
111 Cd	3241.72	P	130.30	4.02
115 In	5875818.00	A	139400.00	2.37
118 Sn	7840.20	P	140.20	1.79
121 Sb	9561.30	P	221.90	2.32
137 Ba	3950.69	P	142.50	3.61
159 Tb	8007943.00	A	179300.00	2.24
182 W	6002.64	P	328.50	5.47
201 Hg	128.67	P	3.93	3.05
205 Tl	22880.05	P	332.50	1.45
208 Pb	32106.02	P	344.00	1.07
209 Bi	4998682.00	A	63790.00	1.28
235 U	75.56	P	17.10	22.63
238 U	33551.16	P	191.50	0.57

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4723633.00	1.64	4705448.00	100.4	60 - 125	
45 Sc	2445262.80	1.51	2505566.80	97.6	60 - 125	
45 Sc	521789.00	1.76	517912.13	100.7	60 - 125	
45 Sc	5047153.50	1.33	5032752.00	100.3	60 - 125	
72 Ge	500326.03	0.52	518790.66	96.4	60 - 125	
72 Ge	232581.81	2.22	230129.14	101.1	60 - 125	
72 Ge	931948.19	1.02	919312.25	101.4	60 - 125	
115 In	5875818.00	2.37	5865894.00	100.2	60 - 125	
159 Tb	8007943.00	2.24	8018076.50	99.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17006.D\F6I17006.D#
Date Acquired: Sep 20 2019 10:18 am
Operator: LYaman
Sample Name: S2 50
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal Update: Sep 20 2019 10:17 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4469248.00	A	94150.00	2.11
7 Li	493303.00	P	11210.00	2.27
9 Be	62638.08	P	1309.00	2.09
11 B	124751.80	P	2624.00	2.10
23 Na	42565880.00	A	64870.00	0.15
24 Mg	153387810.00	A	1941000.00	1.27
27 Al	185834100.00	A	2191000.00	1.18
28 Si	1069122.00	A	10610.00	0.99
31 P	122259.00	P	1438.00	1.18
39 K	6643539.00	A	82550.00	1.24
40 Ca	72893120.00	A	314400.00	0.43
45 Sc	2453724.00	A	26300.00	1.07
45 Sc	500622.00	P	5036.00	1.01
45 Sc	4793105.00	A	112200.00	2.34
47 Ti	155852.30	P	2231.00	1.43
51 V	484368.41	P	1738.00	0.36
52 Cr	586944.13	P	2372.00	0.40
55 Mn	15482450.00	A	190500.00	1.23
56 Fe	104137700.00	A	474300.00	0.46
59 Co	2024323.00	A	23060.00	1.14
60 Ni	205909.41	P	857.50	0.42
63 Cu	520621.91	P	1712.00	0.33
66 Zn	305624.81	P	5503.00	1.80
72 Ge	499591.81	P	3247.00	0.65
72 Ge	219362.41	P	1952.00	0.89
72 Ge	867281.38	P	15300.00	1.76
75 As	63156.07	P	733.90	1.16
78 Se	35640.56	P	393.30	1.10
88 Sr	2408800.00	A	78710.00	3.27
90 Zr	309636.50	P	5236.00	1.69
95 Mo	430956.09	P	6618.00	1.54
107 Ag	117549.80	P	1286.00	1.09
111 Cd	254808.20	P	4321.00	1.70
115 In	5418182.00	A	54840.00	1.01
118 Sn	680060.63	P	13730.00	2.02
121 Sb	166640.00	P	3886.00	2.33
137 Ba	645484.31	P	12340.00	1.91
159 Tb	7593146.00	A	139900.00	1.84
182 W	52860.36	P	661.70	1.25
201 Hg	1084.93	P	25.81	2.38
205 Tl	2017488.00	A	59540.00	2.95
208 Pb	2772308.00	A	47570.00	1.72
209 Bi	4539911.00	A	92010.00	2.03
235 U	6291.73	P	179.10	2.85
238 U	3096646.00	A	60100.00	1.94

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4469248.00	2.11	4705448.00	95.0	60 - 125	
45 Sc	2453723.50	1.07	2505566.80	97.9	60 - 125	
45 Sc	500621.97	1.01	517912.13	96.7	60 - 125	
45 Sc	4793105.00	2.34	5032752.00	95.2	60 - 125	
72 Ge	499591.81	0.65	518790.66	96.3	60 - 125	
72 Ge	219362.44	0.89	230129.14	95.3	60 - 125	
72 Ge	867281.38	1.76	919312.25	94.3	60 - 125	
115 In	5418182.00	1.01	5865894.00	92.4	60 - 125	
159 Tb	7593146.50	1.84	8018076.50	94.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17007.D\F6I17007.D#
Date Acquired: Sep 20 2019 10:23 am
Operator: LYaman
Sample Name: S3 250
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal Update: Sep 20 2019 10:21 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4154627.00	A	106900.00	2.57
7 Li	1265100.00	A	35030.00	2.77
9 Be	272724.81	P	5276.00	1.93
11 B	604060.81	P	15990.00	2.65
23 Na	189718400.00	A	2054000.00	1.08
24 Mg	668837380.00	A	13010000.00	1.95
27 Al	812486590.00	A	16250000.00	2.00
28 Si	4626278.00	A	43120.00	0.93
31 P	421182.31	P	7240.00	1.72
39 K	28690030.00	A	108600.00	0.38
40 Ca	322386110.00	A	2179000.00	0.68
45 Sc	2300349.00	A	24630.00	1.07
45 Sc	460493.31	P	2109.00	0.46
45 Sc	4441683.00	A	71320.00	1.61
47 Ti	682628.19	P	11990.00	1.76
51 V	2093518.00	A	15370.00	0.73
52 Cr	2484496.00	A	19240.00	0.77
55 Mn	66949392.00	A	1275000.00	1.90
56 Fe	452471300.00	A	2537000.00	0.56
59 Co	8404360.00	A	126900.00	1.51
60 Ni	857915.38	P	1306.00	0.15
63 Cu	2105903.00	A	13940.00	0.66
66 Zn	1257478.00	A	25190.00	2.00
72 Ge	454164.00	P	2058.00	0.45
72 Ge	199927.20	P	1626.00	0.81
72 Ge	784922.69	P	14290.00	1.82
75 As	272173.81	P	1303.00	0.48
78 Se	152778.70	P	397.70	0.26
88 Sr	10341450.00	A	194700.00	1.88
90 Zr	724990.63	P	11540.00	1.59
95 Mo	1883408.00	A	27630.00	1.47
107 Ag	483039.91	P	9968.00	2.06
111 Cd	1083576.00	A	31800.00	2.93
115 In	4854047.00	A	116200.00	2.39
118 Sn	2925296.00	A	74110.00	2.53
121 Sb	723931.50	P	15160.00	2.09
137 Ba	2842460.00	A	68830.00	2.42
159 Tb	6972509.00	A	103300.00	1.48
182 W	420725.69	P	8366.00	1.99
201 Hg	4976.58	P	117.10	2.35
205 Tl	8551070.00	A	213800.00	2.50
208 Pb	11781210.00	A	282200.00	2.40
209 Bi	4026405.00	A	108400.00	2.69
235 U	28666.17	P	855.80	2.99
238 U	13669370.00	A	397600.00	2.91

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4154627.00	2.57	4705448.00	88.3	60 - 125	
45 Sc	2300348.80	1.07	2505566.80	91.8	60 - 125	
45 Sc	460493.31	0.46	517912.13	88.9	60 - 125	
45 Sc	4441683.50	1.61	5032752.00	88.3	60 - 125	
72 Ge	454164.00	0.45	518790.66	87.5	60 - 125	
72 Ge	199927.20	0.81	230129.14	86.9	60 - 125	
72 Ge	784922.69	1.82	919312.25	85.4	60 - 125	
115 In	4854047.50	2.39	5865894.00	82.8	60 - 125	
159 Tb	6972508.50	1.48	8018076.50	87.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17008.D\F6I17008.D#
Date Acquired:	Sep 20 2019 10:28 am
Operator:	LYaman
Sample Name:	S4 500
Misc Info:	
Vial Number:	1107
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal Update:	Sep 20 2019 10:26 am
Sample Type:	CalStd
Total Dil Factor:	1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4018369.00	A	112600.00	2.80
7 Li	2175348.00	A	31080.00	1.43
9 Be	526514.63	P	5824.00	1.11
11 B	1034005.00	A	12160.00	1.18
23 Na	365997600.00	A	3982000.00	1.09
24 Mg	1280838000.00	A	22200000.00	1.73
27 Al	1569611000.00	A	28570000.00	1.82
28 Si	8928182.00	A	52190.00	0.58
31 P	784206.63	P	12100.00	1.54
39 K	57211632.00	A	615200.00	1.08
40 Ca	620369470.00	A	7101000.00	1.14
45 Sc	2261766.00	A	8014.00	0.35
45 Sc	458356.91	P	4030.00	0.88
45 Sc	4397945.00	A	69810.00	1.59
47 Ti	1348361.00	A	29620.00	2.20
51 V	4052652.00	A	38800.00	0.96
52 Cr	4744204.00	A	51300.00	1.08
55 Mn	128643500.00	A	2912000.00	2.26
56 Fe	856095100.00	A	8697000.00	1.02
59 Co	16120650.00	A	358000.00	2.22
60 Ni	1598588.00	A	12910.00	0.81
63 Cu	3925019.00	A	45880.00	1.17
66 Zn	2343866.00	A	41060.00	1.75
72 Ge	436561.09	P	2344.00	0.54
72 Ge	198288.80	P	2569.00	1.30
72 Ge	788804.19	P	16100.00	2.04
75 As	527354.00	P	3244.00	0.62
78 Se	288605.41	P	856.60	0.30
88 Sr	19933240.00	A	381000.00	1.91
90 Zr	1310742.00	A	22120.00	1.69
95 Mo	3641974.00	A	74650.00	2.05
107 Ag	919323.38	P	16890.00	1.84
111 Cd	2081903.00	A	32400.00	1.56
115 In	4744479.00	A	79620.00	1.68
118 Sn	5597359.00	A	128300.00	2.29
121 Sb	1398059.00	A	21960.00	1.57
137 Ba	5458719.00	A	116700.00	2.14
159 Tb	6934275.00	A	135900.00	1.96
182 W	825660.31	P	14150.00	1.71
201 Hg	9604.55	P	144.70	1.51
205 Tl	16552550.00	A	447900.00	2.71
208 Pb	22674640.00	A	523600.00	2.31
209 Bi	3902260.00	A	92530.00	2.37
235 U	55438.96	P	1150.00	2.07
238 U	26574960.00	A	485600.00	1.83

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4018368.80	2.80	4705448.00	85.4	60 - 125	
45 Sc	2261765.50	0.35	2505566.80	90.3	60 - 125	
45 Sc	458356.91	0.88	517912.13	88.5	60 - 125	
45 Sc	4397945.50	1.59	5032752.00	87.4	60 - 125	
72 Ge	436561.09	0.54	518790.66	84.1	60 - 125	
72 Ge	198288.84	1.30	230129.14	86.2	60 - 125	
72 Ge	788804.19	2.04	919312.25	85.8	60 - 125	
115 In	4744479.00	1.68	5865894.00	80.9	60 - 125	
159 Tb	6934275.50	1.96	8018076.50	86.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

ICV QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17009.D\F6I17009.D#
Date Acquired:	Sep 20 2019 10:32 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICV
Misc Info:	
Vial Number:	1204
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc. RSD(%)	Expected	QC Range(%)	Flag
7 Li	30.29	ppb	1502967.0	1.04	30.00	90 - 110	
9 Be	28.92	ppb	339532.6	1.30	30.00	90 - 110	
11 B	27.29	ppb	308298.0	1.51	30.00	90 - 110	
23 Na	30870.00	ppb	227315300.0	0.93	30000.00	90 - 110	
24 Mg	30480.00	ppb	809705980.0	0.23	30000.00	90 - 110	
27 Al	30500.00	ppb	1003830000.0	0.57	30000.00	90 - 110	
28 Si	3035.00	ppb	5540014.0	0.36	3000.00	90 - 110	
31 P	307.10	ppb	505642.2	0.17	300.00	90 - 110	
39 K	30490.00	ppb	36346500.0	0.70	30000.00	90 - 110	
40 Ca	28830.00	ppb	386199810.0	1.13	30000.00	90 - 110	
47 Ti	318.30	ppb	878622.0	0.71	300.00	90 - 110	
51 V	309.90	ppb	2611833.0	0.78	300.00	90 - 110	
52 Cr	301.60	ppb	3116058.0	0.44	300.00	90 - 110	
55 Mn	1976.00	ppb	89587768.0	0.39	2000.00	90 - 110	
56 Fe	28550.00	ppb	528145790.0	0.51	30000.00	90 - 110	
59 Co	294.20	ppb	10493870.0	0.90	300.00	90 - 110	
60 Ni	292.80	ppb	1039410.0	0.39	300.00	90 - 110	
63 Cu	303.00	ppb	2593441.0	0.50	300.00	90 - 110	
66 Zn	288.50	ppb	1547975.0	0.75	300.00	90 - 110	
75 As	306.60	ppb	343388.5	0.41	300.00	90 - 110	
78 Se	317.90	ppb	183041.1	0.72	300.00	90 - 110	
88 Sr	320.40	ppb	13110490.0	0.16	300.00	90 - 110	
90 Zr	26.35	ppb	818846.7	0.49	30.00	90 - 110	Fail
95 Mo	317.00	ppb	2387431.0	0.69	300.00	90 - 110	
107 Ag	29.54	ppb	571997.0	0.48	30.00	90 - 110	
111 Cd	322.70	ppb	1382244.0	0.47	300.00	90 - 110	
118 Sn	317.00	ppb	3707134.0	0.20	300.00	90 - 110	
121 Sb	60.65	ppb	874456.3	0.38	60.00	90 - 110	
137 Ba	320.70	ppb	1819199.0	0.49	300.00	90 - 110	
182 W	34.85	ppb	529186.8	0.18	30.00	90 - 110	Fail
201 Hg	3.01	ppb	5930.5	0.42	3.00	90 - 110	
205 Tl	312.90	ppb	11020530.0	0.50	300.00	90 - 110	
208 Pb	307.60	ppb	14802420.0	0.21	300.00	90 - 110	
235 U	1.85	ppb	34754.1	2.03	2.20	90 - 110	Fail
238 U	305.40	ppb	17336330.0	1.02	300.00	90 - 110	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4195903.0	1.95	4705448.00	89.2	60 - 125	
45 Sc	2227040.8	2.31	2505566.80	88.9	60 - 125	
45 Sc	465635.6	0.53	517912.13	89.9	60 - 125	
45 Sc	4439654.5	1.40	5032752.00	88.2	60 - 125	
72 Ge	429927.3	2.21	518790.66	82.9	60 - 125	
72 Ge	201160.8	0.95	230129.14	87.4	60 - 125	
72 Ge	785970.3	1.39	919312.25	85.5	60 - 125	
115 In	4851578.0	1.44	5865894.00	82.7	60 - 125	
159 Tb	7058812.5	1.68	8018076.50	88.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

3 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

ICB QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17010.D\F6I17010.D#
Date Acquired:	Sep 20 2019 10:37 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICB
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	ICB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.0770	ppb	279507.5	69.96	0.20	
9 Be	0.0028	ppb	123.3	35.71	0.10	
11 B	0.1374	ppb	16771.9	36.45	5.00	
23 Na	-1.6080	ppb	103165.0	9.71	40.00	
24 Mg	2.8820	ppb	89983.7	3.25	10.00	
27 Al	2.5580	ppb	119359.4	2.28	20.00	
28 Si	0.8824	ppb	4976.5	15.73	20.00	
31 P	-0.0724	ppb	31205.1	1397.20	10.00	
39 K	3.6110	ppb	72792.0	6.09	20.00	
40 Ca	1.7850	ppb	101985.3	10.01	25.00	
47 Ti	-0.0243	ppb	207.8	4.32	0.50	
51 V	-0.0205	ppb	3779.0	31.86	0.50	
52 Cr	-0.0332	ppb	1100.7	12.11	0.20	
55 Mn	0.1617	ppb	13216.3	2.18	0.20	
56 Fe	2.7700	ppb	80008.7	9.13	10.00	
59 Co	0.0191	ppb	1895.7	0.97	0.20	
60 Ni	-0.0082	ppb	125.8	20.09	0.20	
63 Cu	0.0356	ppb	907.1	0.94	0.40	
66 Zn	0.3605	ppb	8466.0	3.95	2.00	
75 As	0.0599	ppb	145.8	23.64	0.20	
78 Se	0.0554	ppb	41.1	9.88	0.20	
90 Zr	0.0013	ppb	411.2	138.32	2.00	
95 Mo	0.1355	ppb	1189.0	6.73	0.40	
107 Ag	0.0022	ppb	95.6	8.29	0.20	
111 Cd	0.0279	ppb	151.8	25.46	0.20	
118 Sn	0.0911	ppb	1650.2	8.25	0.20	
121 Sb	0.0098	ppb	341.1	21.25	0.40	
137 Ba	0.0535	ppb	661.2	11.06	0.20	
182 W	0.0861	ppb	1396.8	8.97	1.00	
201 Hg	0.0015	ppb	43.1	35.15	0.05	
205 Tl	0.0514	ppb	2318.1	3.41	0.20	
208 Pb	0.0274	ppb	2253.5	7.92	0.10	
235 U	0.0006	ppb	14.4	68.41	1.00	
238 U	0.0387	ppb	2414.8	1.65	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4639339.0	1.81	4705448.00	98.6	60 - 125	
45 Sc	2274244.8	1.02	2505566.80	90.8	60 - 125	
45 Sc	466049.2	1.60	517912.13	90.0	60 - 125	
45 Sc	4637006.0	2.73	5032752.00	92.1	60 - 125	
72 Ge	462380.0	0.29	518790.66	89.1	60 - 125	
72 Ge	207045.0	2.13	230129.14	90.0	60 - 125	
72 Ge	844983.9	2.34	919312.25	91.9	60 - 125	
115 In	5466544.5	2.36	5865894.00	93.2	60 - 125	
159 Tb	7454711.5	2.58	8018076.50	93.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17011.D\F6I17011.D#
Date Acquired: Sep 20 2019 10:41 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLI2001
Misc Info: 1/100/10 ppb
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	328534.2	0.0000	0.8821	ppb	5.54	50.00	
9 Be	# 3	6	12177.4	0.0000	0.9171	ppb	4.49	50.00	
11 B	# 3	6	119199.4	0.0000	8.5560	ppb	1.87	100.00	
23 Na	# 1	45	872780.7	0.0000	99.8300	ppb	1.24	50000.00	
24 Mg	# 3	45	2995905.0	0.0000	106.5000	ppb	0.26	50000.00	
27 Al	# 3	45	3602092.0	0.0000	102.8000	ppb	0.78	50000.00	
28 Si	# 1	45	199736.0	0.0000	104.5000	ppb	0.70	5000.00	
31 P	# 3	45	115153.9	0.0000	51.0700	ppb	0.18	500.00	
39 K	# 2	45	197365.6	0.0000	106.7000	ppb	1.88	50000.00	
40 Ca	# 1	45	1461022.0	0.0000	100.3000	ppb	1.01	50000.00	
47 Ti	# 3	45	3488.3	0.0000	1.1020	ppb	4.46	500.00	
51 V	# 2	45	12352.5	0.0000	0.9838	ppb	1.64	500.00	
52 Cr	# 2	45	11775.3	0.0000	0.9888	ppb	0.90	500.00	
55 Mn	# 3	45	59618.8	0.0000	1.1290	ppb	1.00	3000.00	
56 Fe	# 1	45	1957819.0	0.0000	101.3000	ppb	0.78	50000.00	
59 Co	# 3	45	40391.3	0.0000	1.0410	ppb	0.87	500.00	
60 Ni	# 2	45	3869.0	0.0000	1.0350	ppb	1.15	500.00	
63 Cu	# 2	45	10596.9	0.0000	1.1550	ppb	2.19	500.00	
66 Zn	# 3	72	67202.9	0.0000	10.5200	ppb	1.20	500.00	
75 As	# 2	72	1249.2	0.0000	1.0080	ppb	5.24	500.00	
78 Se	# 1	72	662.0	0.0000	1.0460	ppb	3.33	500.00	
88 Sr	# 3	72	96031.9	0.0000	2.1560	ppb	0.89	500.00	
90 Zr	# 3	72	135085.0	0.0000	4.0120	ppb	0.78	50.00	
95 Mo	# 3	115	8726.2	0.0000	1.0150	ppb	1.70	500.00	
107 Ag	# 3	115	23355.2	0.0000	1.0590	ppb	2.24	50.00	
111 Cd	# 3	115	5541.5	0.0000	1.1340	ppb	0.40	500.00	
118 Sn	# 3	115	14237.6	0.0000	1.0370	ppb	2.06	500.00	
121 Sb	# 3	115	16417.7	0.0000	0.9904	ppb	1.73	500.00	
137 Ba	# 3	115	6645.1	0.0000	0.9804	ppb	4.43	1000.00	
182 W	# 3	159	35392.1	0.0000	2.1660	ppb	1.90	50.00	
201 Hg	# 3	159	43.7	0.0000	0.0015	ppb	32.31	5.00	
205 Tl	# 3	159	41593.7	0.0000	1.0870	ppb	0.80	500.00	
208 Pb	# 3	159	56218.9	0.0000	1.0700	ppb	0.33	500.00	
235 U	# 3	159	124.4	0.0000	0.0060	ppb	24.56	30.00	
238 U	# 3	159	59753.4	0.0000	0.9774	ppb	0.97	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4716582.50	3.13	4705448.00	100.2	60 - 125	
45 Sc # 1	2293451.80	1.45	2505566.80	91.5	60 - 125	
45 Sc # 2	470455.63	0.56	517912.13	90.8	60 - 125	
45 Sc # 3	4685857.50	2.68	5032752.00	93.1	60 - 125	
72 Ge # 1	467763.06	0.20	518790.66	90.2	60 - 125	
72 Ge # 2	208863.42	1.71	230129.14	90.8	60 - 125	
72 Ge # 3	849541.00	2.15	919312.25	92.4	60 - 125	
115 In # 3	5516390.50	2.89	5865894.00	94.0	60 - 125	
159 Tb # 3	7589632.50	2.20	8018076.50	94.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17012.D\F6I17012.D#
Date Acquired: Sep 20 2019 10:46 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLI2002
Misc Info: 0.4/40/4 ppb
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	303867.7	0.0000	0.2529	ppb	12.53	50.00	
9 Be	# 3	6	4605.3	0.0000	0.3372	ppb	2.63	50.00	
11 B	# 3	6	19400.6	0.0000	0.3076	ppb	12.80	100.00	
23 Na	# 1	45	405737.9	0.0000	38.1400	ppb	1.64	50000.00	
24 Mg	# 3	45	1241984.0	0.0000	43.0300	ppb	1.56	50000.00	
27 Al	# 3	45	1577495.0	0.0000	43.5800	ppb	1.51	50000.00	
28 Si	# 1	45	8009.4	0.0000	2.4700	ppb	17.82	5000.00	
31 P	# 3	45	35676.7	0.0000	1.9990	ppb	18.10	500.00	
39 K	# 2	45	120344.8	0.0000	39.7900	ppb	2.07	50000.00	
40 Ca	# 1	45	1384901.0	0.0000	94.6100	ppb	0.68	50000.00	
47 Ti	# 3	45	1364.5	0.0000	0.3626	ppb	2.29	500.00	
51 V	# 2	45	7489.0	0.0000	0.3871	ppb	2.61	500.00	
52 Cr	# 2	45	5311.6	0.0000	0.3551	ppb	1.84	500.00	
55 Mn	# 3	45	28655.0	0.0000	0.4693	ppb	1.03	3000.00	
56 Fe	# 1	45	867891.3	0.0000	44.0300	ppb	0.34	50000.00	
59 Co	# 3	45	15979.1	0.0000	0.3841	ppb	0.84	500.00	
60 Ni	# 2	45	1569.0	0.0000	0.3816	ppb	2.05	500.00	
63 Cu	# 2	45	4931.7	0.0000	0.4841	ppb	1.57	500.00	
66 Zn	# 3	72	48976.1	0.0000	7.2360	ppb	0.10	500.00	
75 As	# 2	72	545.6	0.0000	0.3950	ppb	5.39	500.00	
78 Se	# 1	72	266.4	0.0000	0.4153	ppb	2.13	500.00	
88 Sr	# 3	72	19899.7	0.0000	0.4276	ppb	1.10	500.00	
90 Zr	# 3	72	780.3	0.0000	0.0119	ppb	37.59	50.00	
95 Mo	# 3	115	3413.8	0.0000	0.3874	ppb	2.66	500.00	
107 Ag	# 3	115	2633.7	0.0000	0.1155	ppb	4.40	50.00	
111 Cd	# 3	115	1969.2	0.0000	0.3941	ppb	2.62	500.00	
118 Sn	# 3	115	5867.0	0.0000	0.3998	ppb	1.24	500.00	
121 Sb	# 3	115	6297.2	0.0000	0.3667	ppb	0.95	500.00	
137 Ba	# 3	115	2899.3	0.0000	0.3924	ppb	3.08	1000.00	
182 W	# 3	159	495.6	0.0000	0.0292	ppb	6.97	50.00	
201 Hg	# 3	159	31.7	0.0000	-0.0044	ppb	25.84	5.00	
205 Tl	# 3	159	15856.5	0.0000	0.4048	ppb	0.69	500.00	
208 Pb	# 3	159	22614.9	0.0000	0.4172	ppb	1.02	500.00	
235 U	# 3	159	37.8	0.0000	0.0017	ppb	28.59	30.00	
238 U	# 3	159	23636.2	0.0000	0.3830	ppb	0.31	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4786149.50	1.41	4705448.00	101.7	60 - 125	
45 Sc # 1	2296199.80	0.97	2505566.80	91.6	60 - 125	
45 Sc # 2	484013.84	1.24	517912.13	93.5	60 - 125	
45 Sc # 3	4783440.00	0.86	5032752.00	95.0	60 - 125	
72 Ge # 1	466779.88	0.57	518790.66	90.0	60 - 125	
72 Ge # 2	212389.98	1.87	230129.14	92.3	60 - 125	
72 Ge # 3	862780.13	1.28	919312.25	93.9	60 - 125	
115 In # 3	5608779.50	1.76	5865894.00	95.6	60 - 125	
159 Tb # 3	7641808.00	1.45	8018076.50	95.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICS-A QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17013.D\F6I17013.D#
Date Acquired:	Sep 20 2019 10:51 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICSA
Misc Info:	
Vial Number:	1303
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	ICS-A
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.53	ppb	243242.1	8.92	---	
9 Be	0.00	ppb	93.3	66.18	---	
11 B	0.38	ppb	15595.0	14.92	---	
23 Na	107700.00	ppb	745458880.0	0.85	120000.00	
24 Mg	105000.00	ppb	2597867000.0	0.47	120000.00	
27 Al	103600.00	ppb	3175919100.0	0.50	120000.00	
28 Si	10.33	ppb	20778.4	7.67	---	
31 P	106100.00	ppb	153102400.0	0.36	---	
39 K	105500.00	ppb	125186600.0	0.56	120000.00	
40 Ca	99570.00	ppb	1254565000.0	0.95	120000.00	
47 Ti	2213.00	ppb	5689807.0	0.43	2400.00	
51 V	-0.01	ppb	3837.4	77.67	---	
52 Cr	0.23	ppb	3847.6	2.02	---	
55 Mn	0.31	ppb	18165.0	0.53	---	
56 Fe	96490.00	ppb	1678970000.0	0.72	120000.00	
59 Co	0.49	ppb	17394.0	1.32	---	
60 Ni	0.30	ppb	1209.2	0.86	---	
63 Cu	0.19	ppb	2241.3	0.63	---	
66 Zn	6.88	ppb	42208.7	1.25	---	
75 As	0.26	ppb	366.2	4.14	---	
78 Se	0.12	ppb	71.1	7.88	---	
88 Sr	0.84	ppb	34722.2	0.79	---	
90 Zr	0.05	ppb	2015.8	1.74	---	
95 Mo	2109.00	ppb	14823840.0	0.33	2400.00	
107 Ag	0.01	ppb	266.7	19.66	---	
111 Cd	0.31	ppb	1261.4	50.76	---	
118 Sn	0.05	ppb	944.5	3.90	---	
121 Sb	0.17	ppb	2391.4	2.51	---	
137 Ba	0.17	ppb	1180.1	3.52	---	
182 W	0.24	ppb	3426.1	1.27	---	
201 Hg	0.00	ppb	43.6	53.34	---	
205 Tl	0.00	ppb	435.6	93.33	---	
208 Pb	0.08	ppb	4378.2	3.46	---	
235 U	0.00	ppb	7.8	217.12	---	
238 U	0.00	ppb	303.3	7.98	---	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3672032.0	1.31	4705448.00	78.0	60 - 125	
45 Sc	2094712.0	2.29	2505566.80	83.6	60 - 125	
45 Sc	464270.6	0.57	517912.13	89.6	60 - 125	
45 Sc	4136432.0	0.80	5032752.00	82.2	60 - 125	
72 Ge	402661.5	1.99	518790.66	77.6	60 - 125	
72 Ge	203669.1	1.38	230129.14	88.5	60 - 125	
72 Ge	776457.8	1.23	919312.25	84.5	60 - 125	
115 In	4527187.5	1.45	5865894.00	77.2	60 - 125	
159 Tb	6683108.0	1.26	8018076.50	83.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass

ISTD: Pass

ICS-AB QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17014.D\F6I17014.D#
Date Acquired:	Sep 20 2019 10:56 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICSAB
Misc Info:	
Vial Number:	1304
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	ICS-AB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	Expected	QC Range(%)	Flag
7 Li	21.78	ppb	928203.2	1.82	20.00	80 - 120	
9 Be	20.96	ppb	198173.3	1.35	20.00	80 - 120	
11 B	18.51	ppb	171967.1	1.70	20.00	80 - 120	
23 Na	105100.00	ppb	691278020.0	0.46	100000.00	80 - 120	
24 Mg	103800.00	ppb	2491749900.0	0.89	100000.00	80 - 120	
27 Al	102800.00	ppb	3057923100.0	0.81	100000.00	80 - 120	
28 Si	221.60	ppb	364480.1	0.67	200.00	80 - 120	
31 P	102400.00	ppb	143432000.0	0.14	100000.00	80 - 120	
39 K	103900.00	ppb	116780400.0	0.41	100000.00	80 - 120	
40 Ca	98360.00	ppb	1177789100.0	0.77	100000.00	80 - 120	
47 Ti	2208.00	ppb	5507351.0	0.53	2000.00	80 - 120	
51 V	20.33	ppb	165230.6	0.50	20.00	80 - 120	
52 Cr	20.15	ppb	197761.6	0.49	20.00	80 - 120	
55 Mn	20.56	ppb	847113.2	0.16	20.00	80 - 120	
56 Fe	96760.00	ppb	1600299000.0	0.83	100000.00	80 - 120	
59 Co	19.79	ppb	638855.4	0.57	20.00	80 - 120	
60 Ni	18.97	ppb	63692.6	0.81	20.00	80 - 120	
63 Cu	19.35	ppb	156851.9	0.51	20.00	80 - 120	
66 Zn	19.63	ppb	104637.2	0.51	20.00	80 - 120	
75 As	19.92	ppb	21312.3	1.21	20.00	80 - 120	
78 Se	22.27	ppb	11317.1	0.65	20.00	80 - 120	
88 Sr	20.93	ppb	809263.6	0.50	20.00	80 - 120	
90 Zr	12.46	ppb	365627.7	0.23	20.00	80 - 120	Fail
95 Mo	2119.00	ppb	14503950.0	0.25	2000.00	80 - 120	
107 Ag	19.42	ppb	341640.8	0.44	20.00	80 - 120	
111 Cd	20.61	ppb	80208.0	0.65	20.00	80 - 120	
118 Sn	20.91	ppb	222534.7	0.63	20.00	80 - 120	
121 Sb	21.20	ppb	277766.1	0.61	20.00	80 - 120	
137 Ba	21.38	ppb	110428.1	1.06	20.00	80 - 120	
182 W	22.08	ppb	310750.9	0.59	20.00	80 - 120	
201 Hg	2.04	ppb	3730.7	0.93	2.00	80 - 120	
205 Tl	20.40	ppb	666205.1	0.17	20.00	80 - 120	
208 Pb	20.62	ppb	920339.0	0.26	20.00	80 - 120	
235 U	0.13	ppb	2246.9	1.97	0.14	80 - 120	
238 U	20.59	ppb	1083335.0	0.19	19.86	80 - 120	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3378874.0	0.88	4705448.00	71.8	60 - 125	
45 Sc	1991356.0	4.67	2505566.80	79.5	60 - 125	
45 Sc	439545.0	1.13	517912.13	84.9	60 - 125	
45 Sc	4012860.3	1.25	5032752.00	79.7	60 - 125	
72 Ge	379339.4	3.52	518790.66	73.1	60 - 125	
72 Ge	191626.9	1.83	230129.14	83.3	60 - 125	
72 Ge	741957.0	0.90	919312.25	80.7	60 - 125	
115 In	4408233.0	1.71	5865894.00	75.2	60 - 125	
159 Tb	6541265.5	1.54	8018076.50	81.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

1 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17015.D\F6I17015.D#
Date Acquired: Sep 20 2019 11:01 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLI2003
Misc Info: 500 ppb CAT
Vial Number: 1307
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	259506.9	0.0000	-0.0050	ppb	693.44	50.00	
9 Be	# 3	6	125.6	0.0000	0.0039	ppb	27.99	50.00	
11 B	# 3	6	142099.6	0.0000	11.7000	ppb	0.61	100.00	
23 Na	# 1	45	4369262.0	0.0000	571.2000	ppb	1.25	50000.00	
24 Mg	# 3	45	16008680.0	0.0000	562.7000	ppb	0.66	50000.00	
27 Al	# 3	45	19209030.0	0.0000	544.5000	ppb	0.77	50000.00	
28 Si	# 1	45	12352.1	0.0000	4.8990	ppb	4.89	5000.00	
31 P	# 3	45	65388.8	0.0000	20.1100	ppb	20.45	500.00	
39 K	# 2	45	745869.6	0.0000	574.7000	ppb	0.24	50000.00	
40 Ca	# 1	45	7390204.0	0.0000	539.5000	ppb	1.49	50000.00	
47 Ti	# 3	45	1899.1	0.0000	0.5478	ppb	17.90	500.00	
51 V	# 2	45	3965.4	0.0000	0.0061	ppb	75.64	500.00	
52 Cr	# 2	45	1004.7	0.0000	-0.0416	ppb	7.84	500.00	
55 Mn	# 3	45	7081.9	0.0000	0.0285	ppb	10.48	3000.00	
56 Fe	# 1	45	10491720.0	0.0000	558.8000	ppb	1.52	50000.00	
59 Co	# 3	45	794.5	0.0000	-0.0109	ppb	16.65	500.00	
60 Ni	# 2	45	118.4	0.0000	-0.0099	ppb	66.31	500.00	
63 Cu	# 2	45	2381.1	0.0000	0.2103	ppb	2.26	500.00	
66 Zn	# 3	72	13898.1	0.0000	1.2800	ppb	2.50	500.00	
75 As	# 2	72	92.7	0.0000	0.0139	ppb	46.46	500.00	
78 Se	# 1	72	15.8	0.0000	0.0148	ppb	48.66	500.00	
88 Sr	# 3	72	1848.0	0.0000	0.0262	ppb	6.07	500.00	
90 Zr	# 3	72	630.0	0.0000	0.0077	ppb	17.87	50.00	
95 Mo	# 3	115	7713.4	0.0000	0.8908	ppb	9.05	500.00	
107 Ag	# 3	115	132.2	0.0000	0.0038	ppb	5.53	50.00	
111 Cd	# 3	115	71.6	0.0000	0.0110	ppb	32.90	500.00	
118 Sn	# 3	115	713.4	0.0000	0.0191	ppb	15.59	500.00	
121 Sb	# 3	115	342.2	0.0000	0.0095	ppb	20.76	500.00	
137 Ba	# 3	115	341.1	0.0000	0.0029	ppb	405.16	1000.00	
182 W	# 3	159	728.9	0.0000	0.0427	ppb	4.45	50.00	
201 Hg	# 3	159	43.3	0.0000	0.0008	ppb	171.67	5.00	
205 Tl	# 3	159	665.6	0.0000	0.0063	ppb	53.88	500.00	
208 Pb	# 3	159	1274.5	0.0000	0.0072	ppb	16.73	500.00	
235 U	# 3	159	4.4	0.0000	0.0001	ppb	321.06	30.00	
238 U	# 3	159	627.8	0.0000	0.0085	ppb	27.91	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4257248.00	1.94	4705448.00	90.5	60 - 125	
45 Sc # 1	2254070.50	0.75	2505566.80	90.0	60 - 125	
45 Sc # 2	461767.50	2.01	517912.13	89.2	60 - 125	
45 Sc # 3	4751673.00	1.81	5032752.00	94.4	60 - 125	
72 Ge # 1	456517.53	0.75	518790.66	88.0	60 - 125	
72 Ge # 2	206594.23	2.26	230129.14	89.8	60 - 125	
72 Ge # 3	854407.75	2.11	919312.25	92.9	60 - 125	
115 In # 3	5556256.50	2.37	5865894.00	94.7	60 - 125	
159 Tb # 3	7760862.50	2.17	8018076.50	96.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17016.D\F6I17016.D#
Date Acquired: Sep 20 2019 11:06 am
Operator: LYaman
Sample Name: CCV1
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal Update: Sep 20 2019 10:30 am
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	26.24 ppb	1.20	25.00	90 - 110	
9 Be	24.96 ppb	1.40	25.00	90 - 110	
11 B	47.42 ppb	1.13	50.00	90 - 110	
23 Na	25900.00 ppb	1.58	25000.00	90 - 110	
24 Mg	26230.00 ppb	0.90	25000.00	90 - 110	
27 Al	25720.00 ppb	0.65	25000.00	90 - 110	
28 Si	2501.00 ppb	0.55	2500.00	90 - 110	
31 P	259.60 ppb	0.40	250.00	90 - 110	
39 K	25880.00 ppb	0.47	25000.00	90 - 110	
40 Ca	24240.00 ppb	0.74	25000.00	90 - 110	
47 Ti	256.00 ppb	0.55	250.00	90 - 110	
51 V	258.70 ppb	0.69	250.00	90 - 110	
52 Cr	252.90 ppb	0.83	250.00	90 - 110	
55 Mn	1562.00 ppb	0.85	1500.00	90 - 110	
56 Fe	24840.00 ppb	0.67	25000.00	90 - 110	
59 Co	242.00 ppb	0.60	250.00	90 - 110	
60 Ni	250.90 ppb	1.13	250.00	90 - 110	
63 Cu	255.30 ppb	0.41	250.00	90 - 110	
66 Zn	243.20 ppb	0.41	250.00	90 - 110	
75 As	254.90 ppb	0.34	250.00	90 - 110	
78 Se	272.60 ppb	0.21	250.00	90 - 110	
88 Sr	267.00 ppb	0.45	250.00	90 - 110	
90 Zr	21.25 ppb	1.25	25.00	90 - 110	Fail
95 Mo	259.60 ppb	1.03	250.00	90 - 110	
107 Ag	25.70 ppb	0.70	25.00	90 - 110	
111 Cd	268.30 ppb	0.67	250.00	90 - 110	
118 Sn	262.60 ppb	0.56	250.00	90 - 110	
121 Sb	52.38 ppb	0.79	50.00	90 - 110	
137 Ba	522.00 ppb	0.36	500.00	90 - 110	
182 W	28.56 ppb	0.82	25.00	90 - 110	Fail
201 Hg	2.55 ppb	0.93	2.50	90 - 110	
205 Tl	258.10 ppb	0.91	250.00	90 - 110	
208 Pb	258.10 ppb	0.60	250.00	90 - 110	
235 U	1.59 ppb	1.37	1.80	90 - 110	Fail
238 U	252.90 ppb	0.75	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3882445.80	2.23	4705448.00	82.5	60 - 125	
45 Sc	2188613.00	1.45	2505566.80	87.4	60 - 125	
45 Sc	447775.47	1.16	517912.13	86.5	60 - 125	
45 Sc	4421608.50	1.72	5032752.00	87.9	60 - 125	
72 Ge	428244.66	0.47	518790.66	82.5	60 - 125	
72 Ge	195584.36	0.74	230129.14	85.0	60 - 125	
72 Ge	785370.31	1.12	919312.25	85.4	60 - 125	
115 In	4913483.50	1.73	5865894.00	83.8	60 - 125	
159 Tb	7200883.00	2.52	8018076.50	89.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

3 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17017.D\F6I17017.D#
Date Acquired:	Sep 20 2019 11:11 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	CCB1
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.0338	ppb	264744.5	137.31	0.20	
9 Be	0.0056	ppb	148.9	42.92	0.10	
11 B	-0.1568	ppb	12337.6	18.70	5.00	
23 Na	2.5470	ppb	133678.4	38.23	40.00	
24 Mg	10.5400	ppb	309339.0	1.40	10.00	Fail
27 Al	9.7690	ppb	375738.1	2.17	20.00	
28 Si	0.4717	ppb	4189.6	16.75	20.00	
31 P	0.4484	ppb	32810.9	134.55	10.00	
39 K	6.8470	ppb	78013.9	9.81	20.00	
40 Ca	3.9430	ppb	130815.1	20.44	25.00	
47 Ti	0.0894	ppb	547.8	2.31	0.50	
51 V	-0.0368	ppb	3707.2	11.89	0.50	
52 Cr	-0.0274	ppb	1182.1	3.84	0.20	
55 Mn	0.4070	ppb	25411.3	4.37	0.20	Fail
56 Fe	5.0920	ppb	123252.0	15.84	10.00	
59 Co	0.0505	ppb	3134.9	10.79	0.20	
60 Ni	0.0037	ppb	171.3	112.13	0.20	
63 Cu	0.0456	ppb	1010.0	1.60	0.40	
66 Zn	0.3520	ppb	8528.3	6.49	2.00	
75 As	0.0470	ppb	134.0	14.11	0.20	
78 Se	0.0476	ppb	36.0	32.74	0.20	
88 Sr	0.0696	ppb	3789.5	7.70	0.20	
90 Zr	-0.0006	ppb	351.1	194.73	2.00	
95 Mo	0.2392	ppb	2135.8	5.79	0.40	
107 Ag	0.0048	ppb	155.6	27.84	0.20	
111 Cd	0.0709	ppb	371.9	9.25	0.20	
118 Sn	0.1046	ppb	1890.2	9.60	0.20	
121 Sb	0.0352	ppb	777.8	5.76	0.40	
137 Ba	0.1238	ppb	1146.8	9.47	0.20	
182 W	0.0597	ppb	1017.9	8.96	1.00	
201 Hg	-0.0033	ppb	34.6	35.53	0.05	
205 Tl	0.0708	ppb	3179.4	3.76	0.20	
208 Pb	0.0678	ppb	4499.4	4.65	0.10	
235 U	0.0004	ppb	11.1	48.10	1.00	
238 U	0.0779	ppb	4984.5	4.81	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4316268.5	1.20	4705448.00	91.7	60 - 125	
45 Sc	2262001.0	0.19	2505566.80	90.3	60 - 125	
45 Sc	474423.3	1.95	517912.13	91.6	60 - 125	
45 Sc	4744314.0	1.30	5032752.00	94.3	60 - 125	
72 Ge	458898.7	0.67	518790.66	88.5	60 - 125	
72 Ge	211947.0	1.73	230129.14	92.1	60 - 125	
72 Ge	856277.6	1.16	919312.25	93.1	60 - 125	
115 In	5643808.5	2.09	5865894.00	96.2	60 - 125	
159 Tb	7793865.0	1.44	8018076.50	97.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17072.D\F6I17072.D#
Date Acquired:	Sep 20 2019 03:47 pm
Operator:	LYaman
Sample Name:	CCV8
Misc Info:	
Vial Number:	1206
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal Update:	Sep 20 2019 10:30 am
Sample Type:	CCV
Total Dil Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	23.60 ppb	0.32	25.00	90 - 110	
9 Be	20.81 ppb	0.86	25.00	90 - 110	Fail
11 B	38.05 ppb	1.17	50.00	90 - 110	Fail
23 Na	26960.00 ppb	0.36	25000.00	90 - 110	
24 Mg	25110.00 ppb	0.36	25000.00	90 - 110	
27 Al	25370.00 ppb	0.49	25000.00	90 - 110	
28 Si	2915.00 ppb	0.38	2500.00	90 - 110	Fail
31 P	271.70 ppb	0.19	250.00	90 - 110	
39 K	27320.00 ppb	0.52	25000.00	90 - 110	
40 Ca	25000.00 ppb	0.45	25000.00	90 - 110	
47 Ti	258.00 ppb	0.31	250.00	90 - 110	
51 V	253.50 ppb	1.17	250.00	90 - 110	
52 Cr	237.30 ppb	0.75	250.00	90 - 110	
55 Mn	1498.00 ppb	0.40	1500.00	90 - 110	
56 Fe	24370.00 ppb	0.22	25000.00	90 - 110	
59 Co	240.00 ppb	0.29	250.00	90 - 110	
60 Ni	236.90 ppb	0.49	250.00	90 - 110	
63 Cu	238.50 ppb	0.82	250.00	90 - 110	
66 Zn	233.60 ppb	0.71	250.00	90 - 110	
75 As	256.80 ppb	0.43	250.00	90 - 110	
78 Se	262.70 ppb	0.14	250.00	90 - 110	
88 Sr	271.50 ppb	0.78	250.00	90 - 110	
90 Zr	22.97 ppb	0.43	25.00	90 - 110	
95 Mo	265.90 ppb	1.78	250.00	90 - 110	
107 Ag	25.41 ppb	0.48	25.00	90 - 110	
111 Cd	257.30 ppb	0.76	250.00	90 - 110	
118 Sn	259.00 ppb	0.43	250.00	90 - 110	
121 Sb	49.60 ppb	0.39	50.00	90 - 110	
137 Ba	519.70 ppb	0.41	500.00	90 - 110	
182 W	26.79 ppb	0.26	25.00	90 - 110	
201 Hg	2.31 ppb	1.27	2.50	90 - 110	
205 Tl	246.10 ppb	0.94	250.00	90 - 110	
208 Pb	244.50 ppb	0.76	250.00	90 - 110	
235 U	1.37 ppb	0.86	1.80	90 - 110	Fail
238 U	223.20 ppb	0.37	250.00	90 - 110	Fail

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4789107.50	1.36	4705448.00	101.8	60 - 125	
45 Sc	1993364.40	0.81	2505566.80	79.6	60 - 125	
45 Sc	427782.00	0.71	517912.13	82.6	60 - 125	
45 Sc	4323051.00	1.31	5032752.00	85.9	60 - 125	
72 Ge	400812.59	1.11	518790.66	77.3	60 - 125	
72 Ge	182791.50	0.43	230129.14	79.4	60 - 125	
72 Ge	751669.88	0.75	919312.25	81.8	60 - 125	
115 In	4621033.50	1.65	5865894.00	78.8	60 - 125	
159 Tb	6115794.50	1.37	8018076.50	76.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17073.D\F6I17073.D#
Date Acquired: Sep 20 2019 03:52 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: CCB8
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: CCB
Dilution Factor: 1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.4653	ppb	289466.1	1.89	0.20	Fail
9 Be	0.0015	ppb	117.8	23.92	0.10	
11 B	0.1485	ppb	18691.8	11.79	5.00	
23 Na	-2.9470	ppb	84482.2	5.29	40.00	
24 Mg	4.8480	ppb	137714.2	1.46	10.00	
27 Al	4.4180	ppb	174680.3	1.31	20.00	
28 Si	1.6100	ppb	5745.7	3.78	20.00	
31 P	4.1560	ppb	36282.1	14.66	10.00	
39 K	4.0930	ppb	68820.4	5.36	20.00	
40 Ca	11.6300	ppb	214730.1	2.63	25.00	
47 Ti	-0.0006	ppb	262.2	4492.90	0.50	
51 V	0.0691	ppb	4252.9	9.87	0.50	
52 Cr	-0.0188	ppb	1172.1	4.63	0.20	
55 Mn	0.2573	ppb	16909.0	4.06	0.20	Fail
56 Fe	3.6140	ppb	87087.0	3.27	10.00	
59 Co	0.0347	ppb	2360.3	8.24	0.20	
60 Ni	0.0035	ppb	156.9	61.65	0.20	
63 Cu	0.0044	ppb	600.2	71.94	0.40	
66 Zn	0.2916	ppb	7488.8	16.69	2.00	
75 As	0.0645	ppb	138.7	8.64	0.20	
78 Se	0.0624	ppb	42.9	7.95	0.20	
88 Sr	0.1074	ppb	5013.3	2.48	0.20	
90 Zr	0.0141	ppb	777.8	8.51	2.00	
95 Mo	0.0890	ppb	731.2	12.45	0.40	
107 Ag	0.0048	ppb	140.0	16.07	0.20	
111 Cd	0.0423	ppb	203.8	25.68	0.20	
118 Sn	0.0786	ppb	1370.1	5.85	0.20	
121 Sb	0.0974	ppb	1624.6	1.23	0.40	
137 Ba	0.1110	ppb	946.7	4.06	0.20	
182 W	0.0279	ppb	397.8	13.14	1.00	
201 Hg	-0.0071	ppb	21.7	6.19	0.05	
205 Tl	0.0398	ppb	1624.6	8.00	0.20	
208 Pb	0.0411	ppb	2532.4	5.08	0.10	
235 U	0.0001	ppb	4.4	224.55	1.00	
238 U	0.0451	ppb	2409.2	3.29	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	5128943.0	1.04	4705448.00	109.0	60 - 125	
45 Sc	2063674.5	0.89	2505566.80	82.4	60 - 125	
45 Sc	437166.5	1.02	517912.13	84.4	60 - 125	
45 Sc	4419675.0	1.51	5032752.00	87.8	60 - 125	
72 Ge	435950.3	0.61	518790.66	84.0	60 - 125	
72 Ge	190169.2	0.47	230129.14	82.6	60 - 125	
72 Ge	784345.1	0.94	919312.25	85.3	60 - 125	
115 In	5035819.5	1.16	5865894.00	85.8	60 - 125	
159 Tb	6414012.0	1.45	8018076.50	80.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17074.D\F6I17074.D#
Date Acquired:	Sep 20 2019 03:57 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	IMH056WB
Misc Info:	
Vial Number:	2405
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	MBW
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.4505	ppb	291498.8	5.79	1.00	
9 Be	-0.0018	ppb	71.1	5.69	0.50	
11 B	0.3558	ppb	21522.3	11.50	5.00	
23 Na	8.8200	ppb	166940.2	1.33	50.00	
24 Mg	4.9430	ppb	139832.0	0.51	50.00	
27 Al	3.9970	ppb	160414.9	0.64	50.00	
28 Si	4.5700	ppb	10893.3	1.83	25.00	
31 P	9.1700	ppb	43895.7	4.62	25.00	
39 K	7.2900	ppb	74365.6	5.75	50.00	
40 Ca	72.2400	ppb	979968.7	1.06	50.00	Fail
47 Ti	0.1206	ppb	594.5	12.31	1.00	
51 V	0.0769	ppb	4431.4	8.30	0.50	
52 Cr	0.0113	ppb	1503.3	113.73	0.50	
55 Mn	0.2303	ppb	15647.6	1.29	0.50	
56 Fe	4.6720	ppb	106645.6	1.83	50.00	
59 Co	-0.0113	ppb	723.4	2.70	0.50	
60 Ni	0.0582	ppb	348.7	3.25	0.50	
63 Cu	0.8078	ppb	7246.5	0.82	0.50	Fail
66 Zn	3.9980	ppb	27226.8	1.49	10.00	
75 As	0.0310	ppb	106.2	19.94	0.50	
78 Se	0.0082	ppb	11.3	41.55	0.50	
88 Sr	0.1449	ppb	6540.6	3.09	1.00	
90 Zr	0.0337	ppb	1384.6	8.02	2.50	
95 Mo	0.0224	ppb	211.1	16.98	1.00	
107 Ag	0.0012	ppb	67.8	22.28	0.50	
111 Cd	0.0046	ppb	36.6	73.78	0.50	
118 Sn	0.0841	ppb	1434.6	7.14	0.50	
121 Sb	0.0592	ppb	1052.3	5.02	0.50	
137 Ba	0.1799	ppb	1351.2	11.30	0.50	
182 W	0.0251	ppb	357.8	5.40	1.00	
201 Hg	0.0032	ppb	39.8	28.03	0.05	
205 Tl	-0.0023	ppb	276.7	15.97	0.50	
208 Pb	0.0760	ppb	4038.2	2.89	0.50	
235 U	0.0000	ppb	3.3	876.95	---	
238 U	0.0069	ppb	437.8	9.56	0.50	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	5151730.5	0.68	4705448.00	109.5	60 - 125	
45 Sc	2091448.1	1.43	2505566.80	83.5	60 - 125	
45 Sc	449069.2	0.65	517912.13	86.7	60 - 125	
45 Sc	4407090.0	0.15	5032752.00	87.6	60 - 125	
72 Ge	440937.5	0.63	518790.66	85.0	60 - 125	
72 Ge	195766.4	0.68	230129.14	85.1	60 - 125	
72 Ge	783528.6	0.45	919312.25	85.2	60 - 125	
115 In	5029871.0	0.74	5865894.00	85.7	60 - 125	
159 Tb	6381163.0	0.85	8018076.50	79.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

LCS QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17075.D\F6I17075.D#
Date Acquired:	Sep 20 2019 04:02 pm
Operator:	LYaman
Sample Name:	IMH056WL
Misc Info:	
Vial Number:	2406
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	1845733.00	30.11	ppb	1.14	30.00	80 - 120	
9 Be	387092.19	26.72	ppb	0.45	30.00	80 - 120	
11 B	339460.69	24.21	ppb	0.32	30.00	80 - 120	
23 Na	25120920.00	3630.00	ppb	0.42	3000.00	80 - 120	Fail
24 Mg	90262192.00	3398.00	ppb	0.76	3000.00	80 - 120	
27 Al	111696300.00	3394.00	ppb	0.54	3000.00	80 - 120	
28 Si	7641.06	2.68	ppb	2.42	3000.00	80 - 120	Fail
31 P	42036.80	7.77	ppb	3.57	300.00	80 - 120	Fail
39 K	4217772.00	3655.00	ppb	1.52	3000.00	80 - 120	Fail
40 Ca	42641952.00	3395.00	ppb	0.38	3000.00	80 - 120	
47 Ti	93165.54	33.67	ppb	0.50	30.00	80 - 120	
51 V	269633.91	33.08	ppb	0.59	30.00	80 - 120	
52 Cr	316711.81	31.97	ppb	0.53	30.00	80 - 120	
55 Mn	1556475.00	34.23	ppb	0.51	30.00	80 - 120	
56 Fe	57443020.00	3315.00	ppb	0.08	3000.00	80 - 120	
59 Co	1177614.00	33.00	ppb	0.40	30.00	80 - 120	
60 Ni	109074.50	32.14	ppb	0.73	30.00	80 - 120	
63 Cu	274982.41	33.58	ppb	0.43	30.00	80 - 120	
66 Zn	338557.59	62.87	ppb	0.45	60.00	80 - 120	
75 As	35330.12	33.16	ppb	0.79	30.00	80 - 120	
78 Se	19385.01	33.32	ppb	0.94	30.00	80 - 120	
88 Sr	1483051.00	36.59	ppb	0.49	30.00	80 - 120	Fail
90 Zr	956.73	0.02	ppb	6.68	20.00	80 - 120	Fail
95 Mo	254192.00	32.78	ppb	0.40	30.00	80 - 120	
107 Ag	673929.19	33.82	ppb	0.80	30.00	80 - 120	
111 Cd	144029.41	32.67	ppb	0.86	30.00	80 - 120	
118 Sn	398224.09	33.06	ppb	0.74	30.00	80 - 120	
121 Sb	474454.81	31.97	ppb	0.53	30.00	80 - 120	
137 Ba	190112.50	32.52	ppb	0.54	30.00	80 - 120	
182 W	317.79	0.02	ppb	6.99	30.00	80 - 120	Fail
201 Hg	25.11	-0.01	ppb	31.32	2.50	80 - 120	Fail
205 Tl	1050808.00	32.90	ppb	0.45	30.00	80 - 120	
208 Pb	1419036.00	32.52	ppb	0.45	30.00	80 - 120	
235 U	2832.64	0.17	ppb	1.80	0.21	80 - 120	Fail
238 U	1500131.00	29.16	ppb	0.23	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	5177012.00	0.96	4705448.00	110.0	60 - 125	
45 Sc	2085116.90	1.11	2505566.80	83.2	60 - 125	
45 Sc	444669.72	0.30	517912.13	85.9	60 - 125	
45 Sc	4438806.50	1.29	5032752.00	88.2	60 - 125	
72 Ge	434432.09	0.86	518790.66	83.7	60 - 125	
72 Ge	191042.05	0.35	230129.14	83.0	60 - 125	
72 Ge	778207.56	0.87	919312.25	84.7	60 - 125	
115 In	4993540.00	1.45	5865894.00	85.1	60 - 125	
159 Tb	6398274.00	1.23	8018076.50	79.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

9 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Pass

LCS QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17076.D\F6I17076.D#
Date Acquired:	Sep 20 2019 04:06 pm
Operator:	LYaman
Sample Name:	IMH056WC
Misc Info:	
Vial Number:	2407
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	1841941.00	30.84	ppb	0.44	30.00	80 - 120	
9 Be	389415.69	27.47	ppb	0.47	30.00	80 - 120	
11 B	341754.09	24.95	ppb	0.53	30.00	80 - 120	
23 Na	23481380.00	3613.00	ppb	0.64	3000.00	80 - 120	Fail
24 Mg	89900768.00	3424.00	ppb	0.82	3000.00	80 - 120	
27 Al	111992100.00	3442.00	ppb	0.36	3000.00	80 - 120	
28 Si	9217.53	3.96	ppb	2.03	3000.00	80 - 120	Fail
31 P	42093.13	8.12	ppb	1.81	300.00	80 - 120	Fail
39 K	4099790.00	3649.00	ppb	0.98	3000.00	80 - 120	Fail
40 Ca	39884560.00	3381.00	ppb	0.38	3000.00	80 - 120	
47 Ti	93023.47	34.01	ppb	0.34	30.00	80 - 120	
51 V	265170.69	33.43	ppb	0.37	30.00	80 - 120	
52 Cr	310872.59	32.24	ppb	0.65	30.00	80 - 120	
55 Mn	1569926.00	34.93	ppb	0.40	30.00	80 - 120	
56 Fe	54140032.00	3326.00	ppb	0.38	3000.00	80 - 120	
59 Co	1175687.00	33.32	ppb	1.15	30.00	80 - 120	
60 Ni	107515.20	32.55	ppb	1.10	30.00	80 - 120	
63 Cu	269571.41	33.82	ppb	0.49	30.00	80 - 120	
66 Zn	332728.00	62.60	ppb	0.32	60.00	80 - 120	
75 As	34749.67	33.60	ppb	0.79	30.00	80 - 120	
78 Se	18242.66	33.49	ppb	0.86	30.00	80 - 120	
88 Sr	1479166.00	36.97	ppb	0.58	30.00	80 - 120	Fail
90 Zr	801.16	0.02	ppb	9.97	20.00	80 - 120	Fail
95 Mo	255463.00	33.76	ppb	1.10	30.00	80 - 120	
107 Ag	679391.00	34.93	ppb	0.76	30.00	80 - 120	
111 Cd	143908.00	33.44	ppb	0.59	30.00	80 - 120	
118 Sn	396978.31	33.76	ppb	0.44	30.00	80 - 120	
121 Sb	475249.81	32.81	ppb	0.79	30.00	80 - 120	
137 Ba	190442.59	33.38	ppb	0.05	30.00	80 - 120	
182 W	297.79	0.02	ppb	0.41	30.00	80 - 120	Fail
201 Hg	23.61	-0.01	ppb	20.49	2.50	80 - 120	Fail
205 Tl	1047123.00	33.17	ppb	0.87	30.00	80 - 120	
208 Pb	1412758.00	32.75	ppb	0.87	30.00	80 - 120	
235 U	2864.86	0.17	ppb	6.37	0.21	80 - 120	
238 U	1495080.00	29.39	ppb	0.51	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	5065688.00	1.22	4705448.00	107.7	60 - 125	
45 Sc	1958260.80	1.24	2505566.80	78.2	60 - 125	
45 Sc	432857.88	1.49	517912.13	83.6	60 - 125	
45 Sc	4387727.50	0.91	5032752.00	87.2	60 - 125	
72 Ge	406745.28	0.67	518790.66	78.4	60 - 125	
72 Ge	185483.28	1.98	230129.14	80.6	60 - 125	
72 Ge	768056.75	1.30	919312.25	83.5	60 - 125	
115 In	4874159.00	1.74	5865894.00	83.1	60 - 125	
159 Tb	6325172.00	1.55	8018076.50	78.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

8 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17077.D\F6I17077.D#
Date Acquired: Sep 20 2019 04:11 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: H243-01M
Misc Info:
Vial Number: 2408
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	4665702.0	0.0000	103.6000	ppb	0.41	50.00	>LRS
9 Be	# 3	6	33442.5	0.0000	2.7550	ppb	1.81	50.00	
11 B	# 3	6	2461468.0	0.0000	219.7000	ppb	0.45	100.00	>LRS
23 Na	# 1	45	3239794900.0	0.0000	506300.0000	ppb	0.69	50000.00	>LRS
24 Mg	# 3	45	19563850.0	0.0000	833.4000	ppb	0.70	50000.00	
27 Al	# 3	45	9564357.0	0.0000	328.1000	ppb	0.36	50000.00	
28 Si	# 1	45	1867706.0	0.0000	1176.0000	ppb	0.36	5000.00	
31 P	# 3	45	37117.8	0.0000	7.7520	ppb	7.78	500.00	
39 K	# 2	45	4465677.0	0.0000	4129.0000	ppb	0.69	50000.00	
40 Ca	# 1	45	157808990.0	0.0000	13550.0000	ppb	0.40	50000.00	
47 Ti	# 3	45	9176.4	0.0000	3.6680	ppb	1.20	500.00	
51 V	# 2	45	28961.0	0.0000	3.3690	ppb	0.34	500.00	
52 Cr	# 2	45	29329.9	0.0000	3.0280	ppb	0.89	500.00	
55 Mn	# 3	45	1149070.0	0.0000	28.5800	ppb	0.85	3000.00	
56 Fe	# 1	45	5006982.0	0.0000	309.8000	ppb	0.63	50000.00	
59 Co	# 3	45	98618.3	0.0000	3.0990	ppb	0.90	500.00	
60 Ni	# 2	45	9346.1	0.0000	2.8940	ppb	0.83	500.00	
63 Cu	# 2	45	23801.9	0.0000	3.0320	ppb	0.70	500.00	
66 Zn	# 3	72	36971.3	0.0000	7.2060	ppb	2.00	500.00	
75 As	# 2	72	3325.7	0.0000	3.4540	ppb	3.45	500.00	
78 Se	# 1	72	1505.0	0.0000	2.9660	ppb	1.94	500.00	
88 Sr	# 3	72	13237880.0	0.0000	389.0000	ppb	0.91	500.00	
90 Zr	# 3	72	532.3	0.0000	0.0096	ppb	27.78	50.00	
95 Mo	# 3	115	106002.0	0.0000	16.6100	ppb	1.29	500.00	
107 Ag	# 3	115	50341.0	0.0000	3.0670	ppb	1.24	50.00	
111 Cd	# 3	115	11855.1	0.0000	3.2640	ppb	1.51	500.00	
118 Sn	# 3	115	33358.6	0.0000	3.3330	ppb	0.41	500.00	
121 Sb	# 3	115	41315.1	0.0000	3.3720	ppb	0.70	500.00	
137 Ba	# 3	115	37219.8	0.0000	7.6970	ppb	0.48	1000.00	
182 W	# 3	159	2222.5	0.0000	0.1871	ppb	4.32	50.00	
201 Hg	# 3	159	20.6	0.0000	-0.0058	ppb	28.54	5.00	
205 Tl	# 3	159	83846.7	0.0000	3.0480	ppb	1.21	500.00	
208 Pb	# 3	159	114269.3	0.0000	3.0350	ppb	1.11	500.00	
235 U	# 3	159	260.0	0.0000	0.0176	ppb	6.22	30.00	
238 U	# 3	159	128659.9	0.0000	2.9120	ppb	0.83	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4329151.00	0.79	4705448.00	92.0	60 - 125	
45 Sc # 1	1936185.40	0.80	2505566.80	77.3	60 - 125	
45 Sc # 2	417480.25	0.88	517912.13	80.6	60 - 125	
45 Sc # 3	3921839.00	0.89	5032752.00	77.9	60 - 125	
72 Ge # 1	377538.69	0.75	518790.66	72.8	60 - 125	
72 Ge # 2	169690.64	0.91	230129.14	73.7	60 - 125	
72 Ge # 3	653606.38	0.92	919312.25	71.1	60 - 125	
115 In # 3	4110172.80	1.45	5865894.00	70.1	60 - 125	
159 Tb # 3	5493009.50	1.39	8018076.50	68.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17078.D\F6I17078.D#
Date Acquired: Sep 20 2019 04:16 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: H243-01S
Misc Info:
Vial Number: 2409
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	4668981.0	0.0000	106.1000	ppb	0.70	50.00	>LRS
9 Be	# 3	6	33339.0	0.0000	2.8060	ppb	1.76	50.00	
11 B	# 3	6	2446771.0	0.0000	223.1000	ppb	0.75	100.00	>LRS
23 Na	# 1	45	3182921000.0	0.0000	518200.0000	ppb	0.58	50000.00	>LRS
24 Mg	# 3	45	19372500.0	0.0000	841.2000	ppb	0.98	50000.00	
27 Al	# 3	45	9475869.0	0.0000	331.4000	ppb	0.28	50000.00	
28 Si	# 1	45	1861869.0	0.0000	1221.0000	ppb	0.66	5000.00	
31 P	# 3	45	40050.7	0.0000	10.4700	ppb	40.22	500.00	
39 K	# 2	45	4387500.0	0.0000	4172.0000	ppb	0.94	50000.00	
40 Ca	# 1	45	154826700.0	0.0000	13840.0000	ppb	0.32	50000.00	
47 Ti	# 3	45	9130.8	0.0000	3.7220	ppb	3.91	500.00	
51 V	# 2	45	28400.0	0.0000	3.4010	ppb	0.85	500.00	
52 Cr	# 2	45	28249.4	0.0000	2.9970	ppb	0.72	500.00	
55 Mn	# 3	45	1145801.0	0.0000	29.0600	ppb	0.77	3000.00	
56 Fe	# 1	45	4925256.0	0.0000	317.5000	ppb	0.36	50000.00	
59 Co	# 3	45	96063.7	0.0000	3.0770	ppb	1.30	500.00	
60 Ni	# 2	45	9106.2	0.0000	2.8990	ppb	0.46	500.00	
63 Cu	# 2	45	23890.3	0.0000	3.1320	ppb	0.44	500.00	
66 Zn	# 3	72	36912.3	0.0000	7.4050	ppb	1.26	500.00	
75 As	# 2	72	3233.0	0.0000	3.4730	ppb	0.71	500.00	
78 Se	# 1	72	1507.9	0.0000	3.0610	ppb	1.44	500.00	
88 Sr	# 3	72	13159380.0	0.0000	396.6000	ppb	0.45	500.00	
90 Zr	# 3	72	466.7	0.0000	0.0075	ppb	20.00	50.00	
95 Mo	# 3	115	105092.3	0.0000	16.8400	ppb	1.63	500.00	
107 Ag	# 3	115	49256.1	0.0000	3.0690	ppb	0.87	50.00	
111 Cd	# 3	115	11229.8	0.0000	3.1620	ppb	3.07	500.00	
118 Sn	# 3	115	32841.7	0.0000	3.3570	ppb	2.39	500.00	
121 Sb	# 3	115	40327.9	0.0000	3.3660	ppb	1.17	500.00	
137 Ba	# 3	115	37160.9	0.0000	7.8600	ppb	0.52	1000.00	
182 W	# 3	159	2136.9	0.0000	0.1831	ppb	3.36	50.00	
201 Hg	# 3	159	21.8	0.0000	-0.0048	ppb	57.84	5.00	
205 Tl	# 3	159	82454.6	0.0000	3.0510	ppb	0.51	500.00	
208 Pb	# 3	159	112751.1	0.0000	3.0480	ppb	0.46	500.00	
235 U	# 3	159	304.5	0.0000	0.0210	ppb	7.99	30.00	
238 U	# 3	159	126748.6	0.0000	2.9190	ppb	0.70	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4237210.50	0.70	4705448.00	90.0	60 - 125	
45 Sc # 1	1858920.00	1.26	2505566.80	74.2	60 - 125	
45 Sc # 2	406007.16	1.06	517912.13	78.4	60 - 125	
45 Sc # 3	3846938.30	0.40	5032752.00	76.4	60 - 125	
72 Ge # 1	366666.53	0.86	518790.66	70.7	60 - 125	
72 Ge # 2	164123.59	0.96	230129.14	71.3	60 - 125	
72 Ge # 3	637319.81	0.38	919312.25	69.3	60 - 125	
115 In # 3	4019050.00	1.27	5865894.00	68.5	60 - 125	
159 Tb # 3	5396656.00	1.23	8018076.50	67.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17079.D\F6I17079.D#
Date Acquired: Sep 20 2019 04:21 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: H243-01A
Misc Info:
Vial Number: 2410
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	4751357.0	0.0000	106.5000	ppb	0.17	50.00	>LRS
9 Be	# 3	6	67.8	0.0000	-0.0011	ppb	13.96	50.00	
11 B	# 3	6	2541608.0	0.0000	228.6000	ppb	0.40	100.00	>LRS
23 Na	# 1	45	--------	----	--------	ppb	--------	50000.00	>LRS
24 Mg	# 3	45	12426990.0	0.0000	540.5000	ppb	0.20	50000.00	
27 Al	# 3	45	121691.1	0.0000	3.3580	ppb	15.52	50000.00	
28 Si	# 1	45	1890421.0	0.0000	1234.0000	ppb	0.96	5000.00	
31 P	# 3	45	37528.8	0.0000	8.6360	ppb	5.79	500.00	
39 K	# 2	45	4305199.0	0.0000	4023.0000	ppb	0.80	50000.00	
40 Ca	# 1	45	158056800.0	0.0000	14070.0000	ppb	0.66	50000.00	
47 Ti	# 3	45	874.5	0.0000	0.2698	ppb	10.15	500.00	
51 V	# 2	45	4289.1	0.0000	0.1058	ppb	5.51	500.00	
52 Cr	# 2	45	1249.8	0.0000	-0.0032	ppb	148.14	500.00	
55 Mn	# 3	45	1051986.0	0.0000	26.7200	ppb	0.05	3000.00	
56 Fe	# 1	45	164897.1	0.0000	9.1610	ppb	0.54	50000.00	
59 Co	# 3	45	1836.8	0.0000	0.0278	ppb	4.37	500.00	
60 Ni	# 2	45	245.1	0.0000	0.0343	ppb	6.54	500.00	
63 Cu	# 2	45	1688.1	0.0000	0.1522	ppb	2.84	500.00	
66 Zn	# 3	72	11623.8	0.0000	1.5510	ppb	3.54	500.00	
75 As	# 2	72	209.3	0.0000	0.1591	ppb	4.48	500.00	
78 Se	# 1	72	16.0	0.0000	0.0212	ppb	11.84	500.00	
88 Sr	# 3	72	13646190.0	0.0000	408.4000	ppb	0.29	500.00	
90 Zr	# 3	72	440.0	0.0000	0.0063	ppb	24.46	50.00	
95 Mo	# 3	115	87144.3	0.0000	13.8900	ppb	1.21	500.00	
107 Ag	# 3	115	46.7	0.0000	0.0008	ppb	115.97	50.00	
111 Cd	# 3	115	-4.2	0.0000	-0.0049	ppb	48.94	500.00	
118 Sn	# 3	115	342.2	0.0000	0.0009	ppb	174.75	500.00	
121 Sb	# 3	115	1009.0	0.0000	0.0729	ppb	6.20	500.00	
137 Ba	# 3	115	22198.1	0.0000	4.6510	ppb	2.29	1000.00	
182 W	# 3	159	2179.1	0.0000	0.1851	ppb	10.61	50.00	
201 Hg	# 3	159	50.4	0.0000	0.0141	ppb	20.50	5.00	
205 Tl	# 3	159	128.9	0.0000	-0.0062	ppb	16.20	500.00	
208 Pb	# 3	159	561.1	0.0000	-0.0017	ppb	104.26	500.00	
235 U	# 3	159	43.3	0.0000	0.0029	ppb	52.45	30.00	
238 U	# 3	159	5021.2	0.0000	0.1132	ppb	2.00	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4296825.50	0.65	4705448.00	91.3	60 - 125	
45 Sc # 1	1867752.60	0.78	2505566.80	74.5	60 - 125	
45 Sc # 2	412882.66	1.31	517912.13	79.7	60 - 125	
45 Sc # 3	3839825.80	0.94	5032752.00	76.3	60 - 125	
72 Ge # 1	370882.19	0.55	518790.66	71.5	60 - 125	
72 Ge # 2	166696.66	0.98	230129.14	72.4	60 - 125	
72 Ge # 3	641773.25	0.98	919312.25	69.8	60 - 125	
115 In # 3	4038824.50	1.12	5865894.00	68.9	60 - 125	
159 Tb # 3	5441438.00	1.78	8018076.50	67.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

3 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17080.D\F6I17080.D#
Date Acquired: Sep 20 2019 04:26 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: H243-01I
Misc Info:
Vial Number: 2411
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	4540986.0	0.0000	106.8000	ppb	0.94	50.00	>LRS
9 Be	# 3	6	68.9	0.0000	-0.0007	ppb	314.14	50.00	
11 B	# 3	6	2446988.0	0.0000	231.0000	ppb	0.53	100.00	>LRS
23 Na	# 1	45	--------	----	--------	ppb	--------	50000.00	>LRS
24 Mg	# 3	45	11817910.0	0.0000	537.3000	ppb	0.29	50000.00	
27 Al	# 3	45	81930.0	0.0000	2.0930	ppb	19.82	50000.00	
28 Si	# 1	45	1843819.0	0.0000	1243.0000	ppb	1.23	5000.00	
31 P	# 3	45	36307.6	0.0000	8.9520	ppb	4.33	500.00	
39 K	# 2	45	4125633.0	0.0000	4016.0000	ppb	0.40	50000.00	
40 Ca	# 1	45	153655900.0	0.0000	14120.0000	ppb	0.50	50000.00	
47 Ti	# 3	45	916.7	0.0000	0.3051	ppb	9.89	500.00	
51 V	# 2	45	4274.6	0.0000	0.1277	ppb	7.02	500.00	
52 Cr	# 2	45	1205.6	0.0000	-0.0026	ppb	36.67	500.00	
55 Mn	# 3	45	1015151.0	0.0000	26.9500	ppb	0.28	3000.00	
56 Fe	# 1	45	159627.6	0.0000	9.1590	ppb	0.63	50000.00	
59 Co	# 3	45	1923.5	0.0000	0.0335	ppb	9.70	500.00	
60 Ni	# 2	45	246.2	0.0000	0.0379	ppb	13.94	500.00	
63 Cu	# 2	45	3013.4	0.0000	0.3434	ppb	3.05	500.00	
66 Zn	# 3	72	10276.1	0.0000	1.3410	ppb	4.20	500.00	
75 As	# 2	72	191.3	0.0000	0.1467	ppb	5.33	500.00	
78 Se	# 1	72	14.0	0.0000	0.0180	ppb	33.92	500.00	
88 Sr	# 3	72	13148500.0	0.0000	410.1000	ppb	0.50	500.00	
90 Zr	# 3	72	403.4	0.0000	0.0056	ppb	19.72	50.00	
95 Mo	# 3	115	83724.5	0.0000	13.9100	ppb	0.79	500.00	
107 Ag	# 3	115	57.8	0.0000	0.0016	ppb	21.45	50.00	
111 Cd	# 3	115	-14.0	0.0000	-0.0078	ppb	160.84	500.00	
118 Sn	# 3	115	313.3	0.0000	-0.0007	ppb	302.65	500.00	
121 Sb	# 3	115	949.0	0.0000	0.0712	ppb	7.08	500.00	
137 Ba	# 3	115	21390.2	0.0000	4.6730	ppb	1.20	1000.00	
182 W	# 3	159	2166.9	0.0000	0.1911	ppb	3.25	50.00	
201 Hg	# 3	159	50.3	0.0000	0.0153	ppb	20.11	5.00	
205 Tl	# 3	159	122.2	0.0000	-0.0063	ppb	10.55	500.00	
208 Pb	# 3	159	1027.8	0.0000	0.0119	ppb	17.19	500.00	
235 U	# 3	159	47.8	0.0000	0.0033	ppb	30.71	30.00	
238 U	# 3	159	4578.7	0.0000	0.1069	ppb	2.15	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4093446.50	0.63	4705448.00	87.0	60 - 125	
45 Sc # 1	1808473.10	1.84	2505566.80	72.2	60 - 125	
45 Sc # 2	396363.97	0.93	517912.13	76.5	60 - 125	
45 Sc # 3	3673287.80	0.90	5032752.00	73.0	60 - 125	
72 Ge # 1	359941.16	1.21	518790.66	69.4	60 - 125	
72 Ge # 2	161194.41	0.32	230129.14	70.0	60 - 125	
72 Ge # 3	615770.88	0.44	919312.25	67.0	60 - 125	
115 In # 3	3874302.50	1.10	5865894.00	66.0	60 - 125	
159 Tb # 3	5245589.00	1.23	8018076.50	65.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17081.D\F6I17081.D#
Date Acquired: Sep 20 2019 04:31 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: H243-01J
Misc Info:
Vial Number: 2412
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 50.00
Autodil Factor: Undiluted
Final Dil Factor: 50.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1204129.0	0.0000	21.3600	ppb	1.93	50.00	
9 Be	# 3	6	73.3	0.0000	-0.0008	ppb	41.78	50.00	
11 B	# 3	6	578268.5	0.0000	49.2200	ppb	0.79	100.00	
23 Na	# 1	45	644937280.0	0.0000	108400.0000	ppb	0.66	50000.00	>LRS
24 Mg	# 3	45	2576858.0	0.0000	111.4000	ppb	0.81	50000.00	
27 Al	# 3	45	49178.1	0.0000	0.8081	ppb	2.20	50000.00	
28 Si	# 1	45	371151.3	0.0000	250.0000	ppb	0.32	5000.00	
31 P	# 3	45	35301.5	0.0000	6.8890	ppb	10.01	500.00	
39 K	# 2	45	910364.0	0.0000	844.2000	ppb	0.81	50000.00	
40 Ca	# 1	45	31098650.0	0.0000	2868.0000	ppb	0.22	50000.00	
47 Ti	# 3	45	287.8	0.0000	0.0238	ppb	16.52	500.00	
51 V	# 2	45	3959.4	0.0000	0.0854	ppb	6.56	500.00	
52 Cr	# 2	45	924.7	0.0000	-0.0342	ppb	2.22	500.00	
55 Mn	# 3	45	226836.5	0.0000	5.6490	ppb	0.84	3000.00	
56 Fe	# 1	45	48085.2	0.0000	1.7500	ppb	0.93	50000.00	
59 Co	# 3	45	593.4	0.0000	-0.0126	ppb	10.83	500.00	
60 Ni	# 2	45	85.3	0.0000	-0.0153	ppb	7.40	500.00	
63 Cu	# 2	45	1695.7	0.0000	0.1633	ppb	3.25	500.00	
66 Zn	# 3	72	11622.8	0.0000	1.4100	ppb	5.09	500.00	
75 As	# 2	72	113.6	0.0000	0.0545	ppb	23.77	500.00	
78 Se	# 1	72	9.1	0.0000	0.0072	ppb	19.58	500.00	
88 Sr	# 3	72	2946105.0	0.0000	83.5200	ppb	0.51	500.00	
90 Zr	# 3	72	265.6	0.0000	-0.0011	ppb	32.52	50.00	
95 Mo	# 3	115	18486.7	0.0000	2.7770	ppb	1.44	500.00	
107 Ag	# 3	115	24.4	0.0000	-0.0007	ppb	115.00	50.00	
111 Cd	# 3	115	11.4	0.0000	-0.0007	ppb	1248.10	500.00	
118 Sn	# 3	115	291.1	0.0000	-0.0060	ppb	23.86	500.00	
121 Sb	# 3	115	460.0	0.0000	0.0250	ppb	20.06	500.00	
137 Ba	# 3	115	4794.3	0.0000	0.9084	ppb	4.56	1000.00	
182 W	# 3	159	560.0	0.0000	0.0452	ppb	11.65	50.00	
201 Hg	# 3	159	23.9	0.0000	-0.0040	ppb	36.24	5.00	
205 Tl	# 3	159	115.6	0.0000	-0.0069	ppb	7.73	500.00	
208 Pb	# 3	159	663.4	0.0000	0.0004	ppb	157.70	500.00	
235 U	# 3	159	13.3	0.0000	0.0007	ppb	51.76	30.00	
238 U	# 3	159	1092.3	0.0000	0.0225	ppb	7.42	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4450194.50	1.19	4705448.00	94.6	60 - 125	
45 Sc # 1	1799520.10	0.61	2505566.80	71.8	60 - 125	
45 Sc # 2	395109.66	1.23	517912.13	76.3	60 - 125	
45 Sc # 3	3852840.00	1.17	5032752.00	76.6	60 - 125	
72 Ge # 1	373922.66	0.76	518790.66	72.1	60 - 125	
72 Ge # 2	168389.48	0.78	230129.14	73.2	60 - 125	
72 Ge # 3	677352.00	0.92	919312.25	73.7	60 - 125	
115 In # 3	4280265.50	1.37	5865894.00	73.0	60 - 125	
159 Tb # 3	5639763.50	1.71	8018076.50	70.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

1 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17082.D\F6I17082.D#
Date Acquired: Sep 20 2019 04:35 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: H243-02I
Misc Info:
Vial Number: 2501
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update: Sep 20 2019 10:30 am
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	4644469.0	0.0000	106.4000	ppb	0.35	50.00	>LRS
9 Be	# 3	6	45.6	0.0000	-0.0028	ppb	52.35	50.00	
11 B	# 3	6	2503586.0	0.0000	230.3000	ppb	0.87	100.00	>LRS
23 Na	# 1	45	3145278000.0	0.0000	536000.0000	ppb	0.21	50000.00	>LRS
24 Mg	# 3	45	12156010.0	0.0000	541.2000	ppb	0.34	50000.00	
27 Al	# 3	45	106524.6	0.0000	2.9180	ppb	7.73	50000.00	
28 Si	# 1	45	1817616.0	0.0000	1248.0000	ppb	0.79	5000.00	
31 P	# 3	45	38032.1	0.0000	9.6810	ppb	1.07	500.00	
39 K	# 2	45	4122292.0	0.0000	4037.0000	ppb	0.60	50000.00	
40 Ca	# 1	45	151025790.0	0.0000	14140.0000	ppb	0.40	50000.00	
47 Ti	# 3	45	892.3	0.0000	0.2862	ppb	13.79	500.00	
51 V	# 2	45	4206.0	0.0000	0.1215	ppb	4.74	500.00	
52 Cr	# 2	45	1101.8	0.0000	-0.0136	ppb	8.76	500.00	
55 Mn	# 3	45	1035967.0	0.0000	26.9300	ppb	0.60	3000.00	
56 Fe	# 1	45	157239.5	0.0000	9.1920	ppb	0.86	50000.00	
59 Co	# 3	45	1828.0	0.0000	0.0289	ppb	12.84	500.00	
60 Ni	# 2	45	205.1	0.0000	0.0246	ppb	26.74	500.00	
63 Cu	# 2	45	4191.7	0.0000	0.5085	ppb	1.01	500.00	
66 Zn	# 3	72	39891.3	0.0000	8.2510	ppb	1.45	500.00	
75 As	# 2	72	198.4	0.0000	0.1574	ppb	5.73	500.00	
78 Se	# 1	72	15.8	0.0000	0.0223	ppb	26.54	500.00	
88 Sr	# 3	72	13431820.0	0.0000	411.7000	ppb	0.68	500.00	
90 Zr	# 3	72	471.1	0.0000	0.0080	ppb	14.72	50.00	
95 Mo	# 3	115	86571.8	0.0000	14.0200	ppb	0.80	500.00	
107 Ag	# 3	115	40.0	0.0000	0.0004	ppb	113.32	50.00	
111 Cd	# 3	115	1.1	0.0000	-0.0034	ppb	316.17	500.00	
118 Sn	# 3	115	347.8	0.0000	0.0020	ppb	20.06	500.00	
121 Sb	# 3	115	816.7	0.0000	0.0579	ppb	3.61	500.00	
137 Ba	# 3	115	22136.8	0.0000	4.7120	ppb	0.42	1000.00	
182 W	# 3	159	2186.9	0.0000	0.1885	ppb	6.39	50.00	
201 Hg	# 3	159	20.6	0.0000	-0.0055	ppb	22.23	5.00	
205 Tl	# 3	159	102.2	0.0000	-0.0071	ppb	10.38	500.00	
208 Pb	# 3	159	2514.6	0.0000	0.0519	ppb	7.27	500.00	
235 U	# 3	159	44.4	0.0000	0.0030	ppb	26.85	30.00	
238 U	# 3	159	4684.8	0.0000	0.1070	ppb	3.00	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4201726.50	1.17	4705448.00	89.3	60 - 125	
45 Sc # 1	1775786.60	1.10	2505566.80	70.9	60 - 125	
45 Sc # 2	394038.66	0.96	517912.13	76.1	60 - 125	
45 Sc # 3	3751202.80	1.28	5032752.00	74.5	60 - 125	
72 Ge # 1	354263.91	0.77	518790.66	68.3	60 - 125	
72 Ge # 2	159153.88	0.30	230129.14	69.2	60 - 125	
72 Ge # 3	626552.00	1.40	919312.25	68.2	60 - 125	
115 In # 3	3977352.00	1.34	5865894.00	67.8	60 - 125	
159 Tb # 3	5362348.00	1.57	8018076.50	66.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\I\IF6I17.B\F6I17083.D\F6I17083.D#
Date Acquired: Sep 20 2019 04:40 pm
Operator: LYaman
Sample Name: CCV9
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal Update: Sep 20 2019 10:30 am
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	23.06 ppb	1.41	25.00	90 - 110	
9 Be	20.51 ppb	0.24	25.00	90 - 110	Fail
11 B	38.60 ppb	0.38	50.00	90 - 110	Fail
23 Na	26920.00 ppb	0.32	25000.00	90 - 110	
24 Mg	24370.00 ppb	0.86	25000.00	90 - 110	
27 Al	24750.00 ppb	0.49	25000.00	90 - 110	
28 Si	2954.00 ppb	0.14	2500.00	90 - 110	Fail
31 P	270.60 ppb	0.49	250.00	90 - 110	
39 K	27390.00 ppb	0.31	25000.00	90 - 110	
40 Ca	24890.00 ppb	0.46	25000.00	90 - 110	
47 Ti	258.40 ppb	0.23	250.00	90 - 110	
51 V	251.50 ppb	1.00	250.00	90 - 110	
52 Cr	233.70 ppb	0.53	250.00	90 - 110	
55 Mn	1494.00 ppb	0.44	1500.00	90 - 110	
56 Fe	24200.00 ppb	0.32	25000.00	90 - 110	
59 Co	239.80 ppb	0.16	250.00	90 - 110	
60 Ni	232.10 ppb	0.36	250.00	90 - 110	
63 Cu	234.20 ppb	0.68	250.00	90 - 110	
66 Zn	231.00 ppb	0.51	250.00	90 - 110	
75 As	256.20 ppb	0.41	250.00	90 - 110	
78 Se	256.70 ppb	0.35	250.00	90 - 110	
88 Sr	271.90 ppb	0.75	250.00	90 - 110	
90 Zr	23.10 ppb	0.18	25.00	90 - 110	
95 Mo	263.60 ppb	0.17	250.00	90 - 110	
107 Ag	25.52 ppb	0.35	25.00	90 - 110	
111 Cd	257.20 ppb	0.37	250.00	90 - 110	
118 Sn	259.80 ppb	0.60	250.00	90 - 110	
121 Sb	49.68 ppb	0.09	50.00	90 - 110	
137 Ba	523.10 ppb	0.37	500.00	90 - 110	
182 W	26.57 ppb	0.41	25.00	90 - 110	
201 Hg	2.29 ppb	1.77	2.50	90 - 110	
205 Tl	245.20 ppb	0.78	250.00	90 - 110	
208 Pb	242.90 ppb	0.91	250.00	90 - 110	
235 U	1.35 ppb	0.31	1.80	90 - 110	Fail
238 U	220.40 ppb	0.51	250.00	90 - 110	Fail

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4609433.50	0.48	4705448.00	98.0	60 - 125	
45 Sc	1925116.60	1.20	2505566.80	76.8	60 - 125	
45 Sc	414354.50	0.58	517912.13	80.0	60 - 125	
45 Sc	4020826.50	0.31	5032752.00	79.9	60 - 125	
72 Ge	388577.06	1.05	518790.66	74.9	60 - 125	
72 Ge	175149.98	0.36	230129.14	76.1	60 - 125	
72 Ge	707792.50	0.25	919312.25	77.0	60 - 125	
115 In	4374276.00	0.68	5865894.00	74.6	60 - 125	
159 Tb	5819669.00	0.88	8018076.50	72.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17084.D\F6I17084.D#
Date Acquired:	Sep 20 2019 04:45 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	CCB9
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.4744	ppb	273108.6	7.28	0.20	Fail
9 Be	0.0018	ppb	115.6	106.34	0.10	
11 B	1.3540	ppb	32679.9	10.17	5.00	
23 Na	23.5100	ppb	243613.7	4.39	40.00	
24 Mg	2.9050	ppb	79514.6	8.95	10.00	
27 Al	2.9230	ppb	115755.8	8.73	20.00	
28 Si	0.4610	ppb	3498.3	6.36	20.00	
31 P	4.0840	ppb	33327.9	9.35	10.00	
39 K	4.9250	ppb	66640.7	5.78	20.00	
40 Ca	4.0440	ppb	110893.9	5.54	25.00	
47 Ti	-0.0195	ppb	194.5	52.43	0.50	
51 V	0.0824	ppb	4162.8	10.57	0.50	
52 Cr	-0.0191	ppb	1117.8	11.23	0.20	
55 Mn	0.1437	ppb	10854.3	10.47	0.20	
56 Fe	2.4550	ppb	61828.8	0.82	10.00	
59 Co	0.0111	ppb	1400.1	31.72	0.20	
60 Ni	0.0007	ppb	140.9	757.60	0.20	
63 Cu	0.0289	ppb	760.9	24.68	0.40	
66 Zn	0.1936	ppb	6493.9	22.60	2.00	
75 As	0.0632	ppb	131.8	6.14	0.20	
78 Se	0.0491	ppb	32.7	7.24	0.20	
88 Sr	0.0651	ppb	3063.8	4.30	0.20	
90 Zr	0.0128	ppb	687.8	16.19	2.00	
95 Mo	0.0596	ppb	474.5	22.09	0.40	
107 Ag	0.0017	ppb	72.2	20.54	0.20	
111 Cd	0.0291	ppb	137.3	39.76	0.20	
118 Sn	0.0461	ppb	921.2	5.84	0.20	
121 Sb	0.0787	ppb	1271.2	6.21	0.40	
137 Ba	0.0727	ppb	681.2	15.28	0.20	
182 W	0.0206	ppb	280.0	5.48	1.00	
201 Hg	-0.0079	ppb	19.1	9.64	0.05	
205 Tl	0.0257	ppb	1106.8	15.54	0.20	
208 Pb	0.0238	ppb	1676.8	7.92	0.10	
235 U	0.0003	ppb	7.8	38.14	1.00	
238 U	0.0310	ppb	1586.8	13.72	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4846840.0	1.80	4705448.00	103.0	60 - 125	
45 Sc	1897725.6	0.09	2505566.80	75.7	60 - 125	
45 Sc	417685.7	1.04	517912.13	80.6	60 - 125	
45 Sc	4071306.3	0.55	5032752.00	80.9	60 - 125	
72 Ge	405903.9	0.55	518790.66	78.2	60 - 125	
72 Ge	182507.9	0.70	230129.14	79.3	60 - 125	
72 Ge	731150.3	0.90	919312.25	79.5	60 - 125	
115 In	4759746.0	0.99	5865894.00	81.1	60 - 125	
159 Tb	6056595.5	1.34	8018076.50	75.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

1 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

ICS-A QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17085.D\F6I17085.D#
Date Acquired:	Sep 20 2019 04:50 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICSA2
Misc Info:	
Vial Number:	1303
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	ICS-A
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.02	ppb	259999.1	245.16	---	
9 Be	0.00	ppb	75.6	388.28	---	
11 B	1.29	ppb	27944.9	3.83	---	
23 Na	110300.00	ppb	637563710.0	0.66	120000.00	
24 Mg	100300.00	ppb	2266978000.0	0.38	120000.00	
27 Al	101600.00	ppb	2843053100.0	0.62	120000.00	
28 Si	12.41	ppb	20324.3	17.86	---	
31 P	108400.00	ppb	142859100.0	0.42	---	
39 K	110200.00	ppb	109929000.0	0.28	120000.00	
40 Ca	102600.00	ppb	1079000100.0	0.87	120000.00	
47 Ti	2238.00	ppb	5253917.0	0.50	2400.00	
51 V	0.09	ppb	3963.9	3.27	---	
52 Cr	0.23	ppb	3242.1	0.77	---	
55 Mn	0.36	ppb	18352.9	2.67	---	
56 Fe	96330.00	ppb	1399801000.0	0.66	120000.00	
59 Co	0.56	ppb	17824.6	1.29	---	
60 Ni	0.31	ppb	1041.4	1.75	---	
63 Cu	0.24	ppb	2258.2	1.65	---	
66 Zn	8.89	ppb	47854.7	0.96	---	
75 As	0.32	ppb	359.3	5.21	---	
78 Se	0.13	ppb	64.9	3.68	---	
88 Sr	0.91	ppb	33833.4	1.16	---	
90 Zr	0.46	ppb	13137.5	2.03	---	
95 Mo	2116.00	ppb	13437310.0	0.20	2400.00	
107 Ag	0.02	ppb	312.2	3.43	---	
111 Cd	0.25	ppb	908.1	58.33	---	
118 Sn	0.05	ppb	845.6	9.40	---	
121 Sb	0.19	ppb	2404.7	3.84	---	
137 Ba	0.20	ppb	1215.7	5.34	---	
182 W	0.22	ppb	2665.9	5.27	---	
201 Hg	0.00	ppb	30.2	493.76	---	
205 Tl	0.00	ppb	365.6	32.59	---	
208 Pb	0.08	ppb	3524.8	4.09	---	
235 U	0.00	ppb	5.6	60.31	---	
238 U	0.01	ppb	420.0	10.56	---	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4251442.5	0.89	4705448.00	90.4	60 - 125	
45 Sc	1749255.6	1.73	2505566.80	69.8	60 - 125	
45 Sc	390255.3	0.78	517912.13	75.4	60 - 125	
45 Sc	3776500.0	0.66	5032752.00	75.0	60 - 125	
72 Ge	350775.8	0.51	518790.66	67.6	60 - 125	
72 Ge	168351.2	1.13	230129.14	73.2	60 - 125	
72 Ge	703865.7	1.47	919312.25	76.6	60 - 125	
115 In	4089537.8	1.63	5865894.00	69.7	60 - 125	
159 Tb	5543895.5	1.54	8018076.50	69.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass

ISTD: Pass

ICS-AB QC Report

Data File:	C:\DATA\IF62019\I\IF6I17.B\F6I17086.D\F6I17086.D#
Date Acquired:	Sep 20 2019 04:55 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICSAB2
Misc Info:	
Vial Number:	1304
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020HG.C
Last Cal. Update:	Sep 20 2019 10:30 am
Sample Type:	ICS-AB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	Expected	QC Range(%)	Flag
7 Li	19.43	ppb	1037923.0	1.13	20.00	80 - 120	
9 Be	16.47	ppb	190111.4	1.28	20.00	80 - 120	
11 B	14.51	ppb	167428.5	0.75	20.00	80 - 120	Fail
23 Na	109500.00	ppb	652615810.0	0.82	100000.00	80 - 120	
24 Mg	100500.00	ppb	2218853100.0	0.39	100000.00	80 - 120	
27 Al	101800.00	ppb	2784299000.0	0.29	100000.00	80 - 120	
28 Si	255.00	ppb	379330.8	0.87	200.00	80 - 120	Fail
31 P	107300.00	ppb	138107300.0	0.09	100000.00	80 - 120	
39 K	109800.00	ppb	108233500.0	1.05	100000.00	80 - 120	
40 Ca	102300.00	ppb	1109258000.0	0.38	100000.00	80 - 120	
47 Ti	2270.00	ppb	5205057.0	0.63	2000.00	80 - 120	
51 V	20.12	ppb	143481.6	0.83	20.00	80 - 120	
52 Cr	19.15	ppb	164958.7	0.42	20.00	80 - 120	
55 Mn	20.19	ppb	764614.8	0.31	20.00	80 - 120	
56 Fe	96340.00	ppb	1443352100.0	0.20	100000.00	80 - 120	
59 Co	19.69	ppb	584245.9	0.27	20.00	80 - 120	
60 Ni	17.93	ppb	52806.5	0.18	20.00	80 - 120	
63 Cu	18.19	ppb	129389.1	0.16	20.00	80 - 120	
66 Zn	18.84	ppb	92462.1	0.32	20.00	80 - 120	
75 As	20.30	ppb	18708.6	0.49	20.00	80 - 120	
78 Se	21.51	ppb	10375.5	0.45	20.00	80 - 120	
88 Sr	21.42	ppb	760385.6	0.25	20.00	80 - 120	
90 Zr	12.27	ppb	330705.2	0.15	20.00	80 - 120	Fail
95 Mo	2139.00	ppb	13330400.0	0.29	2000.00	80 - 120	
107 Ag	18.96	ppb	303687.8	1.03	20.00	80 - 120	
111 Cd	19.99	ppb	70830.8	1.52	20.00	80 - 120	
118 Sn	20.46	ppb	198246.6	0.61	20.00	80 - 120	
121 Sb	20.32	ppb	242442.6	0.37	20.00	80 - 120	
137 Ba	21.29	ppb	100095.8	0.76	20.00	80 - 120	
182 W	21.11	ppb	247381.3	0.31	20.00	80 - 120	
201 Hg	1.87	ppb	2847.4	1.23	2.00	80 - 120	
205 Tl	19.26	ppb	523632.5	0.30	20.00	80 - 120	
208 Pb	19.14	ppb	711221.4	0.10	20.00	80 - 120	
235 U	0.11	ppb	1621.3	3.96	0.14	80 - 120	Fail
238 U	17.78	ppb	778544.1	0.06	19.86	80 - 120	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4123717.8	0.80	4705448.00	87.6	60 - 125	
45 Sc	1803443.1	0.98	2505566.80	72.0	60 - 125	
45 Sc	385585.1	0.33	517912.13	74.4	60 - 125	
45 Sc	3688110.8	0.82	5032752.00	73.3	60 - 125	
72 Ge	360094.6	0.95	518790.66	69.4	60 - 125	
72 Ge	165023.3	0.54	230129.14	71.7	60 - 125	
72 Ge	681376.0	0.56	919312.25	74.1	60 - 125	
115 In	4013500.8	1.37	5865894.00	68.4	60 - 125	
159 Tb	5445880.0	1.28	8018076.50	67.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\I\IF6I17.B\F6I17004.D\F6I17004.D#

4 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-MS METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # 1812117

All samples pH<2

Book #: EIM-075
Batch: 1MH056W
Matrix: water
Digestor ID: E

SOP #	Rev. #
☐ EMAX-200.8	6
☑ EMAX-6020	10
☐ EMAX-6020CA	0
☐ EMAX-	

Start	Temp	End	Temp
	92.1 °C		92.9 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SM6A-007-06-09	0.15
LCS-2	↓ -06-10	0.15
MS	same spike soln and vol. as	LCS 1 and 2
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SN/A-08-12-05	0.5+1.0
HCl	↓ -12-01	0.25+0.25
H_2O_2	N/A	N/A
HNO_3(1:1)	N/A	N/A
pH Strip (0-14)	1M857466	N/A
Digestate Location	Metals	
Extract Location	N/A	

☑ Reagent Water ID: SMSA-04-03-06
☑ Thermometer ID: 181292128/E28
☑ Pipette ID: 239360318
☐ Pipette ID:
☐ Pipette ID:
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask

Prepared By: MC
Standard Added By: MC Witnessed By: LY
Extract Rcvd By: LY Checked By: MC

EMAX LABS

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19IMH056W01	IMH056WB	50	ml	8/26/19 9:08	50	50	50	1	
19IMH056W02	IMH056WL	50	ml	8/26/19 9:08	50	50	50	1	
19IMH056W03	IMH056WC	50	ml	8/26/19 9:08	50	50	50	1	
19IMH056W04	H243-01	50	ml	8/26/19 9:08	50	50	50	1	DISSOLVED
19IMH056W05	H243-01M	50	ml	8/26/19 9:08	50	50	50	1	DISSOLVED
19IMH056W06	H243-01S	50	ml	8/26/19 9:08	50	50	50	1	DISSOLVED
19IMH056W07	H243-02	50	ml	8/26/19 9:08	50	50	50	1	DISSOLVED
19IMH056W08	TXH009SB	10	ml	8/26/19 9:08	50	50	50	5	TCLP
19IMH056W09	H200-01	10	ml	8/26/19 9:08	50	50	50	5	TCLP
19IMH056W10	H200-01M	10	ml	8/26/19 9:08	50	50	50	5	TCLP
19IMH056W11	H200-01S	10	ml	8/26/19 9:08	50	50	50	5	TCLP

MC
8/26/19

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 8/26/19 9:38 Prepared By: MCande

☑ Digestion Ended @ 8/26/19 11:52 Checked By: LY

Comments: Date 8/26/19

SOP EMAX-6020 Rev. 10

LABORATORY REPORT FOR

ARCADIS

PG&E TOPOCK-GMP

METHOD E218.6
HEXAVALENT CHROMIUM

SDG#: 19H243

CASE NARRATIVE

Client : ARCADIS

Project: PG&E TOPOCK-GMP

SDG : 19H243

METHOD E218.6
HEXAVALENT CHROMIUM

A total of three (3) water samples were received on 08/23/19 to be analyzed for Hexavalent Chromium in accordance with Method E218.6 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. Hexavalent Chromium was not detected in HCH017WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. HCH017WL/HCH017WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of MS/MSD and two (2) sets of MS were analyzed.

- Hexavalent Chromium was within MS/MSD QC limits in H243-01M/S.
- Hexavalent Chromium was within MS QC limits in H243-02M.
- Hexavalent Chromium was within MS QC limits in H243-03M.

Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

Samples H243-01 and -02 were reported at 5X dilution due to matrix interference.

METHOD E218.6
HEXAVALENT CHROMIUM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
Batch No. : 19H243

Matrix : WATER
InstrumentID : 59

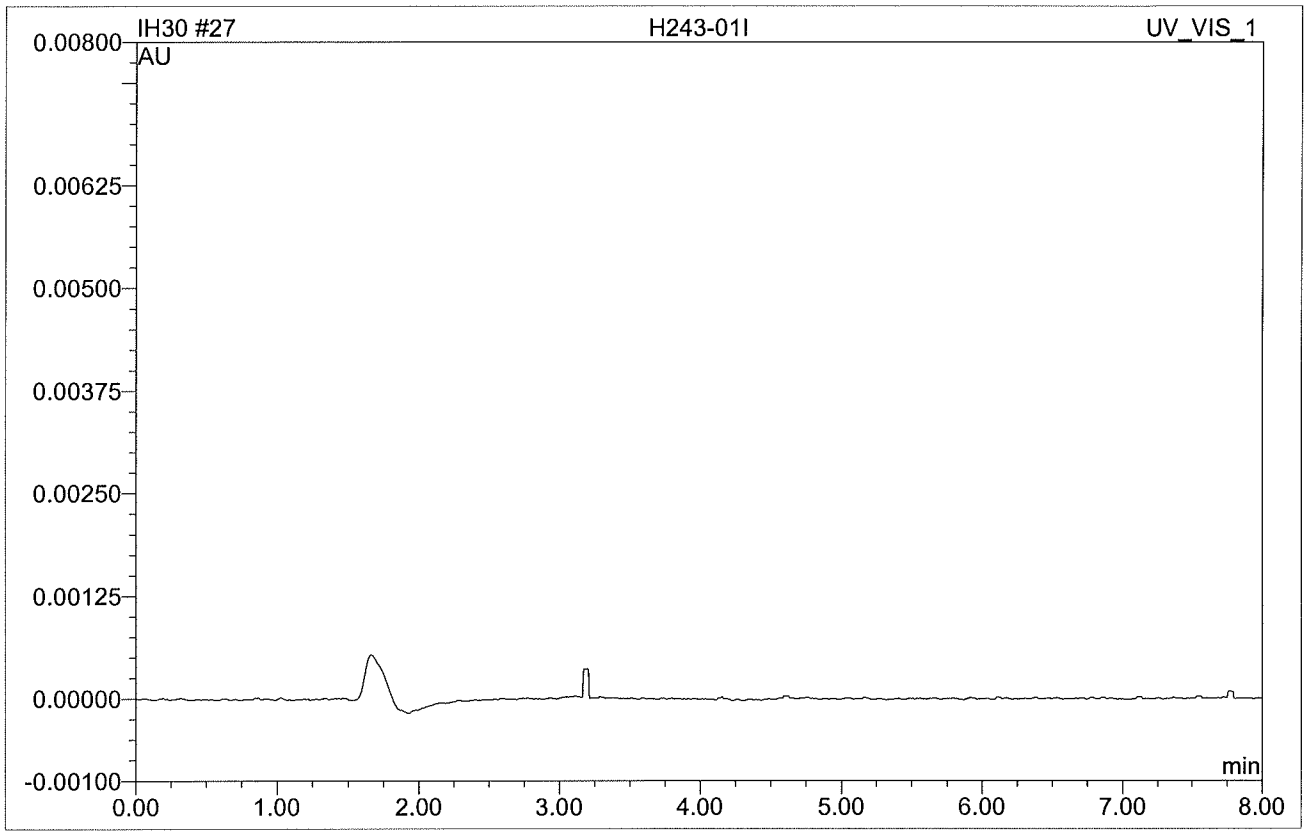
CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DIL'N. FACTOR	MOIST (%)	LOQ (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HCH017WB	ND	1	NA	0.2	0.1	08/30/1912:07	NA	IH30015	IH30013	HCH017W	NA	NA
LCS1W	HCH017WL	2.02	1	NA	0.2	0.1	08/30/1912:17	NA	IH30016	IH30013	HCH017W	NA	NA
LCD1W	HCH017WC	1.98	1	NA	0.2	0.1	08/30/1912:28	NA	IH30017	IH30013	HCH017W	NA	NA
MW-54-195-EB-0819	H243-03	ND	1	NA	0.2	0.1	08/30/1913:30	NA	IH30023	IH30013	HCH017W	08/22/1907:15	08/23/19
MW-54-195-EB-0819MS	H243-03M	0.924	1	NA	0.2	0.1	08/30/1913:41	NA	IH30024	IH30013	HCH017W	08/22/1907:15	08/23/19
MW-54-195-1FF-0819	H243-01I	ND	5	NA	1	0.5	08/30/1914:12	NA	IH30027	IH30025	HCH017W	08/22/1907:50	08/23/19
MW-54-195-1FF-0819MS	H243-01M	5.02	5	NA	1	0.5	08/30/1914:22	NA	IH30028	IH30025	HCH017W	08/22/1907:50	08/23/19
MW-54-195-1FF-0819MSD	H243-01S	4.95	5	NA	1	0.5	08/30/1914:33	NA	IH30029	IH30025	HCH017W	08/22/1907:50	08/23/19
MW-54-195-2FF-0819	H243-02I	ND	5	NA	1	0.5	08/30/1914:43	NA	IH30030	IH30025	HCH017W	08/22/1907:55	08/23/19
MW-54-195-2FF-0819MS	H243-02M	4.99	5	NA	1	0.5	08/30/1914:53	NA	IH30031	IH30025	HCH017W	08/22/1907:55	08/23/19

SAMPLE RESULTS

IH30 027 H243-01I

DF=5

Sample Name:	**H243-01I**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**5**
Recording Time:	**8/30/2019 14:12**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

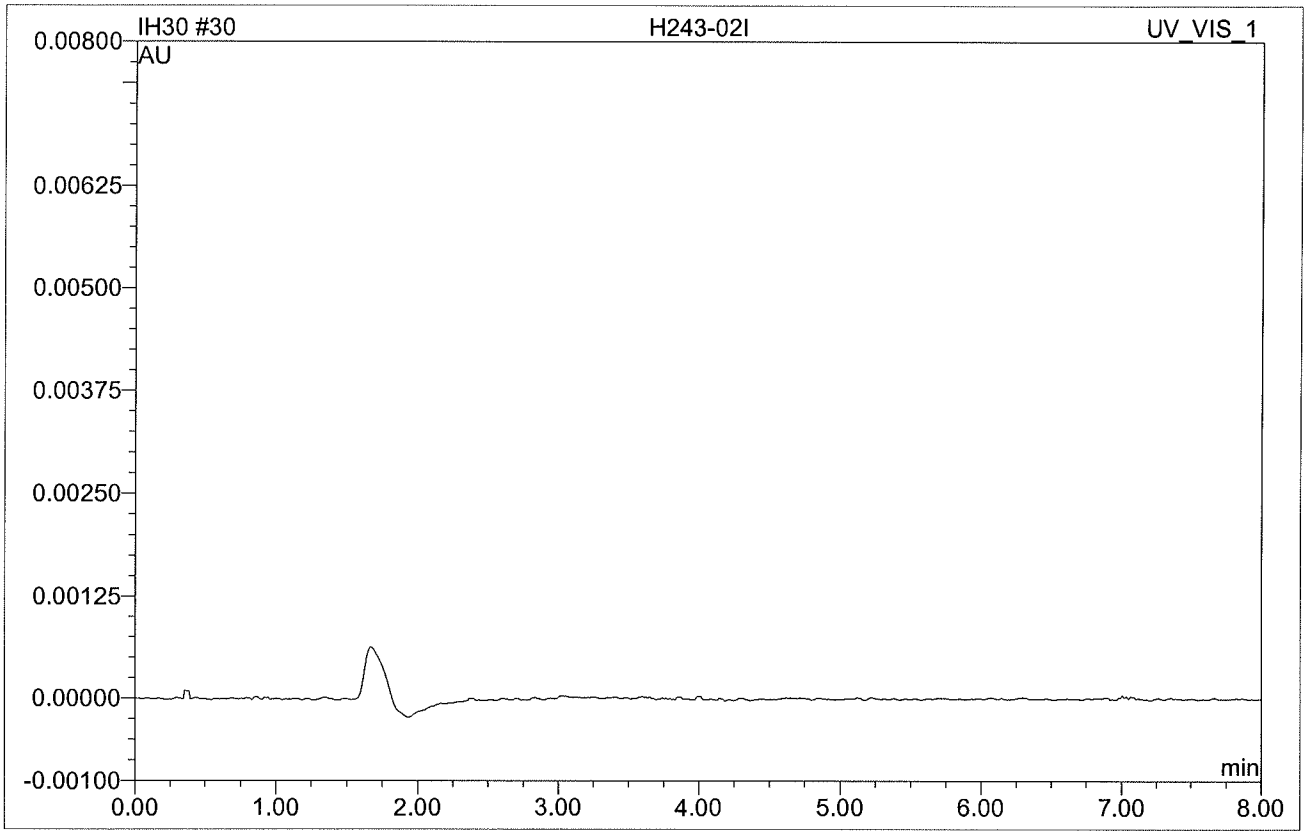


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IH30 030 H243-02I

DF=5

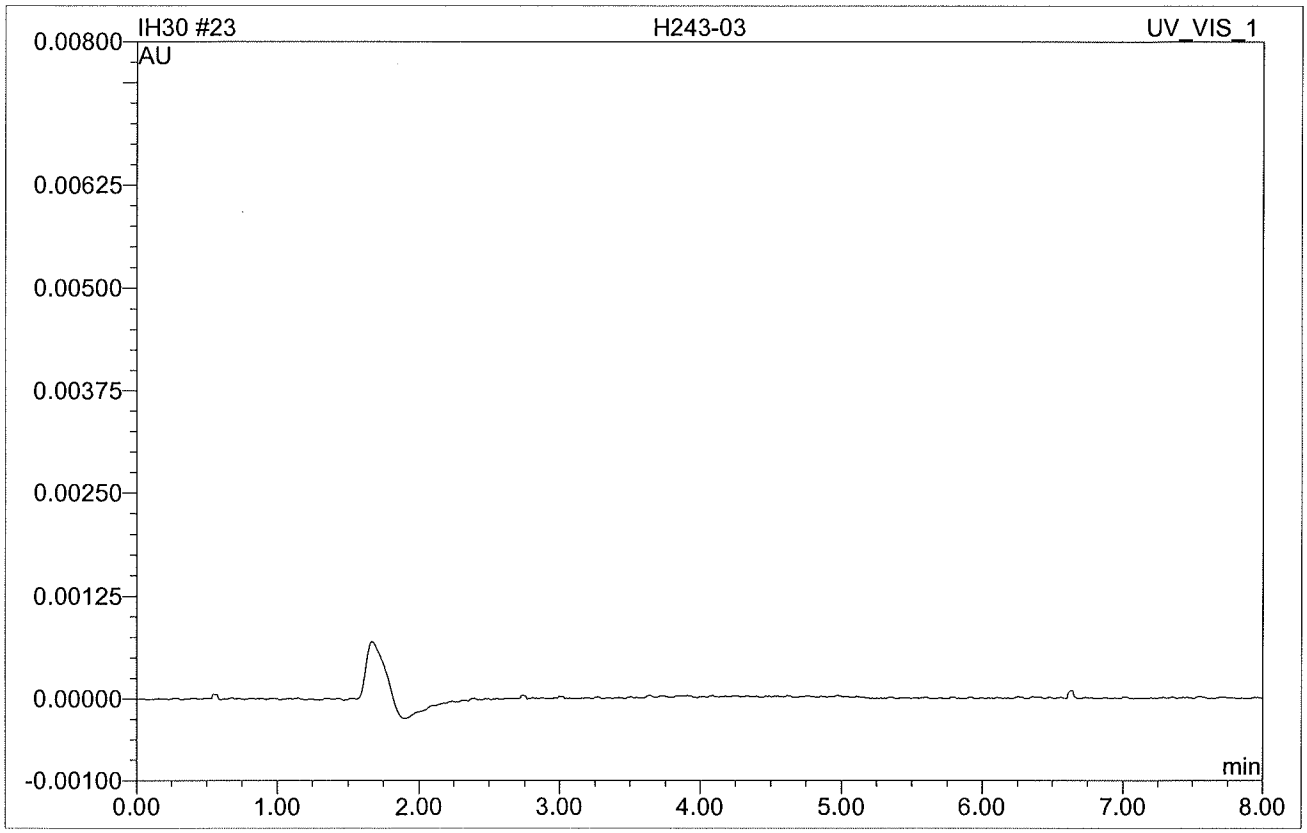
Sample Name:	**H243-02I**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**5**
Recording Time:	**8/30/2019 14:43**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IH30 023 H243-03

Sample Name:	**H243-03**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 13:30**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19H243
METHOD : E218.6

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: HCH017WB	HCH017WL	HCH017WC
LAB FILE ID	: IH30015	IH30016	IH30017
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 08/30/1912:07	08/30/1912:17	08/30/1912:28
PREP BATCH	: HCH017W	HCH017W	HCH017W
CALIBRATION REF	: IH30013	IH30013	IH30013

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpkAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
HEXAVALENT CHROMIUM	ND	2.00	2.02	101	2.00	1.98	99.0	2	90-110	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19H243
METHOD : E218.6

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 5	5	5
SAMPLE ID	: MW-54-195-1FF-0819	MW-54-195-1FF-0819MS	MW-54-195-1FF-0819MSD
LAB SAMPLE ID	: H243-01I	H243-01M	H243-01S
LAB FILE ID	: IH30027	IH30028	IH30029
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 08/30/1914:12	08/30/1914:22	08/30/1914:33
PREP BATCH	: HCH017W	HCH017W	HCH017W
CALIBRATION REF	: IH30025	IH30025	IH30025

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpkAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
HEXAVALENT CHROMIUM	ND	5.00	5.02	100	5.00	4.95	99.0	1	90-110	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19H243
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR:	5	5
SAMPLE ID	: MW-54-195-2FF-0819	MW-54-195-2FF-0819MS
LAB SAMPLE ID	: H243-02I	H243-02M
LAB FILE ID	: IH30030	IH30031
DATE PREPARED	: NA	NA
DATE ANALYZED	: 08/30/1914:43	08/30/1914:53
PREP BATCH	: HCH017W	HCH017W
CALIBRATION REF:	IH30025	IH30025

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	5.00	4.99	99.8	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19H243
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR:	1	1
SAMPLE ID	: MW-54-195-EB-0819	MW-54-195-EB-0819MS
LAB SAMPLE ID	: H243-03	H243-03M
LAB FILE ID	: IH30023	IH30024
DATE PREPARED	: NA	NA
DATE ANALYZED	: 08/30/1913:30	08/30/1913:41
PREP BATCH	: HCH017W	HCH017W
CALIBRATION REF:	IH30013	IH30013

ACCESSION:

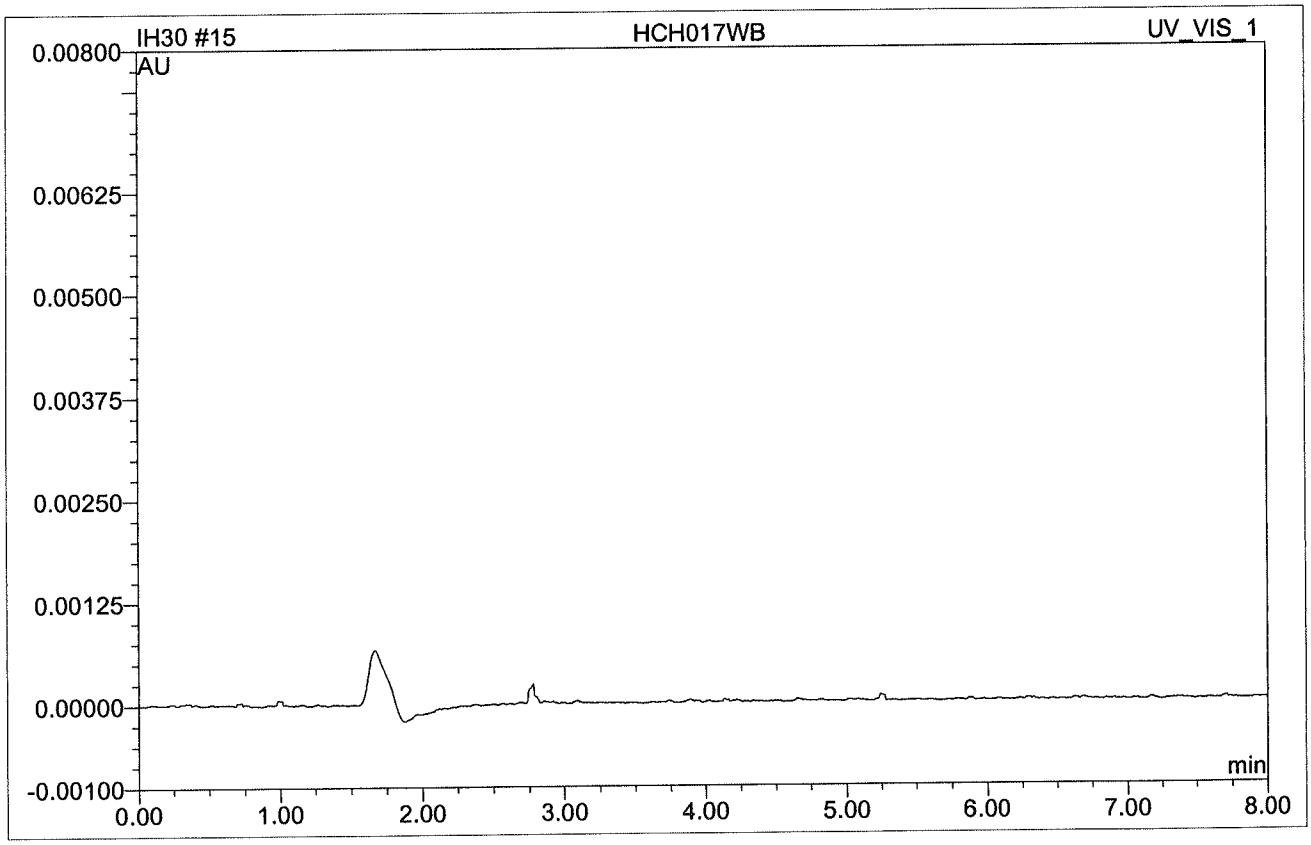
PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	1.00	0.924	92.4	90-110

PS: Parent Sample MS: Matrix Spike

QC DATA

IH30 015 HCH017WB

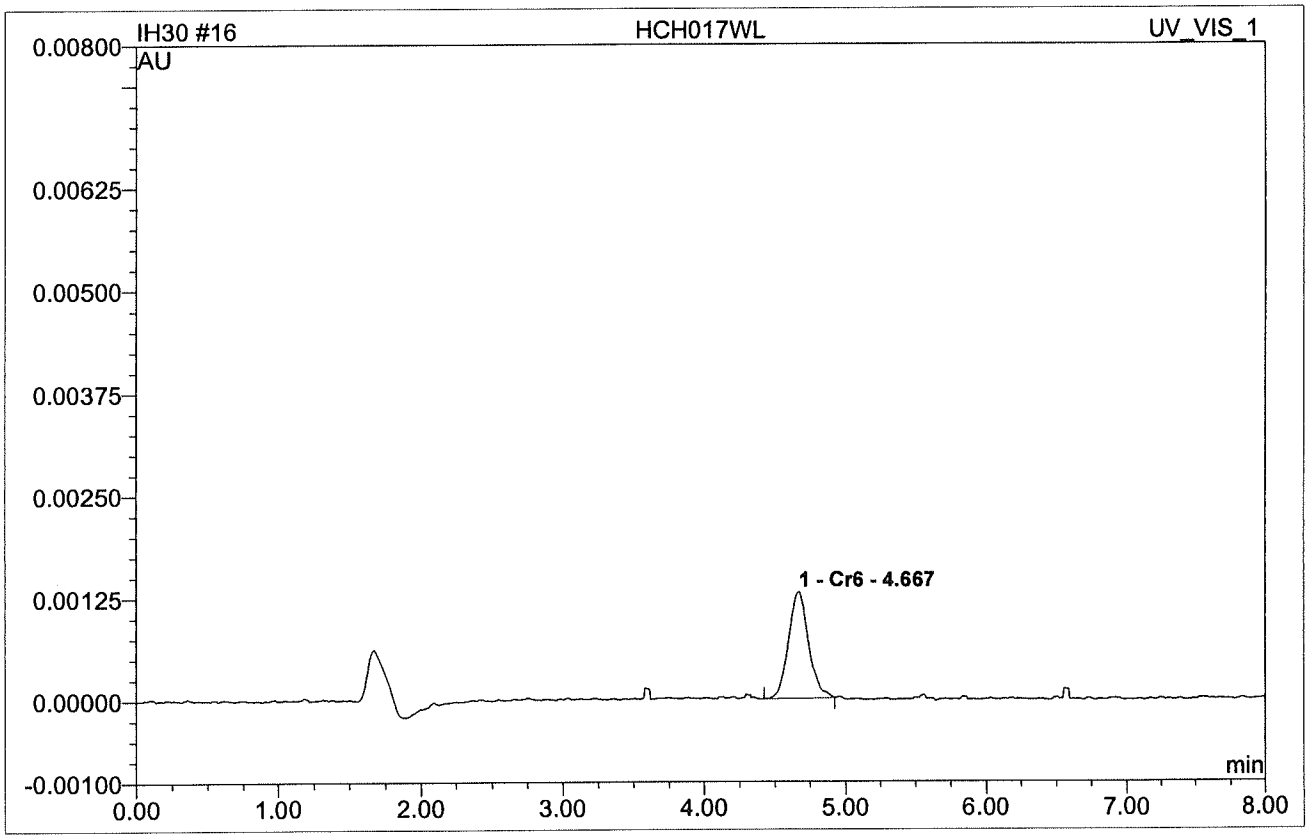
Sample Name:	**HCH017WB**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 12:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IH30 016 HCH017WL

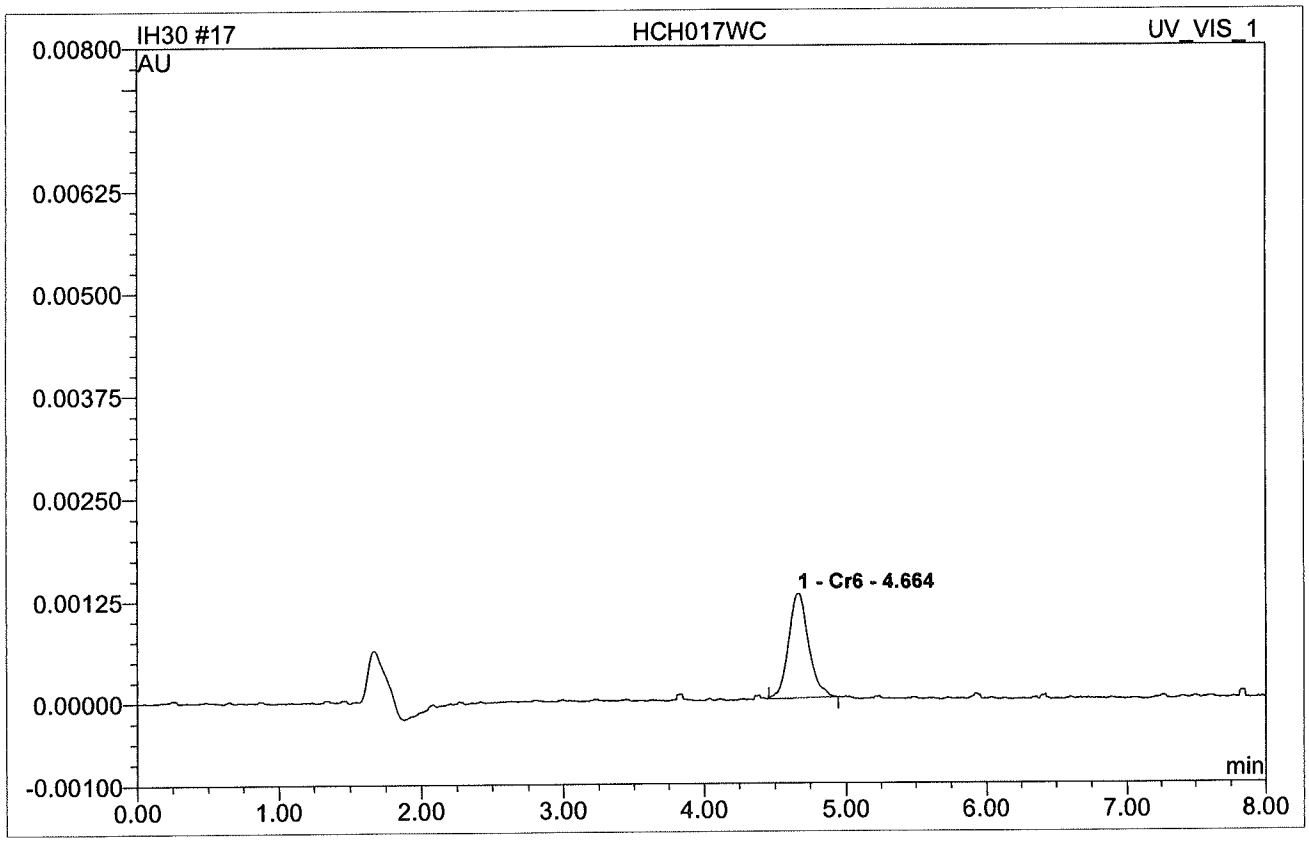
Sample Name:	**HCH017WL**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 12:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	Cr6	0.0013000	0.0002135	100.00	2.019	BMB
Total:			0.001	0.000	100.00	2.019	

IH30 017 HCH017WC

Sample Name:	**HCH017WC**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 12:28**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

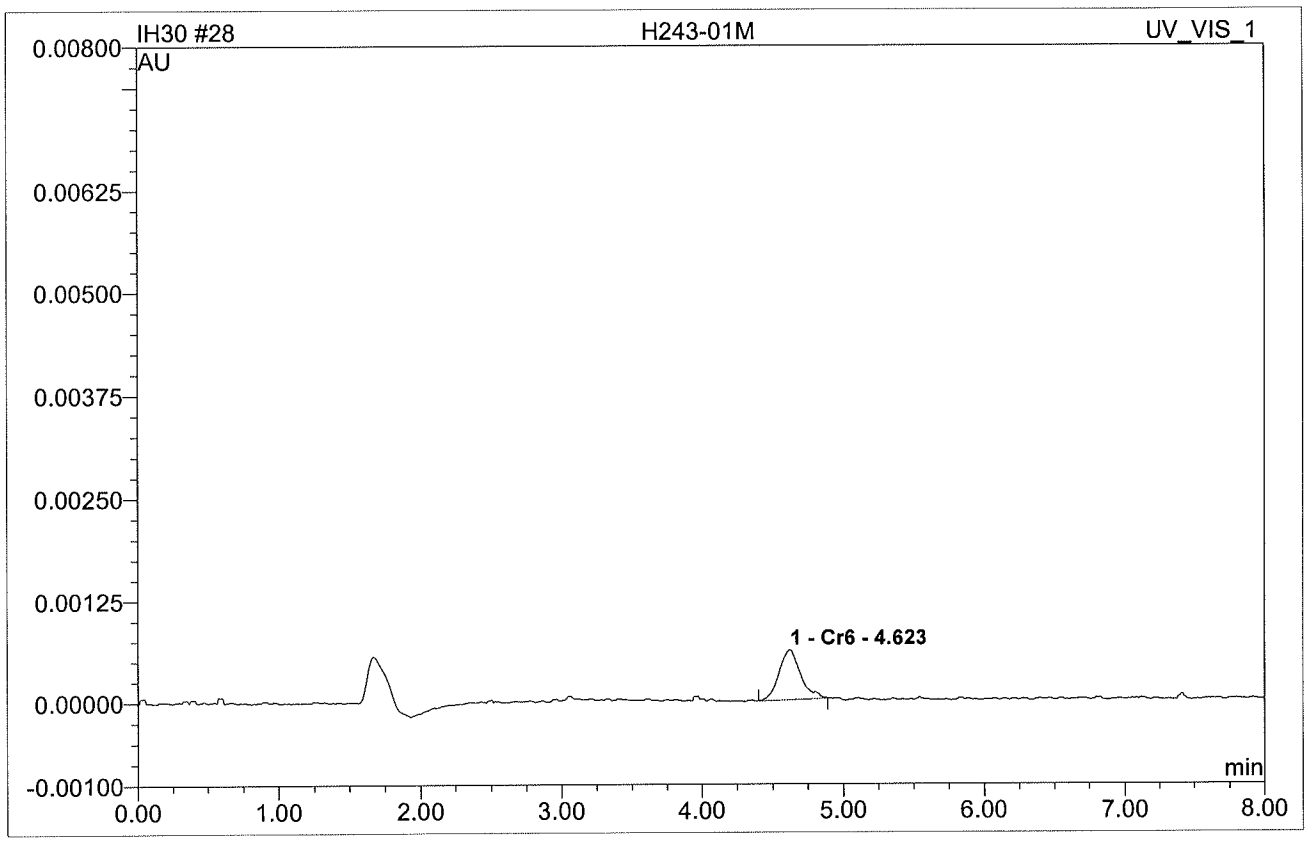


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.66	Cr6	0.0012800	0.0002095	100.00	1.981	BMB
Total:			0.001	0.000	100.00	1.981	

IH30 028 H243-01M

DF=5

Sample Name:	**H243-01M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**5**
Recording Time:	**8/30/2019 14:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

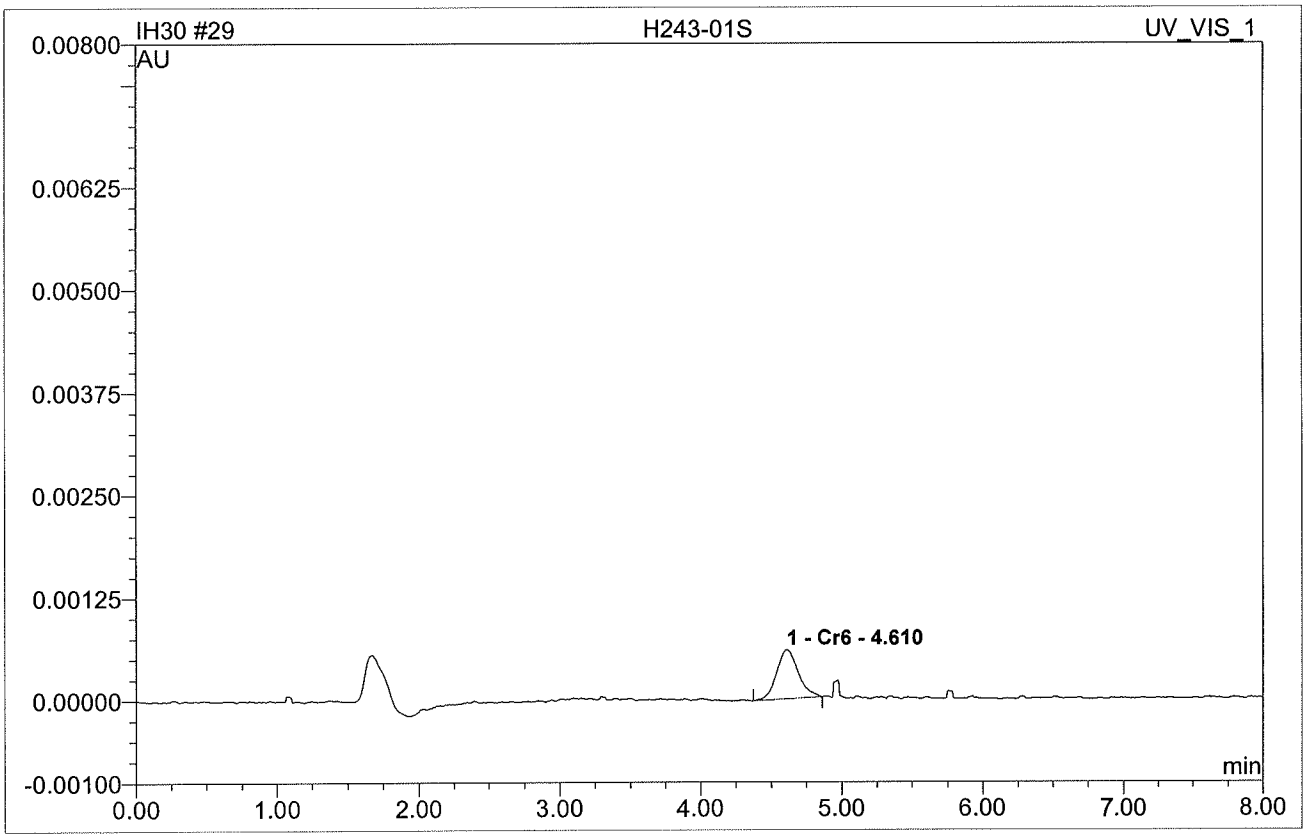


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.62	Cr6	0.0006130	0.0001075	100.00	5.021	BMB
Total:			0.001	0.000	100.00	5.021	

IH30 029 H243-01S

DF=5

Sample Name:	**H243-01S**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**5**
Recording Time:	**8/30/2019 14:33**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

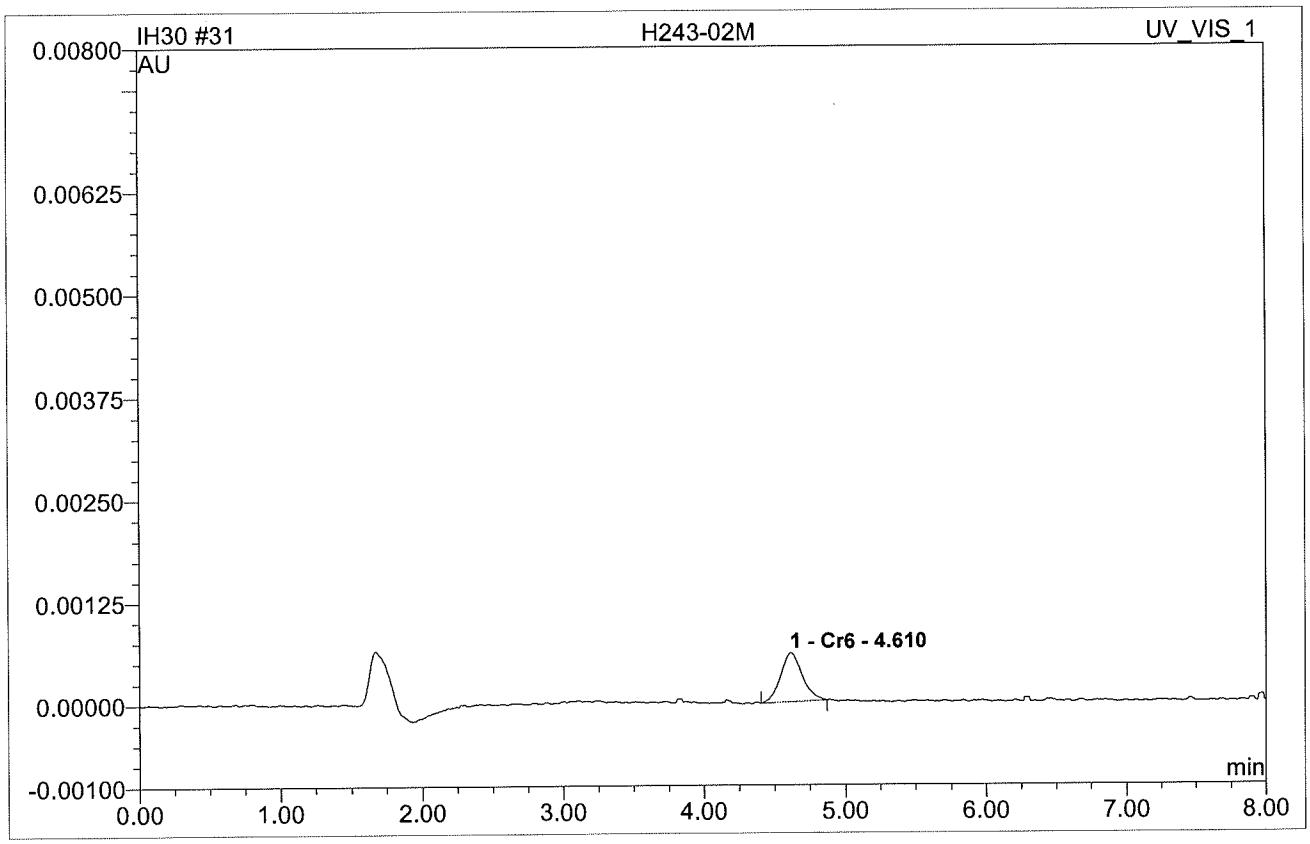


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.61	Cr6	0.0005990	0.0001059	100.00	4.947	BMB
Total:			0.001	0.000	100.00	4.947	

IH30 031 H243-02M

DF=5

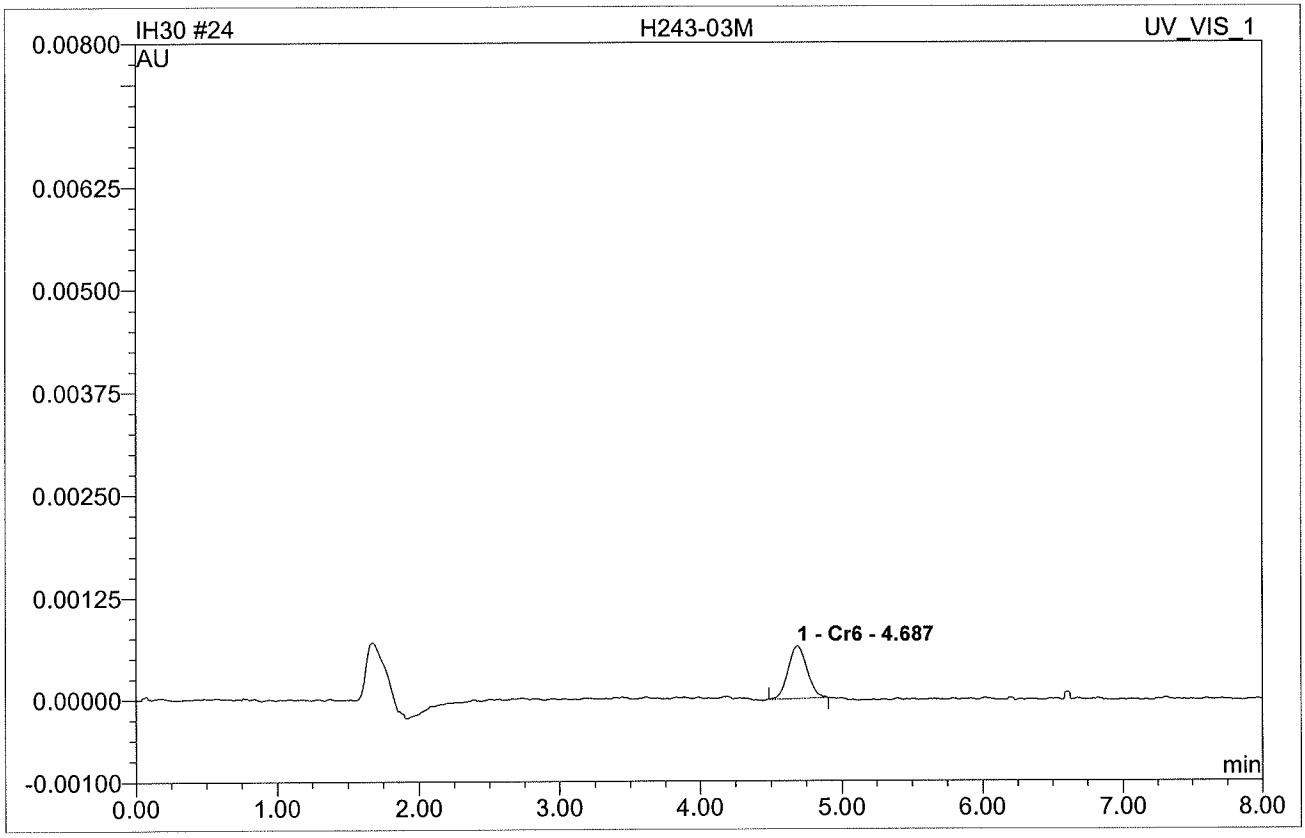
Sample Name:	**H243-02M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**5**
Recording Time:	**8/30/2019 14:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.61	Cr6	0.0005980	0.0001068	100.00	4.988	BMB
Total:			0.001	0.000	100.00	4.988	

IH30 024 H243-03M

Sample Name:	**H243-03M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 13:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0006460	0.0000990	100.00	0.924	BMB
Total:			0.001	0.000	100.00	0.924	

INITIAL CALIBRATION

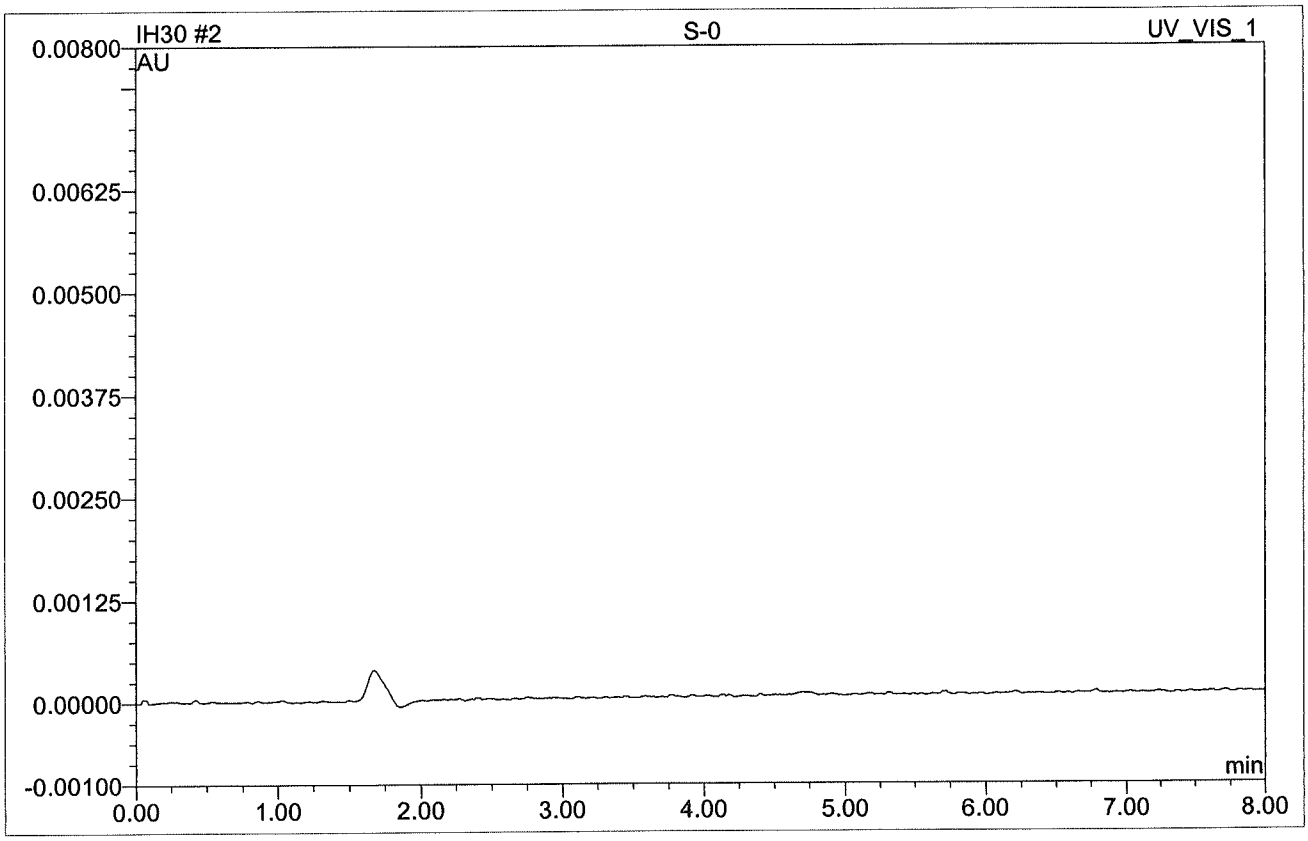
IC RESULT FORM CalVersion : CR6.H30/IH30 (2019)

LFID	LSID	SelCmp	Cr6	DateTime	DF
IH30001	IB	C	ND	08/30/1909:31	1
IH30002	S-0	C	ND	08/30/1909:41	1
IH30003	S-1	C	0.198	08/30/1909:52	1
IH30004	S-2	C	0.509	08/30/1910:02	1
IH30005	S-3	C	0.980	08/30/1910:13	1
IH30006	S-4	C	2.041	08/30/1910:23	1
IH30007	S-5	C	4.966	08/30/1910:33	1
IH30008	S-6	C	7.578	08/30/1910:44	1
IH30009	S-7	C	9.952	08/30/1910:54	1
IH30010	ICV	C	100%	08/30/1911:15	1
IH30011	ICB	C	ND	08/30/1911:25	1
IH30012	LOW LEVEL	C	0.189	08/30/1911:36	1

METHOD: IC59H30
SOLVENT: BUFFER (SP2-01-11-04)

IH30 002 S-0

Sample Name:	**S-0**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 9:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



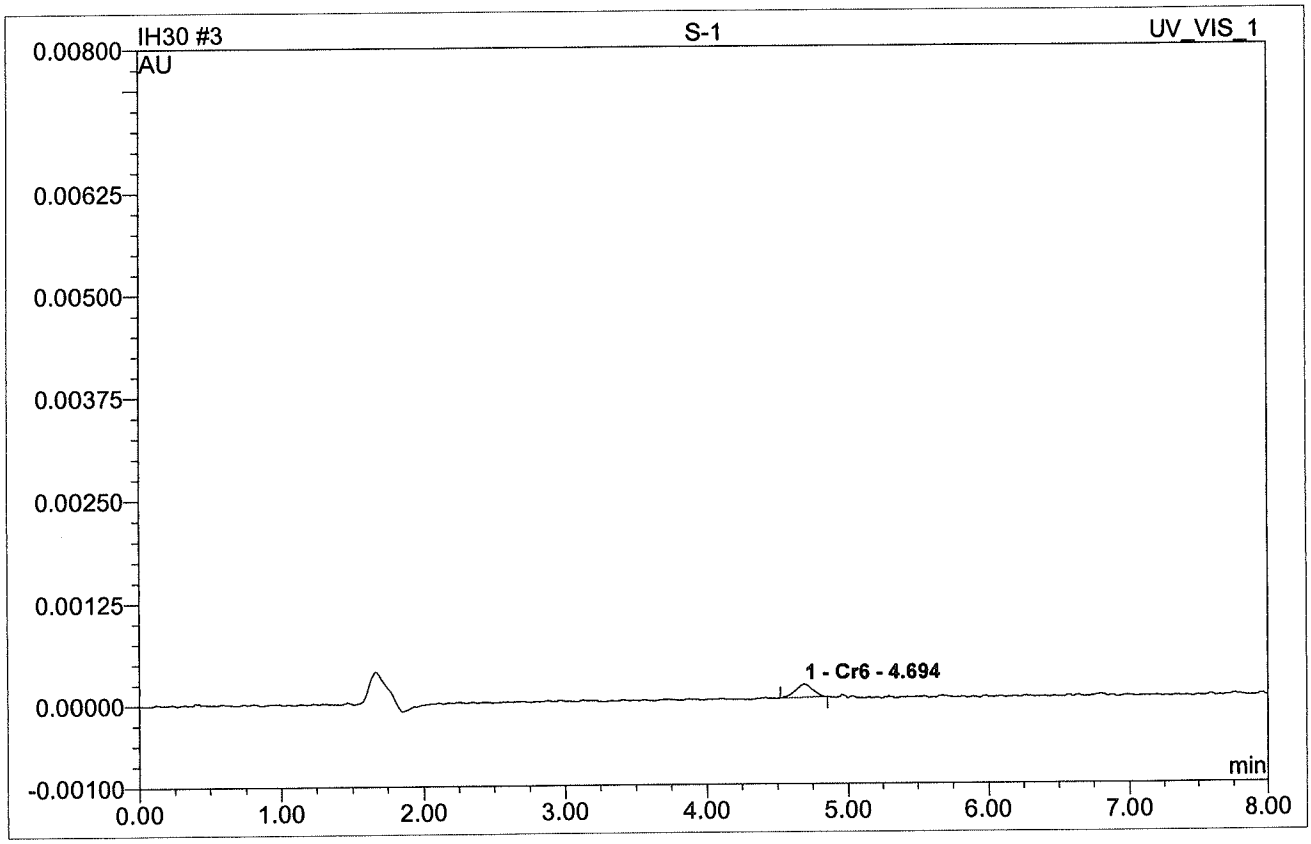
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

SE 9/5/19

IH30 003 S-1

0.2 PPB

Sample Name:	**S-1**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 9:52**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



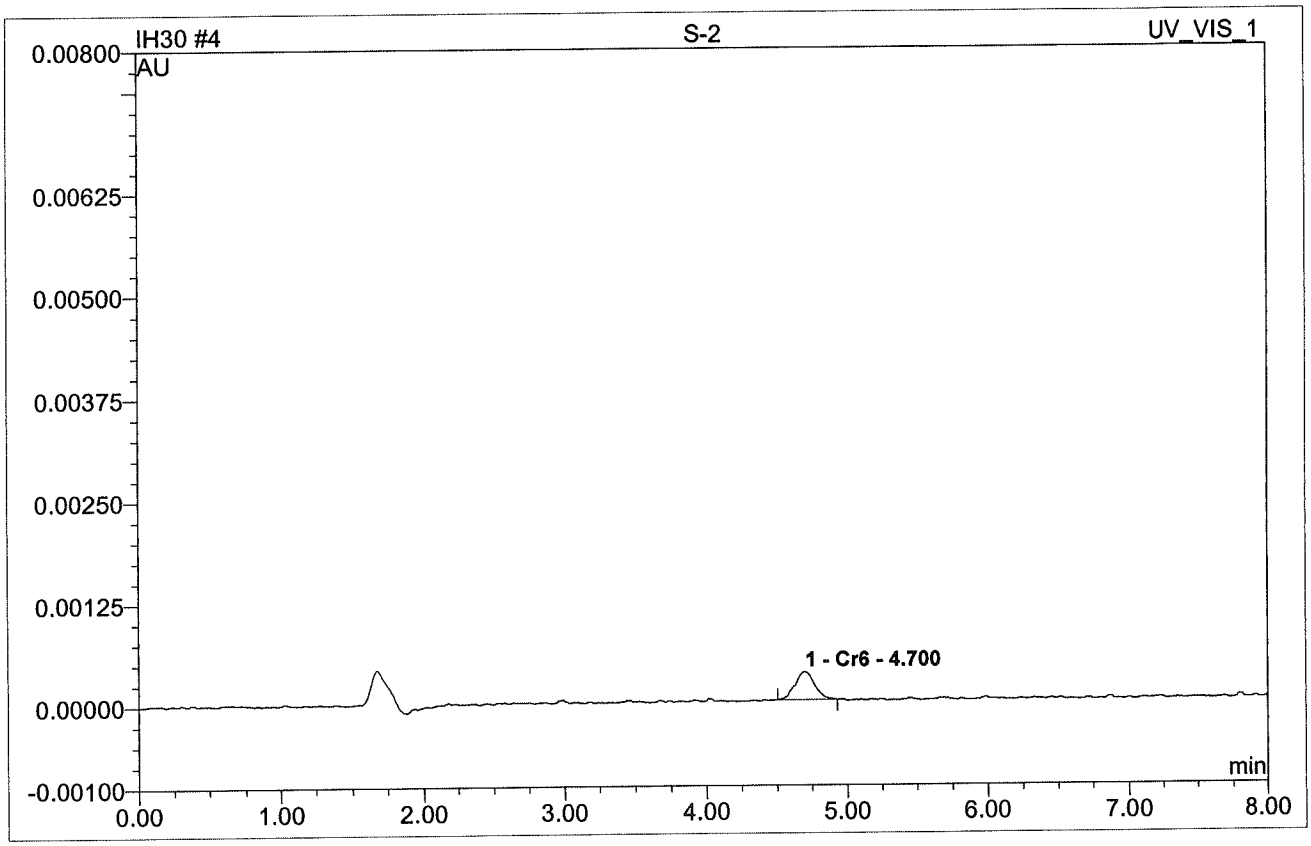
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0001630	0.0000232	100.00	0.198	BMB
Total:			0.000	0.000	100.00	0.198	

9/5/19

IH30 004 S-2

0.5 PPB

Sample Name:	**S-2**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 10:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



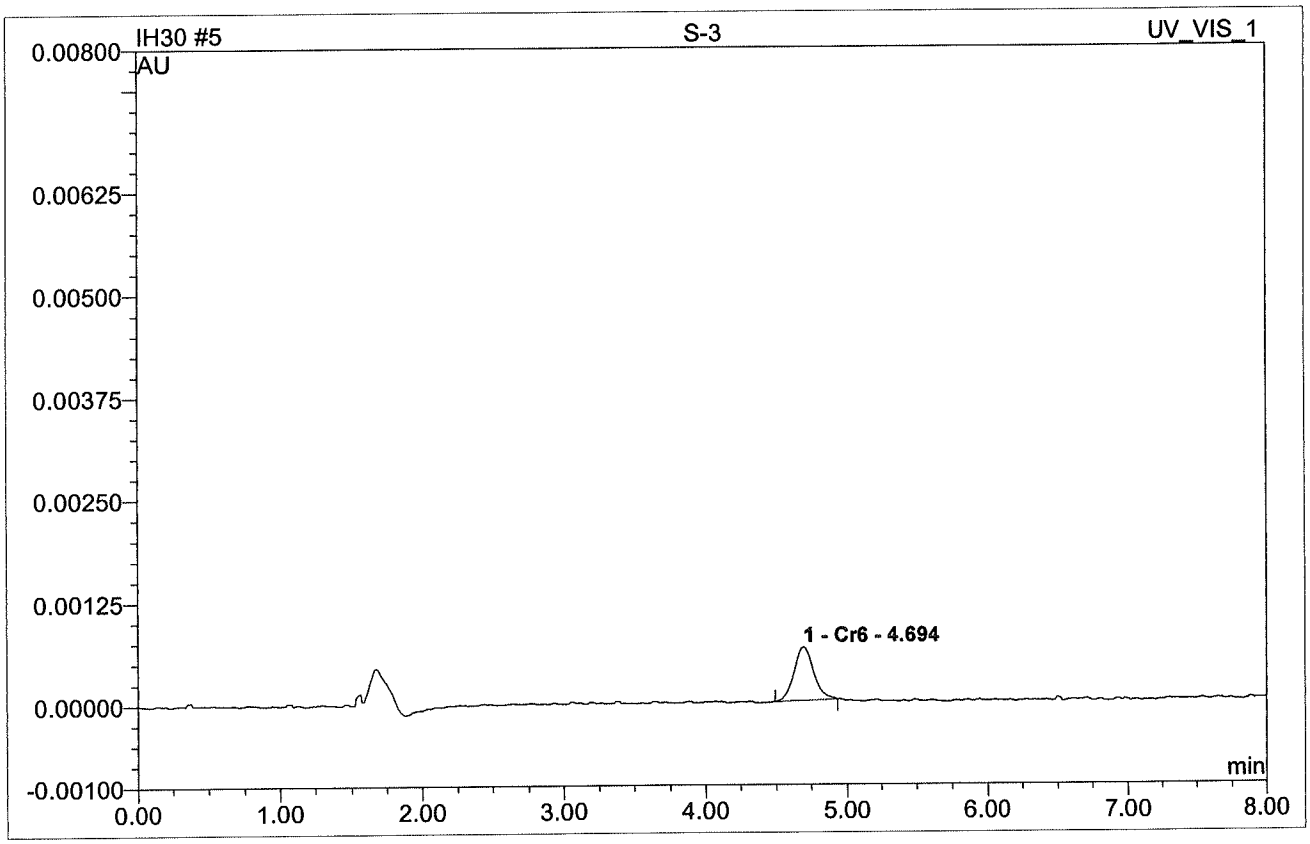
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.70	Cr6	0.0003420	0.0000557	100.00	0.509	✓	BMB
Total:			0.000	0.000	100.00	0.509		

LEE 9/5/19

IH30 005 S-3

1.0 PPB

Sample Name:	**S-3**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 10:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



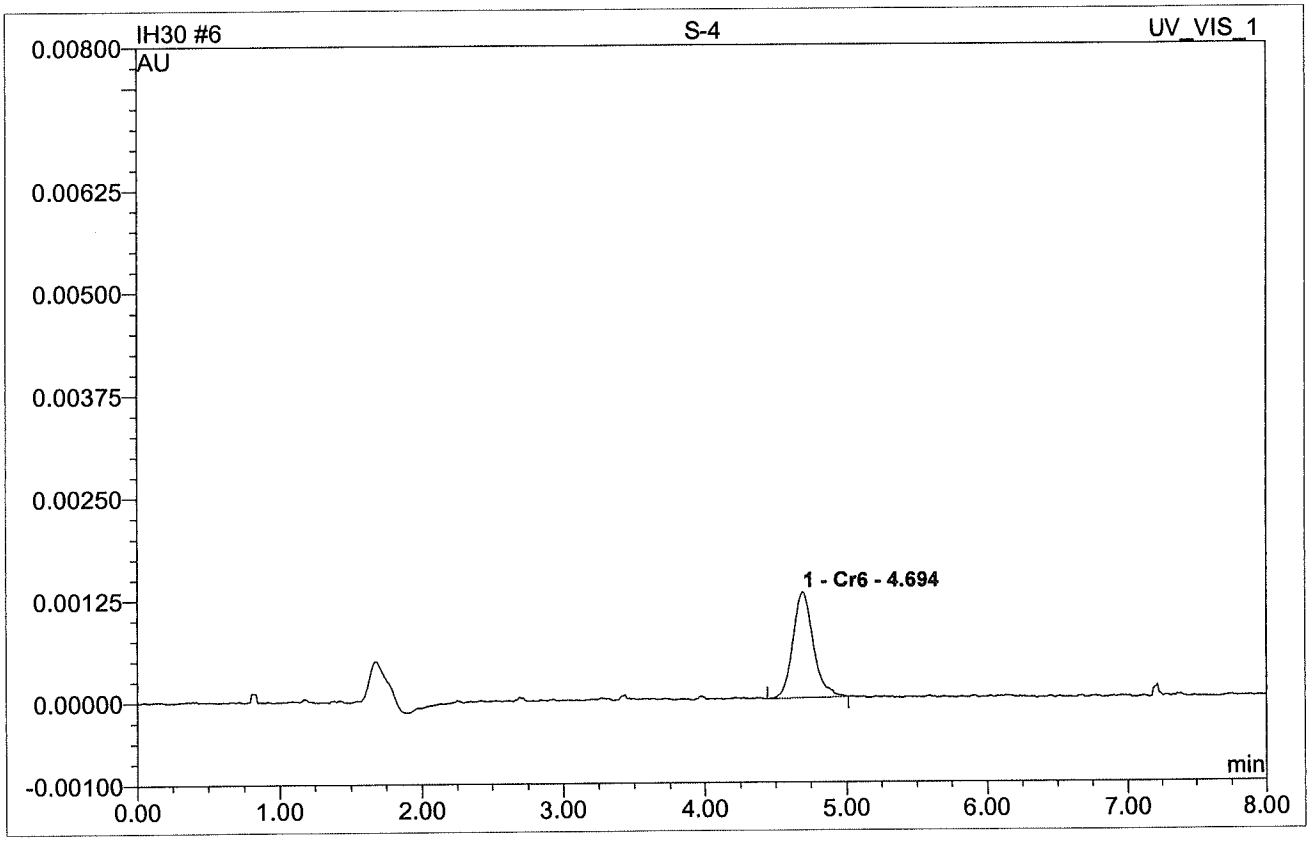
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.69	Cr6	0.0006490	0.0001049	100.00	0.980	v	BMB
Total:			0.001	0.000	100.00	0.980		

jeb 9/5/19

IH30 006 S-4

2.0 PPB

Sample Name:	**S-4**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 10:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



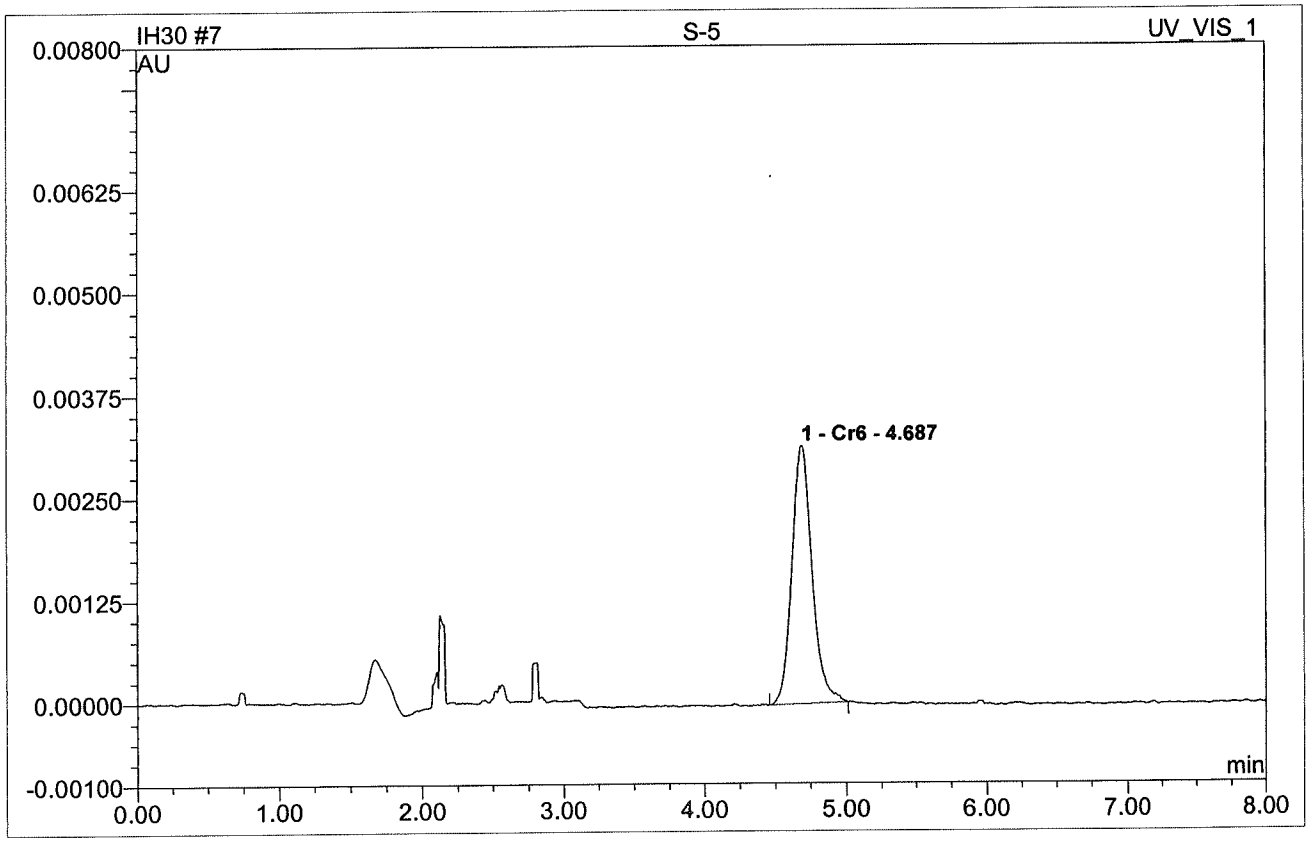
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0012910	0.0002158	100.00	2.041	BMB
Total:			0.001	0.000	100.00	2.041	

LE 9/3/19

IH30 007 S-5

5.0 PPB

Sample Name:	**S-5**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 10:33**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



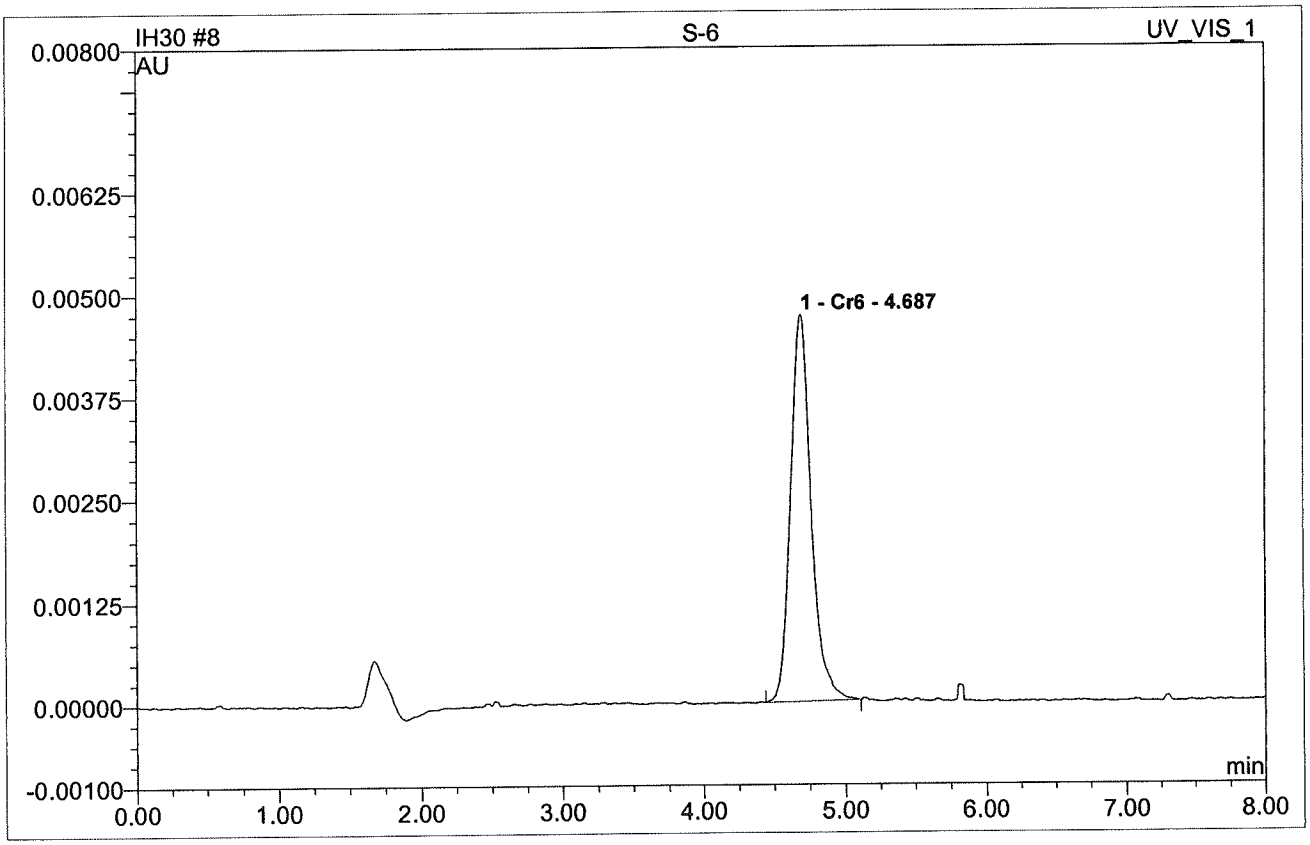
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0031500	0.0005215	100.00	4.966	BMB
Total:			0.003	0.001	100.00	4.966	

9/5/19

IH30 008 S-6

7.5 PPB

Sample Name:	**S-6**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



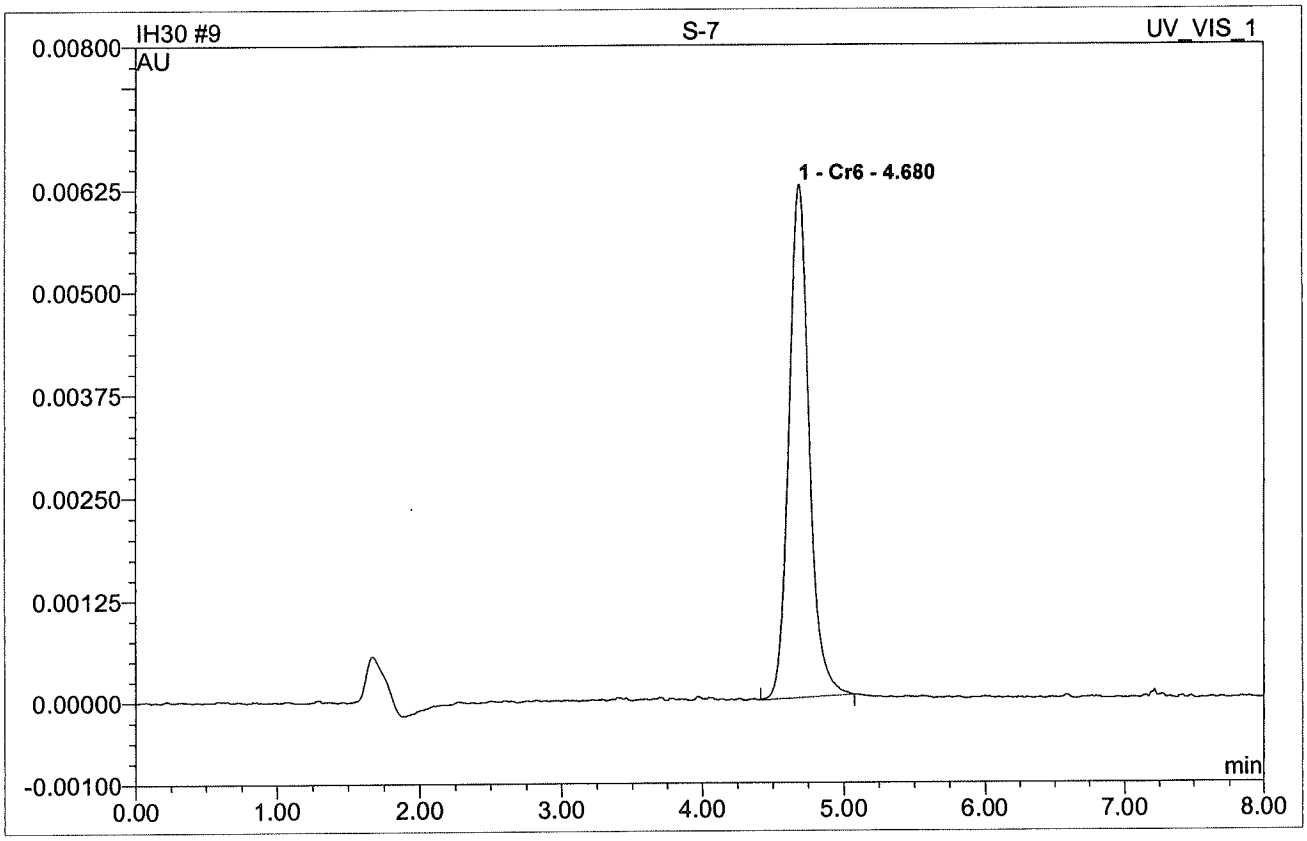
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0047190	0.0007945	100.00	7.578	BMB
Total:			0.005	0.001	100.00	7.578	

LB 9/5/19

IH30 009 S-7

10 PPB

Sample Name:	**S-7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 10:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



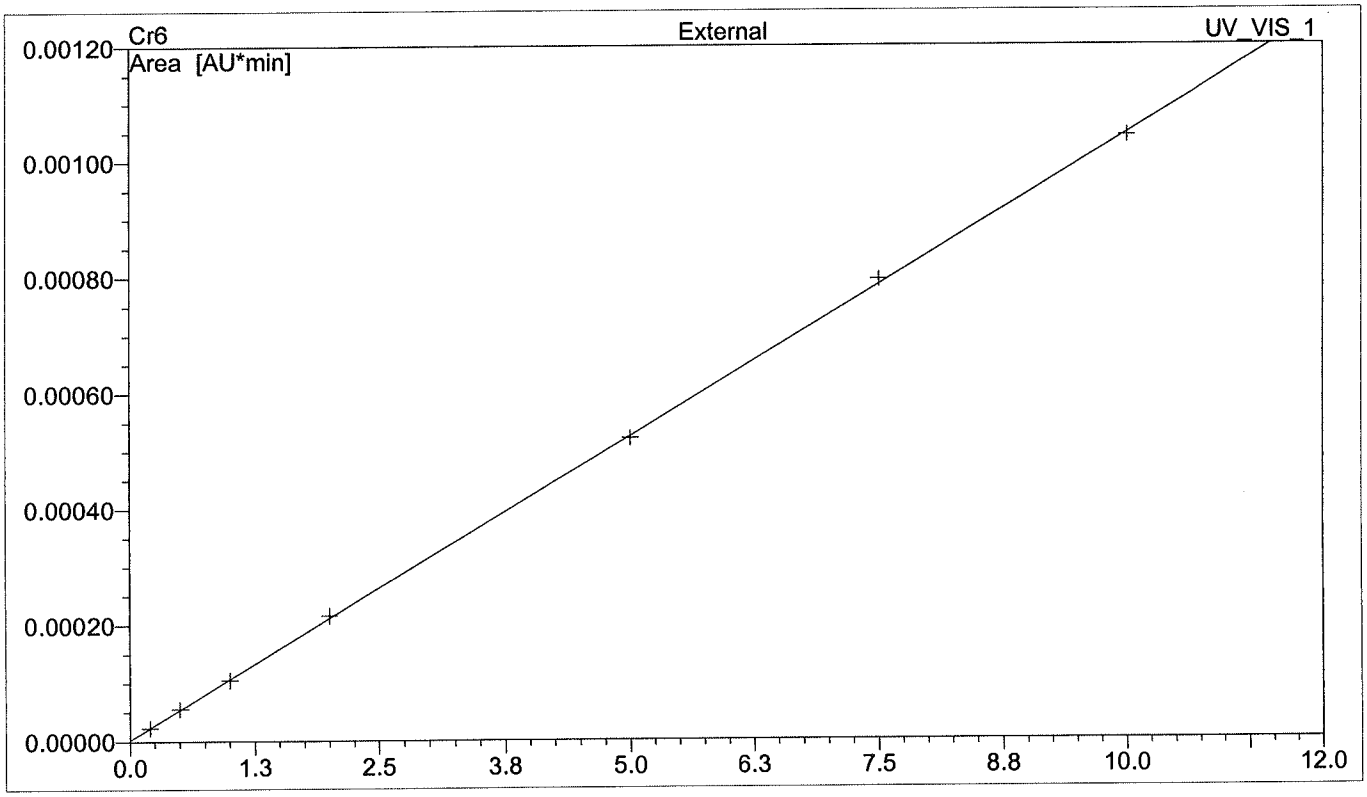
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.68	Cr6	0.0062580	0.0010426	100.00	9.952	✓	BMB
Total:			0.006	0.001	100.00	9.952		

9/5/19

9 S-7

10 PPB

Sample Name:	**S-7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1.0000**
Recording Time:	**8/30/2019 10:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
1	4.68	Cr6	0LOff	7	0.9999	0.0000025	0.0001045	0.0000
Average:					0.9999	0.0000	0.0001	0.0000

9/5/19

SECOND SOURCE VERIFICATION

IC RESULT FORM CalVersion : CR6.H30/IH30 (2019)

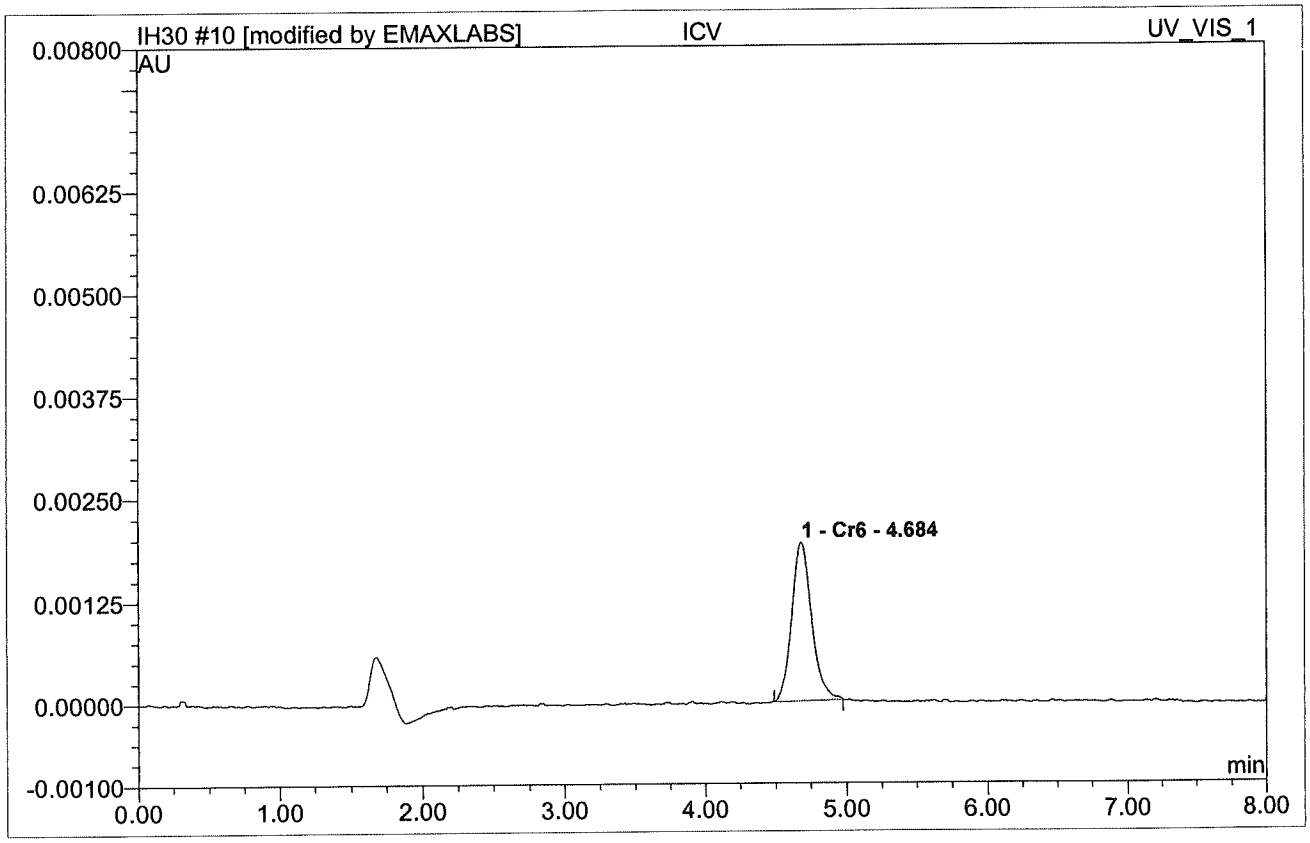
LFID	LSID	SelCmp	Cr6	DateTime	DF
IH30001	IB	C	ND	08/30/1909:31	1
IH30002	S-0	C	ND	08/30/1909:41	1
IH30003	S-1	C	0.198	08/30/1909:52	1
IH30004	S-2	C	0.509	08/30/1910:02	1
IH30005	S-3	C	0.980	08/30/1910:13	1
IH30006	S-4	C	2.041	08/30/1910:23	1
IH30007	S-5	C	4.966	08/30/1910:33	1
IH30008	S-6	C	7.578	08/30/1910:44	1
IH30009	S-7	C	9.952	08/30/1910:54	1
IH30010	ICV	C	100%	08/30/1911:15	1
IH30011	ICB	C	ND	08/30/1911:25	1
IH30012	LOW LEVEL	C	0.189	08/30/1911:36	1

METHOD: IC59H30
SOLVENT: BUFFER (SP2-01-11-04)

IH30 010 ICV

3.0 PPB

Sample Name:	**ICV**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 11:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



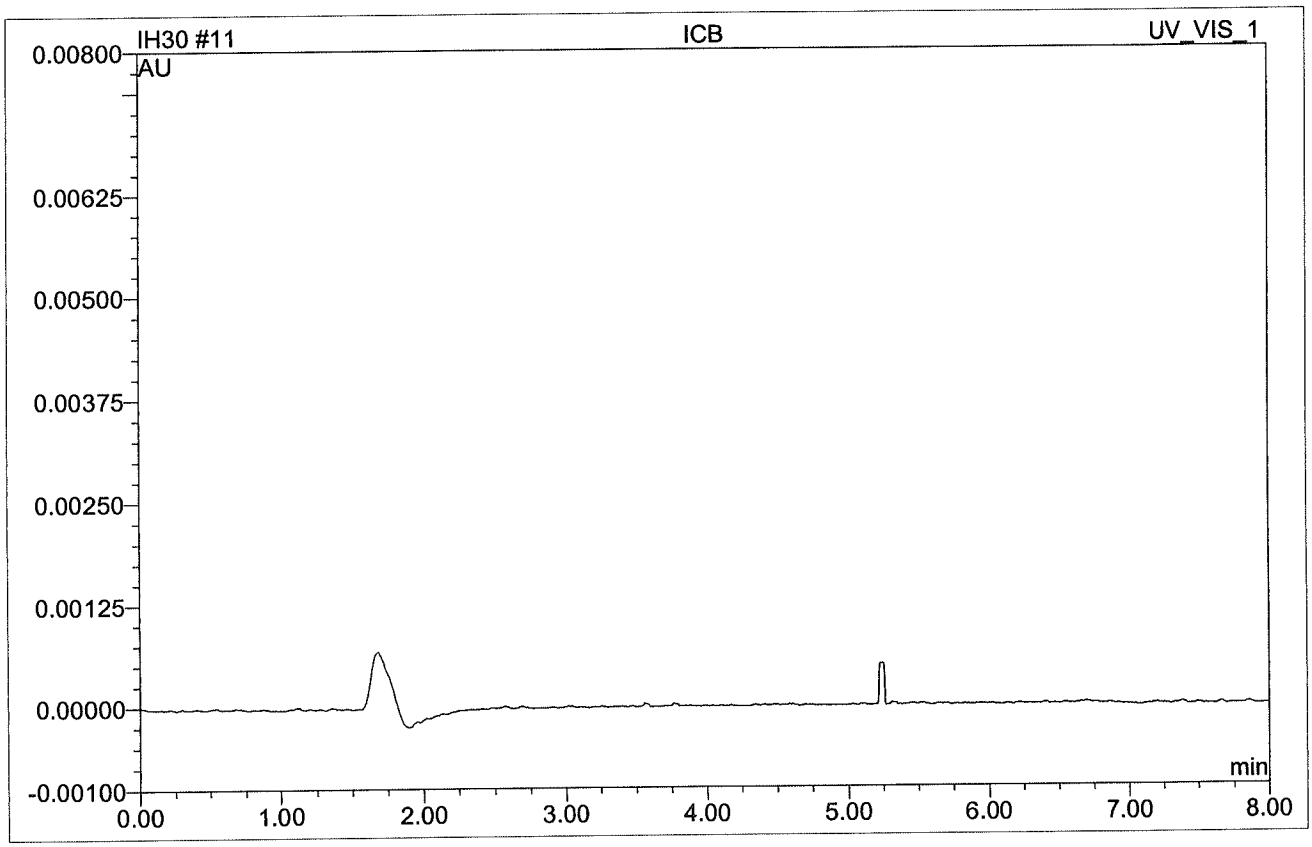
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.68	Cr6	0.0019310	0.0003165	100.00	3.004	BMB*
Total:			0.002	0.000	100.00	3.004	

Conc. = Area - offset / slope

LE 9/5/19

IH30 011 ICB

Sample Name:	**ICB**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 11:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



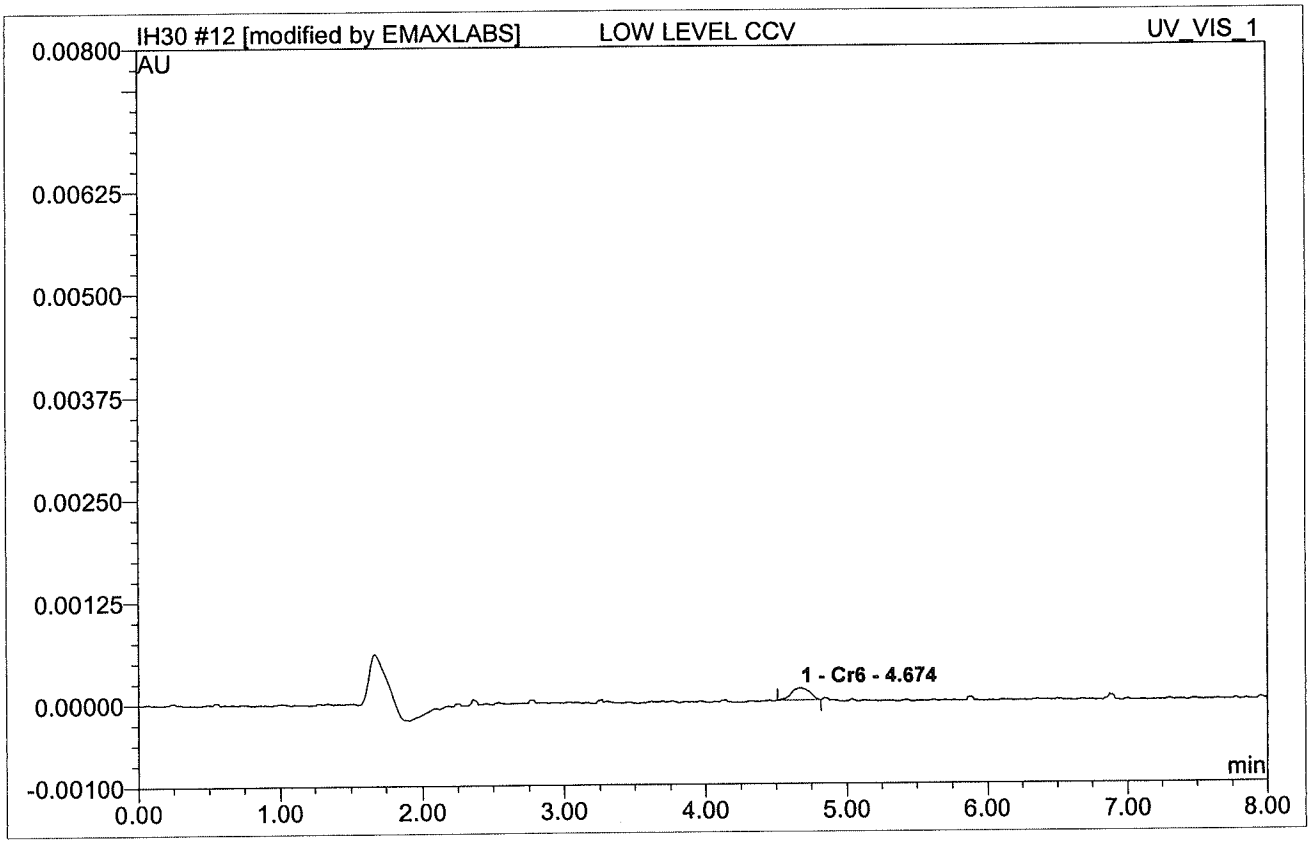
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

LE 9/5/19

IH30 012 LOW LEVEL CCV

0.2 PPB

Sample Name:	**LOW LEVEL CCV**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 11:36**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	Cr6	0.0001480	0.0000222	100.00	0.189	✓ BMB*
Total:			0.000	0.000	100.00	0.189	

LL 9/5/19

DAILY CALIBRATIONS

Continuing Calibration Summary Form

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG : 19H243
Method : E218.6
QuantMethod : IC59H30
InstrumentID: 59
Parameter : HEXAVALENT CHROMIUM

LFID	LSID	DF	Expected	Result	Unit	%Rec	AnalysisDateTime
IH30012	LOW CCV	1	0.2	0.189	ug/L	95	08/30/1911:36
IH30013	CCV1	1	2	1.949	ug/L	97	08/30/1911:46
IH30025	CCV3	1	2	2.024	ug/L	101	08/30/1913:51
IH30032	CCV5	1	2	1.932	ug/L	97	08/30/1915:04

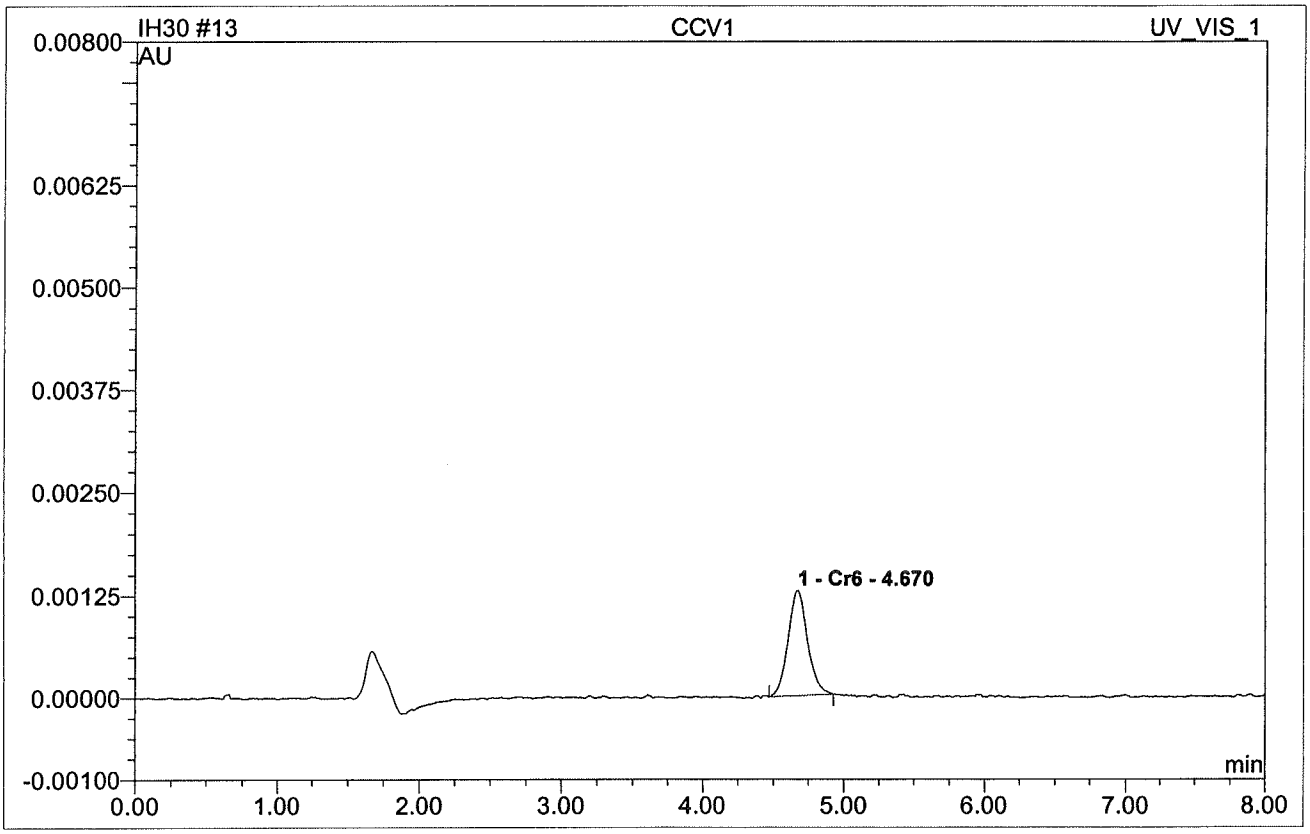
CCV Acceptance Criteria: 95-105%

IC RESULT FORM CalVersion : CR6.H30/IH30 (2019)

LFID	LSID	SelCmp	Cr6	DateTime	DF
IH30001	IB	C	ND	08/30/1909:31	1
IH30002	S-0	C	ND	08/30/1909:41	1
IH30003	S-1	C	0.198	08/30/1909:52	1
IH30004	S-2	C	0.509	08/30/1910:02	1
IH30005	S-3	C	0.980	08/30/1910:13	1
IH30006	S-4	C	2.041	08/30/1910:23	1
IH30007	S-5	C	4.966	08/30/1910:33	1
IH30008	S-6	C	7.578	08/30/1910:44	1
IH30009	S-7	C	9.952	08/30/1910:54	1
IH30010	ICV	C	100%	08/30/1911:15	1
IH30011	ICB	C	ND	08/30/1911:25	1
IH30012	LOW LEVEL	C	0.189	08/30/1911:36	1
IH30013	CCV1	C	97%	08/30/1911:46	1
IH30014	CCB1	C	ND	08/30/1911:57	1
IH30015	HCH017WB	C	ND	08/30/1912:07	1
IH30016	HCH017WL	C	2.019	08/30/1912:17	1
IH30017	HCH017WC	C	1.981	08/30/1912:28	1
IH30018	H243-01	C	ND	08/30/1912:38	1
IH30019	H243-01M	C	ND	08/30/1912:49	1
IH30020	H243-01S	C	ND	08/30/1912:59	1
IH30021	H243-02	C	ND	08/30/1913:09	1
IH30022	H243-02M	C	ND	08/30/1913:20	1
IH30023	H243-03	C	ND	08/30/1913:30	1
IH30024	H243-03M	C	0.924	08/30/1913:41	1
IH30025	CCV3	C	101%	08/30/1913:51	1
IH30026	CCB3	C	ND	08/30/1914:01	1
IH30027	H243-01I	C	ND	08/30/1914:12	5
IH30028	H243-01M	C	5.021	08/30/1914:22	5
IH30029	H243-01S	C	4.947	08/30/1914:33	5
IH30030	H243-02I	C	ND	08/30/1914:43	5
IH30031	H243-02M	C	4.988	08/30/1914:53	5
IH30032	CCV5	C	97%	08/30/1915:04	1
IH30033	CCB5	C	ND	08/30/1915:14	1
IH30034	TEST ERA 2	C	2.021	08/30/1916:34	1
IH30035	CCV7	C	103%	08/30/1916:44	1
IH30036	CCB7	C	ND	08/30/1916:55	1

IH30 013 CCV1

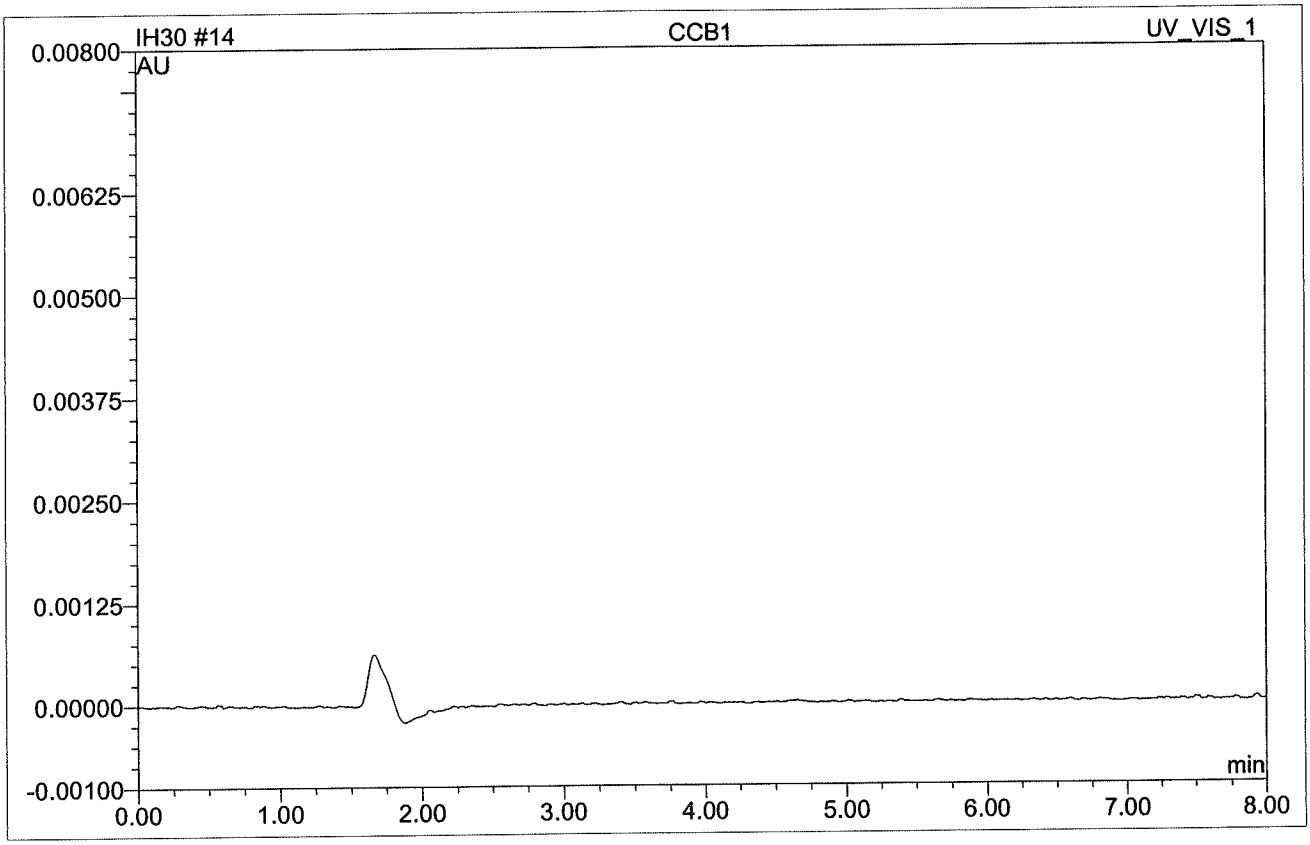
Sample Name:	**CCV1**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 11:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	Cr6	0.0012810	0.0002062	100.00	1.949	BMB
Total:			0.001	0.000	100.00	1.949	

IH30 014 CCB1

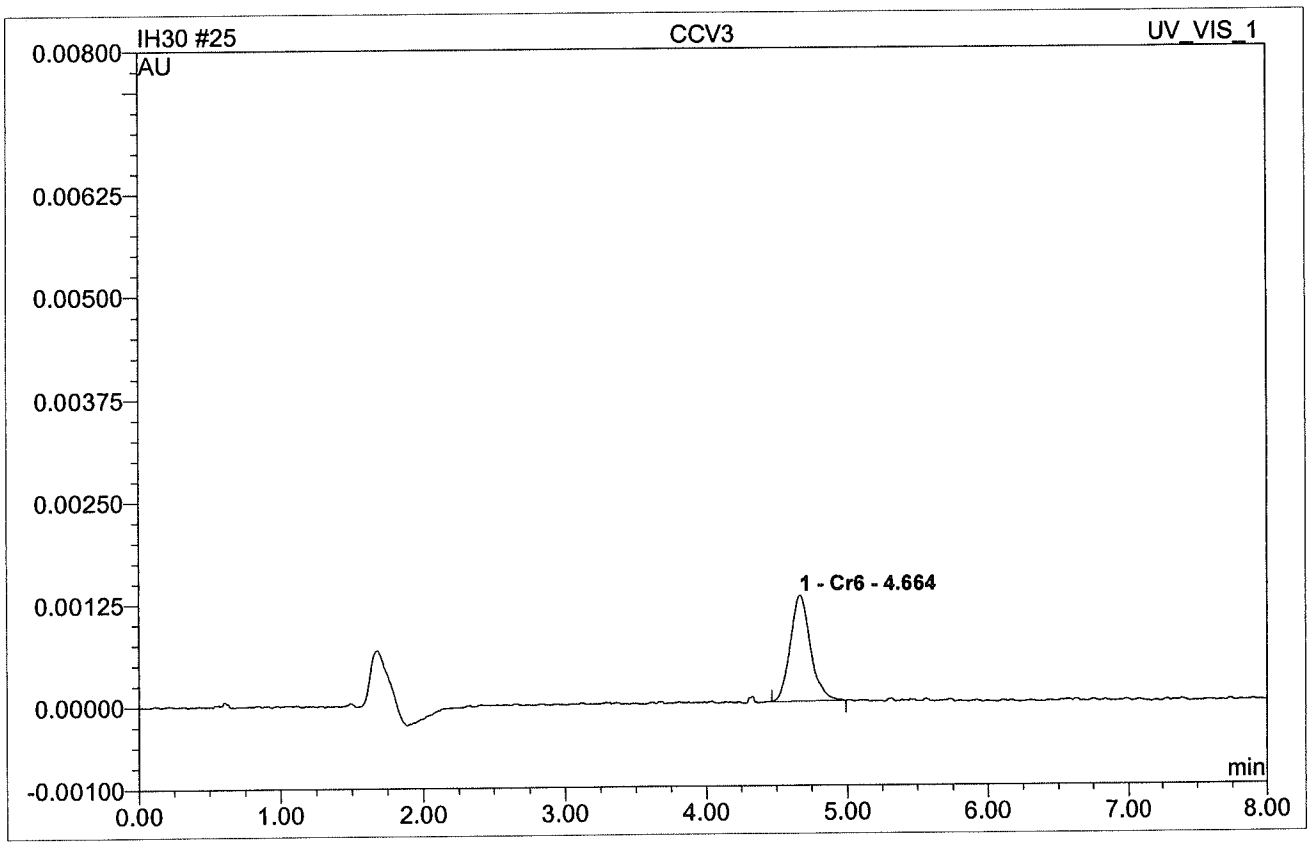
Sample Name:	**CCB1**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 11:57**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IH30 025 CCV3

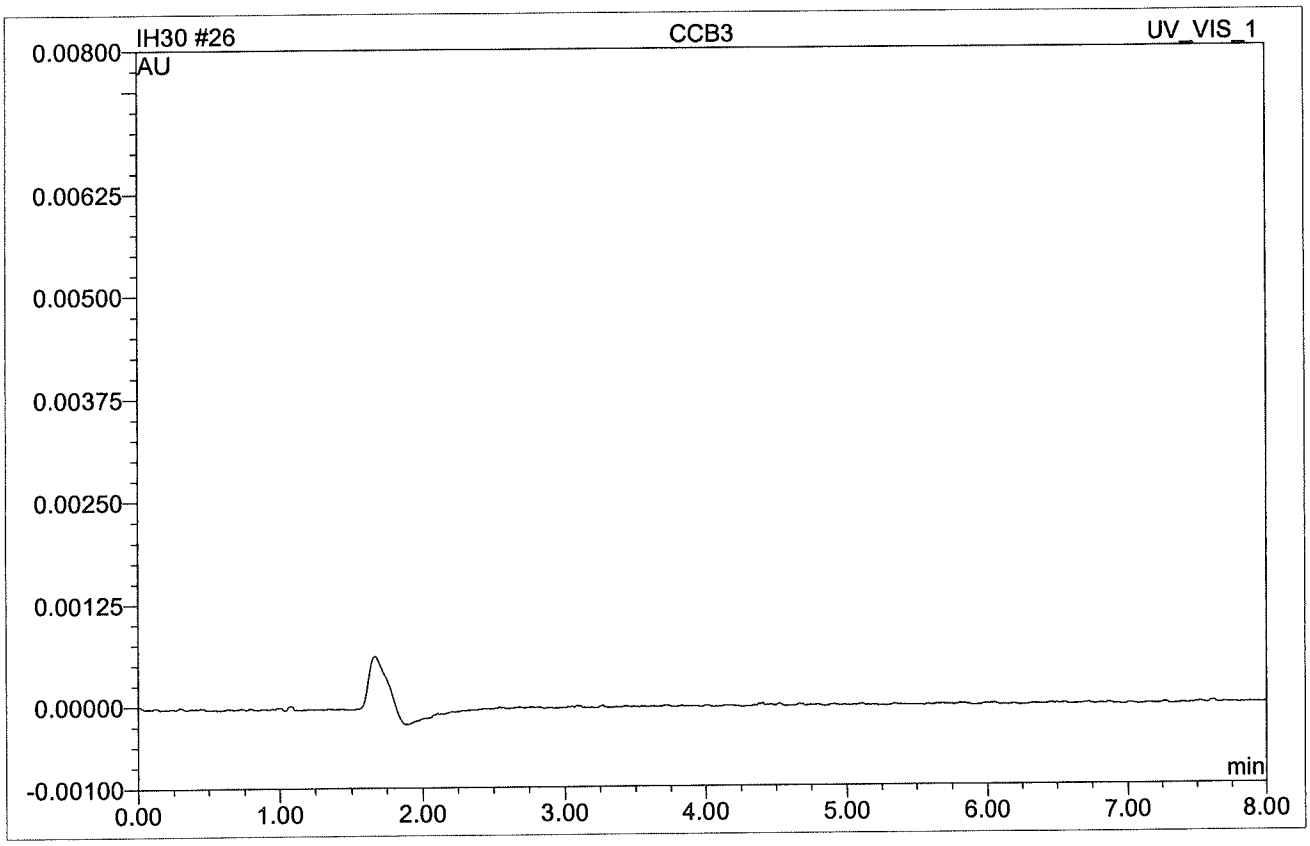
Sample Name:	**CCV3**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 13:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.66	Cr6	0.0012910	0.0002140	100.00	2.024	BMB
Total:			0.001	0.000	100.00	2.024	

IH30 026 CCB3

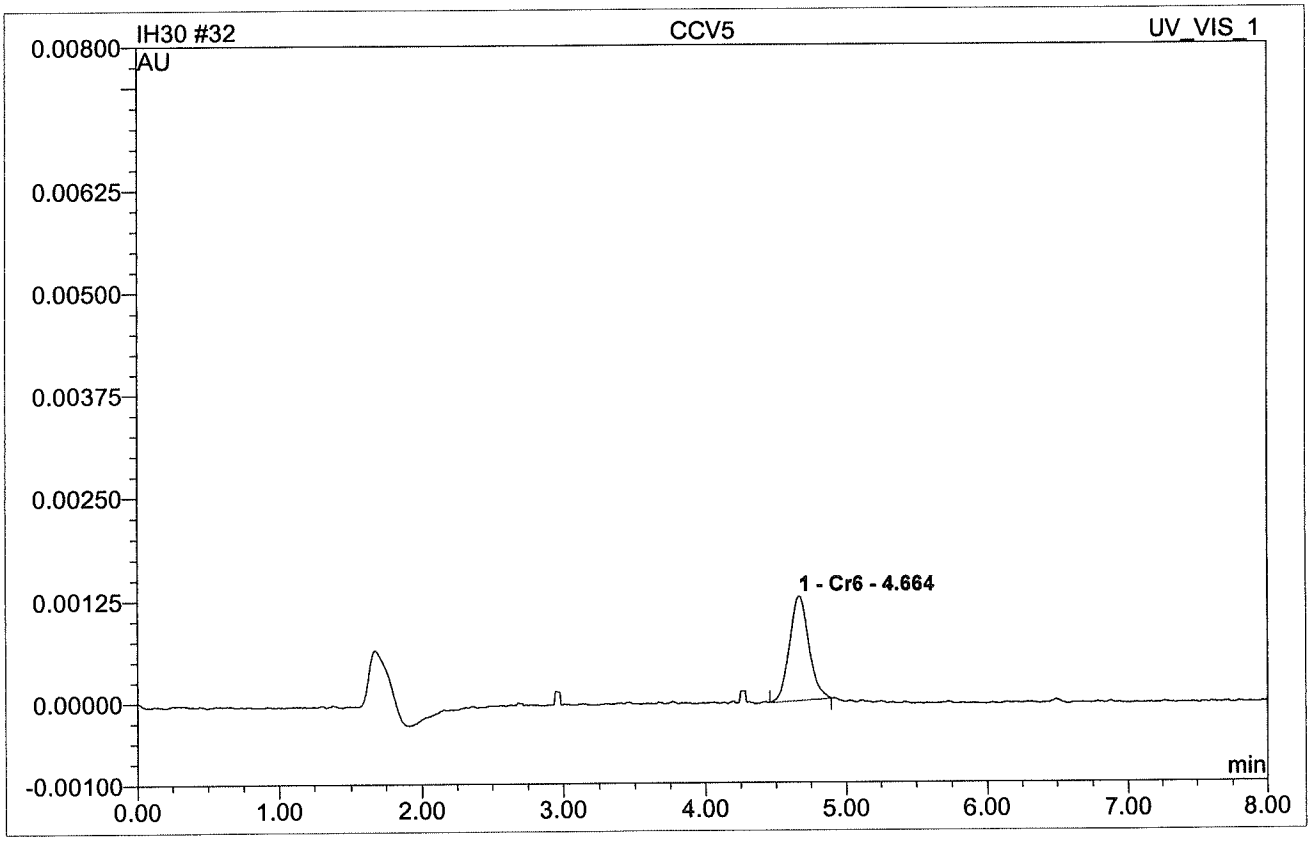
Sample Name:	**CCB3**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 14:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IH30 032 CCV5

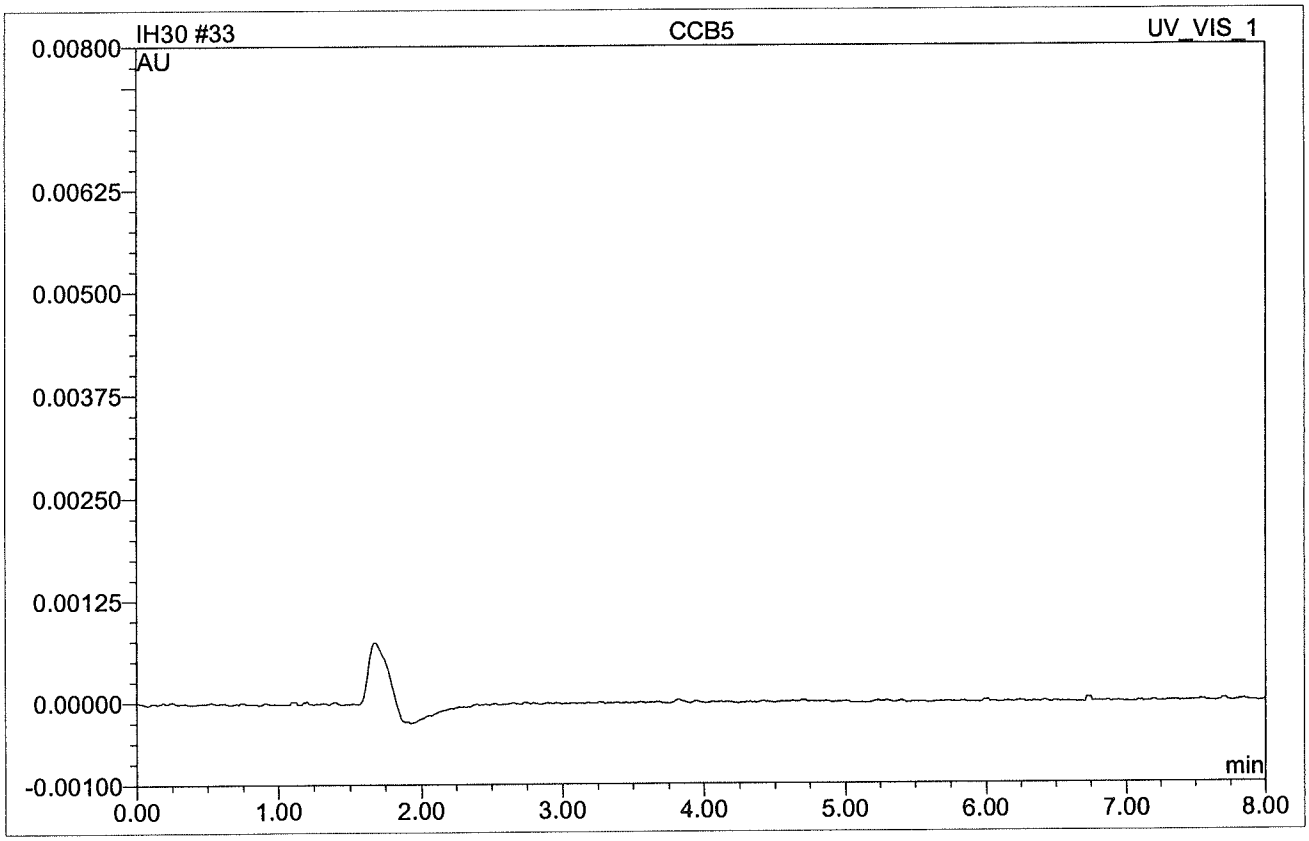
Sample Name:	**CCV5**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 15:04**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.66	Cr6	0.0012760	0.0002044	100.00	1.932	BMB
Total:			0.001	0.000	100.00	1.932	

IH30 033 CCB5

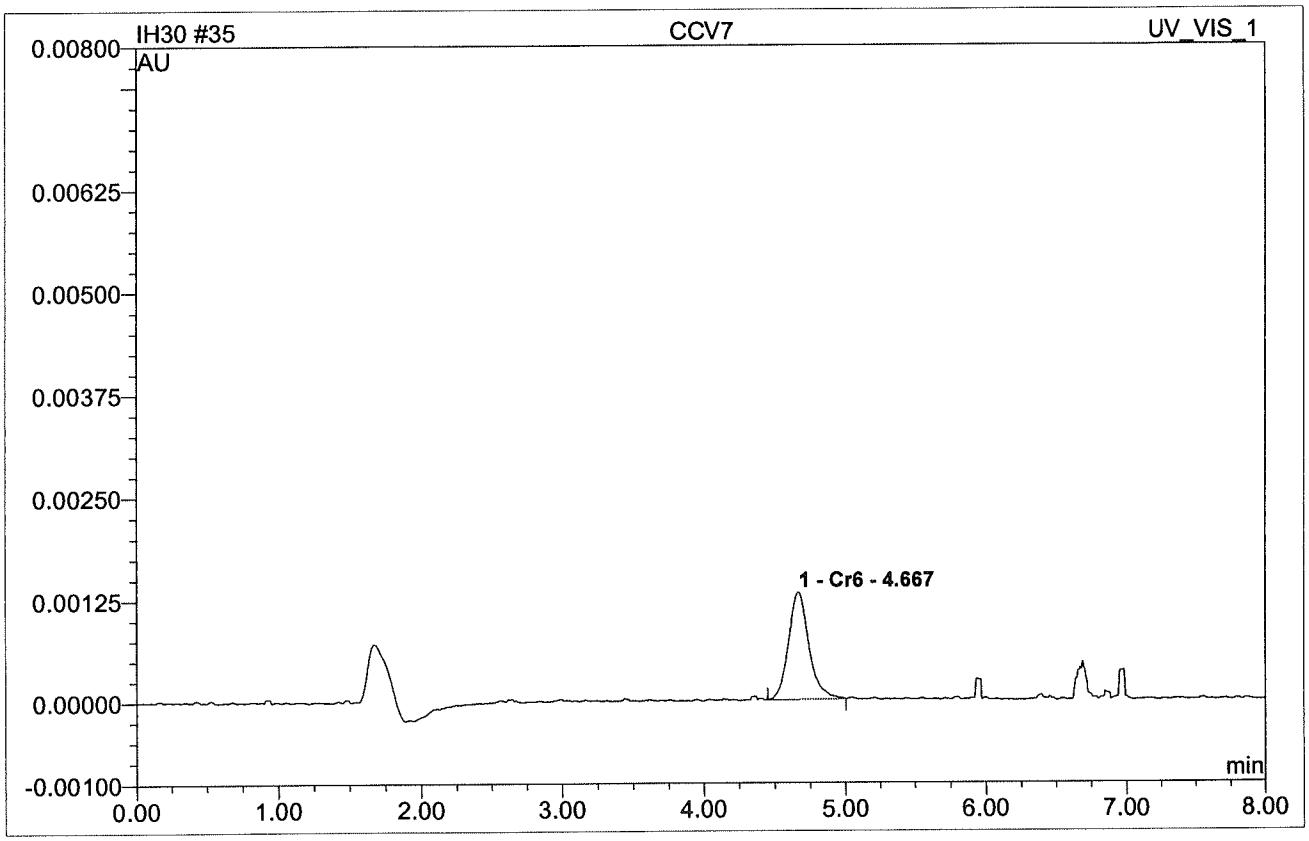
Sample Name:	**CCB5**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 15:14**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IH30 035 CCV7

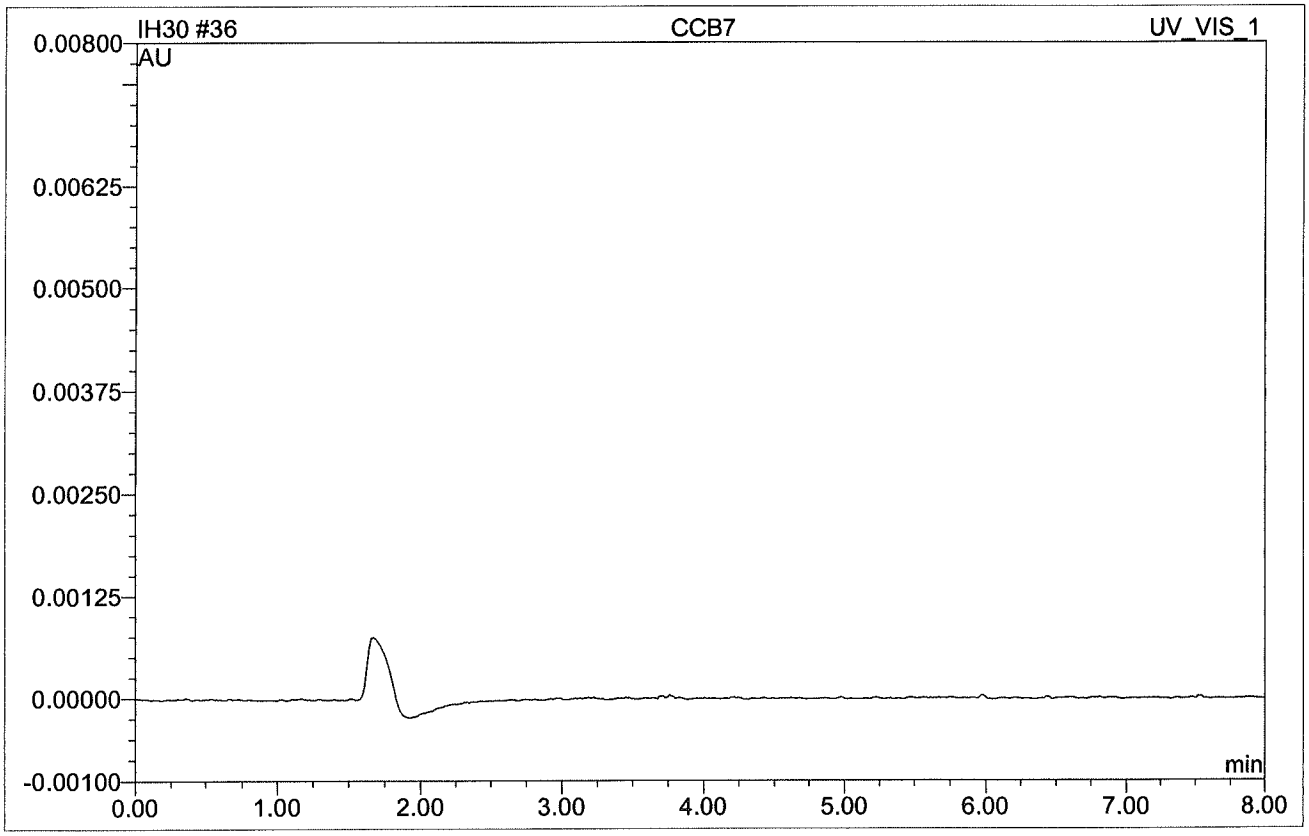
Sample Name:	**CCV7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 16:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	Cr6	0.0013110	0.0002169	100.00	2.052	BMB
Total:			0.001	0.000	100.00	2.052	

IH30 036 CCB7

Sample Name:	**CCB7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59H30**	*Dilution Factor:*	**1**
Recording Time:	**8/30/2019 16:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

ANALYTICAL LOG(S)

ANALYSIS RUN LOG
for
HEXAVALENT CHROMIUM IC

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

1,5 Diphenylcarbohydrazide : 0.5 g SW9A-04-064

MeOH : 100 mL SW1A-08-14-01

H_2SO_4 : 28 mL ↓ -16-04

$(NH_4)_2SO_4$: 66 g SW9A-04-061

NH_4OH : 13 mL ↓ -066

☐ **pH Adjusted Water ID #:**
(range 9.3-9.5)

☑ **Buffer** (10 mL → 100 mL) SB2-01-11-04

Reagent Water ID #: RWI-19-002

Linear Range (ppb): S-0 – 0
S-1 – 0.2
S-2 – 0.5
S-3 – 1.0
S-4 – 2.0
S-5 – 5.0
S-6 – 7.5
S-7 – 10.0

HCH017W: 1243

ERA Standard test SW6A-001-01-01

Column: Dionex IonPac AS7 (4x250mm) serial 18062734S
Guard Column: Dionex IonPac NG1 (4x35mm) serial 18011111
Wavelength: 530 nm
Flow Rate: 1.0 mL/min
Injection: 0.250 mL

Book #:	A59-048
Instrument No.:	59
Pipette ID:	SW9A-04-017
	SW9A-04-025
	SW9A-04-052
Balance ID:	10601202
Analytical Sequence:	IH30
Method File:	IC59H30
Analytical Batch:	HCH017W

SOP #	Rev. #
☑ EMAX-218.6	7
☑ EMAX-7199	7
☐ EMAX-	

STANDARDS ID	
ICAL	SW6B-002-07-09
ICV	↓ -10
CCV	↓ -11

LCS/MS STANDARDS

	Standard ID	Conc	Spike Amt	Final Vol
LCS	SW6B-002-07-07	100 ppb	0.100 mL	5 mL
MS	↓	↓	0.050 mL	↓
Low level CCV	SW6B-002-07-03	100 ppb	0.200 mL	100 mL

ELECTRONIC DATA ARCHIVAL

Location	Date
☐ CHROMELEON	
☐	

5 mL vial kit Lot #: 038008 Snap-Seal Container

0.45 µm filter lot #: 90281103 4 oz: 04119002

0.2 µm filter lot #: 1.5 oz: 22418006

Analyzed By: AS

Date: 8/30/19

Title: Temporary sequence for manual data acquisition
Datasource: DG7B3Q91_local
Location: DX600\2019
Timebase: DX600
#Samples: 36

FINAL

Created: 8/30/2019 9:31:05 AM by EMAXLABS
Last Update: 8/30/2019 5:43:08 PM by EMAXLABS

No.	Sequence	Sample ID	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time	Dil. Factor	Comment
1	IH30	001	IB	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 9:31:24 AM	1.0000	BUFFER
2	IH30	002	S-0	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 9:41:48 AM	1.0000	
3	IH30	003	S-1	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 9:52:12 AM	1.0000	0.2 PPB
4	IH30	004	S-2	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:02:36 AM	1.0000	0.5 PPB
5	IH30	005	S-3	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:13:01 AM	1.0000	1.0 PPB
6	IH30	006	S-4	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:23:25 AM	1.0000	2.0 PPB
7	IH30	007	S-5	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:33:49 AM	1.0000	5.0 PPB
8	IH30	008	S-6	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:44:13 AM	1.0000	7.5 PPB
9	IH30	009	S-7	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:54:38 AM	1.0000	10 PPB
10	IH30	010	ICV	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:15:26 AM	1.0000	3.0 PPB
11	IH30	011	ICB	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:25:50 AM	1.0000	
12	IH30	012	LOW LEVEL CCV	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:36:14 AM	1.0000	0.2 PPB
13	IH30	013	CCV1	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:46:38 AM	1.0000	
14	IH30	014	CCB1	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:57:02 AM	1.0000	
15	IH30	015	HCH017WB	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:07:27 PM	1.0000	
16	IH30	016	HCH017WL	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:17:51 PM	1.0000	
17	IH30	017	HCH017WC	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:28:15 PM	1.0000	
18	IH30	018	H243-01	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:38:39 PM	1.0000	
19	IH30	019	H243-01M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:49:04 PM	1.0000	
20	IH30	020	H243-01S	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:59:27 PM	1.0000	
21	IH30	021	H243-02	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:09:51 PM	1.0000	
22	IH30	022	H243-02M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:20:16 PM	1.0000	
23	IH30	023	H243-03	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:30:39 PM	1.0000	
24	IH30	024	H243-03M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:41:04 PM	1.0000	
25	IH30	025	CCV3	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:51:28 PM	1.0000	
26	IH30	026	CCB3	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:01:52 PM	1.0000	
27	IH30	027	H243-01I	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:12:16 PM	5.0000	DF=5

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

1,5 Diphenylcarbohydrazide : 0.5 g SW9A-04-064

MeOH : 100 mL SW1A-08-14-01

H_2SO_4 : 28 mL ↓ -16-04

$(NH_4)_2SO_4$: 66 g SW9A-04-061

NH_4OH : 13 mL ↓ -066

☐ **pH Adjusted Water ID #:**
(range 9.3-9.5)

☑ **Buffer** (10 mL → 100 mL) SB2-01-11-04

Reagent Water ID #: RWI-19-002

Linear Range (ppb): S-0 – 0
S-1 – 0.2
S-2 – 0.5
S-3 – 1.0
S-4 – 2.0
S-5 – 5.0
S-6 – 7.5
S-7 – 10.0

HCH017W: 1243

ERA standard test SW6A-001-01-01

Column: Dionex IonPac AS7 (4x250mm) serial 18062734S
Guard Column: Dionex IonPac NG1 (4x35mm) serial 18011111
Wavelength: 530 nm
Flow Rate: 1.0 mL/min
Injection: 0.250 mL

Book #: A59-048
Instrument No.: 59
Pipette ID: SW9A-04-017
SW9A-04-025
SW9A-04-052
Balance ID: 10601202
Analytical Sequence: IH30
Method File: IC59H30
Analytical Batch: HCH017W

SOP #	Rev. #
☑ EMAX-218.6	7
☑ EMAX-7199	7
☐ EMAX-	

STANDARDS ID	
ICAL	SW6B-002-07-09
ICV	↓ -10
CCV	↓ -11

LCS/MS STANDARDS

	Standard ID	Conc	Spike Amt	Final Vol
LCS	SW6B-002-07-07	100 ppb	0.100 mL	5 mL
MS	↓	↓	0.050 mL	↓
low level CCV	SW6B-002-07-03	100 ppb	0.200 mL	100 mL

ELECTRONIC DATA ARCHIVAL

Location	Date
☐ CHROMELEON	
☐	

5 mL vial kit Lot #: 038008 Snap-Seal Container
0.45 µm filter lot #: 90281103 4 oz: 04119002
0.2 µm filter lot #: 1.5 oz: 22418006

Analyzed By: AS
Date: 8/30/19

Title: Temporary sequence for manual data acquisition
Datasource: DG7B3Q91_local
Location: DX600\2019
Timebase: DX600
#Samples: 36

FINAL

Created: 8/30/2019 9:31:05 AM by EMAXLABS
Last Update: 8/30/2019 5:43:08 PM by EMAXLABS

No.	Sequence	Sample ID	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time	Dil. Factor	Comment
1	IH30	001	IB	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 9:31:24 AM	1.0000	BUFFER
2	IH30	002	S-0	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 9:41:48 AM	1.0000	
3	IH30	003	S-1	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 9:52:12 AM	1.0000	0.2 PPB
4	IH30	004	S-2	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:02:36 AM	1.0000	0.5 PPB
5	IH30	005	S-3	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:13:01 AM	1.0000	1.0 PPB
6	IH30	006	S-4	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:23:25 AM	1.0000	2.0 PPB
7	IH30	007	S-5	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:33:49 AM	1.0000	5.0 PPB
8	IH30	008	S-6	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:44:13 AM	1.0000	7.5 PPB
9	IH30	009	S-7	Standard	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 10:54:38 AM	1.0000	10 PPB
10	IH30	010	ICV	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:15:26 AM	1.0000	3.0 PPB
11	IH30	011	ICB	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:25:50 AM	1.0000	
12	IH30	012	LOW LEVEL CCV	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:36:14 AM	1.0000	0.2 PPB
13	IH30	013	CCV1	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:46:38 AM	1.0000	
14	IH30	014	CCB1	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 11:57:02 AM	1.0000	
15	IH30	015	HCH017WB	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:07:27 PM	1.0000	
16	IH30	016	HCH017WL	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:17:51 PM	1.0000	
17	IH30	017	HCH017WC	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:28:15 PM	1.0000	
18	IH30	018	H243-01	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:38:39 PM	1.0000	
19	IH30	019	H243-01M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:49:04 PM	1.0000	
20	IH30	020	H243-01S	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 12:59:27 PM	1.0000	
21	IH30	021	H243-02	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:09:51 PM	1.0000	
22	IH30	022	H243-02M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:20:16 PM	1.0000	
23	IH30	023	H243-03	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:30:39 PM	1.0000	
24	IH30	024	H243-03M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:41:04 PM	1.0000	
25	IH30	025	CCV3	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 1:51:28 PM	1.0000	
26	IH30	026	CCB3	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:01:52 PM	1.0000	
27	IH30	027	H243-01I	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:12:16 PM	5.0000	DF=5

Chromeleon © Dionex Corporation, Version 6.70 SP2a Build 1871

Sequence: IH30
Operator: EMAXLABS
Printed: 8/30/2019 5:43:20 PM

Title: Temporary sequence for manual data acquisition
Datasource: DG7B3Q91_local
Location: DX600\2019
Timebase: DX600
#Samples: 36

FINAL

Created: 8/30/2019 9:31:05 AM by EMAXLABS
Last Update: 8/30/2019 5:43:08 PM by EMAXLABS

No.	Sequence	Sample ID	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time	Dil. Factor	Comment
28	IH30	028	H243-01M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:22:41 PM	5.0000	DF=5
29	IH30	029	H243-01S	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:33:04 PM	5.0000	DF=5
30	IH30	030	H243-02I	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:43:28 PM	5.0000	DF=5
31	IH30	031	H243-02M	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 2:53:53 PM	5.0000	DF=5
32	IH30	032	CCV5	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 3:04:17 PM	1.0000	
33	IH30	033	CCB5	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 3:14:41 PM	1.0000	
34	IH30	034	TEST ERA 2 PPB	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 4:34:28 PM	1.0000	SW6A-001-01-01
35	IH30	035	CCV7	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 4:44:52 PM	1.0000	
36	IH30	036	CCB7	Unknown	250.0	Cr6 Program	IC59H30	Finished	8/30/2019 4:55:17 PM	1.0000	

Chromeleon © Dionex Corporation, Version 6.70 SP2a Build 1871

SAMPLE PRESERVATION LOG(S)

EMAX LABORATORIES, INC.

pH ADJUSTMENT/SAMPLE PRESERVATION LOG FOR HEXAVALENT CHROMIUM

SOP ☑ EMAX-218.6 Rev. 7 ☐ EMAX-7199 Rev. 7 Book #: PHC-020

Matrix: W Start Date: 8/23/19 Time: 18:30 End Date: 8/23/19 Time: 18:38

Sample Prep ID	Lab Sample ID	Initial pH	Final pH	Notes
01	H243-01	9.28	9.28	no adjustment needed; Cr
02	-02	9.33	9.33	
03	-03	9.46	9.46	
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				AS 8/23/19

Standards	ID	pH
Buffer 7	SV1-02-02-08	7.00
Buffer 10	-03-19	10.01
Check pH Buffer (8)	-02-20	7.95
pH meter	F7	

Reagent	Standard ID #
NaOH	–
$(NH_4)_2SO_4/NH_4OH$	–
Reagent Water	–

Legend:

Color	Texture	Clarity	Artifacts
Bu = Blue Bl = Black	Cs = Coarse	Cr = Clear	Rk = Rocks
Bn = Brown Gn = Green	Md = Medium	Cy = Cloudy	Sl = Shale
Og = Orange Rd = Red	Fn = Fine	Td = Turbid	Vg = Vegetation
Yw = Yellow			

☑ Samples were received with preservation

Comments:

Prepared By: AS

Standard Added By:

Checked By: AS

RETENTION TIME WINDOW

RETENTION TIME WINDOW

METHOD 218.6/7199

Lab Name:	EMAX	**METHOD:**	EMAX-218.6/7199
Instrument ID:	DX500IC59	**IC COLUMN:**	AS7/AG7 / AS7/NG1
		COLUMN SIZE:	4x250mm

Compound	Ical Mean RT	from	to	Retention Time Window
CHROMIUM VI	**4.69**	4.48	4.90	**0.213**

IC59H30

9/5/19

August 24, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N036677

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on July 24, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Silveira for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N036677-001B-MS2 and N036677-001B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N036722-001A-MS and N036722-001A-MSD possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N036677
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036677-001A	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-001B	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-001C	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-001D	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-002A	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019
N036677-002B	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019
N036677-002C	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019
N036677-002D	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190725A**	QC Batch: **R135387**			PrepDate:			Analyst: **LR**
Specific Conductance	3300	0.10	0.10		umhos/cm	1	7/25/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190725A**	QC Batch: **R135387**			PrepDate:			Analyst: **LR**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	7/25/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N036677-002CDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **135387**
Client ID: **ZZZZZZ** Batch ID: **R135387** TestNo: **EPA 120.1** Analysis Date: **7/25/2019** SeqNo: **3458446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7220.000	0.10						7200	0.277	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190725C**	QC Batch: **R135389**			PrepDate:			Analyst: **LR**
pH	7.3	0.10	0.10	H	pH Units	1	7/25/2019 10:50 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	7/25/2019 10:50 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190725C**	QC Batch: **R135389**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	7/25/2019 10:50 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	7/25/2019 10:50 AM

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N036677-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **135389**
Client ID: **ZZZZZZ** Batch ID: **R135389** TestNo: **SM4500-H+B** Analysis Date: **7/25/2019** SeqNo: **3458451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.330	0.10						7.300	0.410	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190725G**	QC Batch: **74775**			PrepDate:		**7/25/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2000	25	25		mg/L	1	7/25/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190725G**	QC Batch: **74775**			PrepDate:		**7/25/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	7/25/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-74775**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/25/2019**	RunNo: **135422**
Client ID: **LCSW**	Batch ID: **74775**	TestNo: **SM2540C**		Analysis Date: **7/25/2019**	SeqNo: **3460581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	975.000	10	1000	0	97.5	80	120				

Sample ID: **MB-74775**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/25/2019**	RunNo: **135422**
Client ID: **PBW**	Batch ID: **74775**	TestNo: **SM2540C**		Analysis Date: **7/25/2019**	SeqNo: **3460582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **N036678-003ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/25/2019**	RunNo: **135422**
Client ID: **ZZZZZZ**	Batch ID: **74775**	TestNo: **SM2540C**		Analysis Date: **7/25/2019**	SeqNo: **3460588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4140.000	50						4305	3.91	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190803A**	QC Batch: **74799**				PrepDate:	**7/29/2019**	Analyst: **CEI**
Calcium	140000	85	500		µg/L	1	8/3/2019 11:22 AM
Iron	ND	18	20		µg/L	1	8/3/2019 11:22 AM
Magnesium	37000	48	100		µg/L	1	8/3/2019 11:22 AM
Sodium	510000	2400	12000		µg/L	25	8/2/2019 10:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-002

Client Sample ID: TW-03D-0719
Collection Date: 7/24/2019 7:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190803A**	QC Batch: **74799**				PrepDate:	**7/29/2019**	Analyst: **CEI**
Calcium	180000	85	500		µg/L	1	8/3/2019 11:28 AM
Iron	ND	18	20		µg/L	1	8/3/2019 11:28 AM
Magnesium	27000	48	100		µg/L	1	8/3/2019 11:28 AM
Sodium	1400000	4800	25000		µg/L	50	8/2/2019 10:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-74799**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **PBW**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS2-74799**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **LCSW**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20894.774	500	20000	0	104	85	115				

Sample ID: **N036677-001B-MS2**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **ZZZZZZ**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	551798.210	12000	20000	507700	220	75	125				S

Sample ID: **N036677-001B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **ZZZZZZ**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	557204.356	12000	20000	507700	247	75	125	551800	0.975	20	S

Sample ID: **MB-74799**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135570**
Client ID: **PBW**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **LCS-74799** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **7/29/2019** RunNo: **135570**
Client ID: **LCSW** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10028.443	500	10000	0	100	85	115				
Iron	105.453	20	100.0	0	105	85	115				
Magnesium	10126.646	100	10000	0	101	85	115				

Sample ID: **N036722-001A-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **7/29/2019** RunNo: **135570**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	60390.754	500	10000	51380	90.1	75	125				
Iron	359.612	20	100.0	262.1	97.5	75	125				
Magnesium	16010.358	100	10000	6086	99.2	75	125				

Sample ID: **N036722-001A-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **7/29/2019** RunNo: **135570**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	60409.434	500	10000	51380	90.3	75	125	60390	0.0309	20	
Iron	358.462	20	100.0	262.1	96.4	75	125	359.6	0.320	20	
Magnesium	16013.190	100	10000	6086	99.3	75	125	16010	0.0177	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **N036677-001B-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135566**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/2/2019** SeqNo: **3468295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	540070.492	12000	20000	507700	162	80	120				S

Sample ID: **N036722-001A-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	62322.070	500	10000	51380	109	80	120				
Iron	363.550	20	100.0	262.1	101	80	120				
Magnesium	15922.653	100	10000	6086	98.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190730B**	QC Batch: **74798**			PrepDate:		**7/29/2019**	Analyst: **CEI**
Manganese	450	1.3	2.5		µg/L	5	7/30/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190730B** QC Batch: **74798** PrepDate: **7/29/2019** Analyst: **CEI**							
Manganese	ND	0.26	0.50		µg/L	1	7/30/2019 01:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **MB-74798**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **PBW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-74798**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **LCSW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	102.699	0.50	100.0	0	103	85	115				

Sample ID: **N036722-001A-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	134.347	0.50	100.0	35.13	99.2	75	125				

Sample ID: **N036722-001A-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	133.532	0.50	100.0	35.13	98.4	75	125	134.3	0.608	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190725A**	QC Batch: **R135424**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	7/25/2019 04:17 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190730B**	QC Batch: **74798**			PrepDate:	**7/29/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	7/30/2019 01:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190725A**	QC Batch: **R135424**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	450	3.3	20		µg/L	100	7/25/2019 04:36 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190730B**	QC Batch: **74798**			PrepDate:	**7/29/2019**		Analyst: **CEI**
Chromium	430	0.65	5.0		µg/L	5	7/30/2019 01:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **MB-74798**	SampType: **MBLK**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **PBW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-74798**	SampType: **LCS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **LCSW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.676	1.0	10.00	0	96.8	85	115				

Sample ID: **N036722-001A-MS**	SampType: **MS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	56.830	1.0	10.00	49.99	68.4	75	125				S

Sample ID: **N036722-001A-MSD**	SampType: **MSD**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	56.132	1.0	10.00	49.99	61.4	75	125	56.83	1.24	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R135424**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **PBW**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R135424**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **LCSW**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.089	0.20	5.000	0	102	90	110				

Sample ID: **N036679-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	57.078	1.0	25.00	31.45	103	90	110				

Sample ID: **N036679-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	57.165	1.0	25.00	31.45	103	90	110	57.08	0.153	20	

Sample ID: **N036679-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.466	0.20	1.000	0.4009	106	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036679-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.467	0.20	1.000	0.4065	106	90	110				

Sample ID: **N036676-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.049	0.20	1.000	0	105	90	110				

Sample ID: **N036676-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.113	1.0	5.000	0	102	90	110				

Sample ID: **N036655-017ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.805	0.20						2.790	0.518	20	

Sample ID: **N036677-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.066	0.20	1.000	0	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036677-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	966.320	20	500.0	449.2	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **N036722-001A-PS** SampType: **PS** TestCode: **200.8DIS_CrP** Units: **µg/L** Prep Date: RunNo: **135484**
Client ID: **ZZZZZZ** Batch ID: **74798** TestNo: **EPA 200.8** Analysis Date: **7/30/2019** SeqNo: **3463710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	60.741	1.0	10.00	49.99	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190726A**	QC Batch: **R135416**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	7/26/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190726A**	QC Batch: **R135416**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	7/26/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R125416**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **135416**
Client ID: **LCSW**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**	SeqNo: **3460165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	96.154	5.0	100.0	0	96.2	85	115				

Sample ID: **MB-R135416**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **135416**
Client ID: **PBW**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**	SeqNo: **3460166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID: **N036703-002ADUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **135416**
Client ID: **ZZZZZZ**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**	SeqNo: **3460174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	36.325	5.0						37.39	2.90	30	

Sample ID: **N036703-003AMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **135416**
Client ID: **ZZZZZZ**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**	SeqNo: **3460176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	177.350	5.0	100.0	83.33	94.0	75	125				

Sample ID: **N036703-003AMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **135416**
Client ID: **ZZZZZZ**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**	SeqNo: **3460177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	177.350	5.0	100.0	83.33	94.0	75	125	177.4	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190802A** QC Batch: **R135572**				PrepDate:			Analyst: **RAB**
Chloride	810	3.5	50		mg/L	100	8/2/2019 05:34 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190805A** QC Batch: **R135626**				PrepDate:			Analyst: **RAB**
Sulfate	310	2.0	25		mg/L	50	8/5/2019 05:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-002

Client Sample ID: TW-03D-0719
Collection Date: 7/24/2019 7:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190802A**	QC Batch: **R135572**			PrepDate:			Analyst: **RAB**
Chloride	2100	17	250		mg/L	500	8/2/2019 05:14 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190805A**	QC Batch: **R135626**			PrepDate:			Analyst: **RAB**
Sulfate	470	2.0	25		mg/L	50	8/5/2019 06:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R135572_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **PBW**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R135572_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **LCSW**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.991	0.50	2.000	0	99.6	90	110				

Sample ID: **N036643-001AMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **ZZZZZZ**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	647.590	50	200.0	446.3	101	80	120				

Sample ID: **N036643-001AMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **ZZZZZZ**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	645.460	50	200.0	446.3	99.6	80	120	647.6	0.329	20	

Sample ID: **N036652-001AMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **ZZZZZZ**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	637.210	50	200.0	431.4	103	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N036703-003ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **135572**
Client ID: **ZZZZZZ** Batch ID: **R135572** TestNo: **EPA 300.0** Analysis Date: **8/2/2019** SeqNo: **3469068**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	766.160	100						770.9	0.612	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R135626_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **PBW** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R135626_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **LCSW** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.943	0.50	4.000	0	98.6	90	110				

Sample ID: **N036641-010CDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	47.397	2.5						47.65	0.531	20	

Sample ID: **N036652-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	220.130	10	80.00	141.6	98.1	80	120				

Sample ID: **N036652-001AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	221.024	10	80.00	141.6	99.2	80	120	220.1	0.405	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N036678-002AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	656.070	25	200.0	454.1	101	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190805C**	QC Batch: **R135621**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	8/5/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190805C**	QC Batch: **R135621**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	2.7	0.16	0.25		mg/L	5	8/5/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R135621**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **PBW**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R135621**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **LCSW**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.503	0.050	0.5000	0	101	85	115				

Sample ID: **N036703-001B-DUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ZZZZZZ**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.440	0.050						0.4357	1.00	20	

Sample ID: **N036677-002D-MS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ZZZZZZ**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.188	0.25	2.500	2.706	99.2	75	125				

Sample ID: **N036677-002D-MSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ZZZZZZ**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.397	0.25	2.500	2.706	108	75	125	5.188	3.96	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes		EDD Requirement		QA/QC	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:		Excel EDD		RTNE	
				Geotracker		RWQCB	✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com daniel.moore@critigen.com	Address:		Labspec		CalTrans	
				Others	✓	LEVEL III	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051	Specify: RWQCB		LEVEL IV	
Submitted By:		Phone: 949-727-1400, ext 200	Fax:	Global ID:		Regulatory	
Title:	Phone: 916-786-3302 Fax:					Specify State:	

Sample Receipt Condition	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact	✓	
4. Seal Present		
5. IR number	2	
6. Method of Cooling:	ICE	
Sample Temp:	2.1°C	

Courier:

Tracking No.:

Signature: Date: 7-24-19

I hereby authorize ASSET Labs to perform the tests indicated below.

Sampled By: Sorina Terame

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for

Signature: Date: 7/24/19

Project Name: PG&E Topock - PMP

Project Number: RC000753.801D

Matrix

Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly (1 L poly) Cr, Mn	Dissolved metals (EPA200.7) FF; HNO3 (1 L poly) Ca, Mg, Fe, Na,	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 (1 L poly) As, Mn, Fe, Se, Mo, Ba	Total metals (SW6010B); HNO3 (500 mL poly) Fe	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N036677-01	PE-01-0719	7/24/19	0736		X	X	X			X	X	X	X	X		X	m	4	P	BN	
2	-02	TW-03D-0719	7/24/19	0715		X	X	X			X	X	X	X	X		X	m	4	P	BN	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Sorina Terame	7/24/19 1536	JRDHN	7-24-19 1536
JRDHN	7-24-19 2000	JRDHN	7-24-19 2000

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms

1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	7/24/2019	Workorder:	N036677
Rep sample Temp (Deg C):	2.1	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 7/25/2019

Reviewed By: LG 080619

ASSET Laboratories

WORK ORDER Summary

25-Jul-19

WorkOrder: N036677

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 7/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036677-001A	PE-01-0719	7/24/2019 7:30:00 AM	8/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036677-001B			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036677-001C			8/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			8/7/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			8/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			8/7/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			8/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N036677-001D			8/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036677-002A	TW-03D-0719	7/24/2019 7:15:00 AM	8/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036677-002B			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036677-002C			8/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			8/7/2019		SM4500-H+B	pH	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

25-Jul-19

WorkOrder: N036677

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 7/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036677-002C	TW-03D-0719	7/24/2019 7:15:00 AM	8/7/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			8/7/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			8/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N036677-002D			8/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036677-003A	FOLDER	8/7/2019	8/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			8/7/2019		Folder	Folder	☐	☐	☐	LAB
			8/7/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N036677

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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August 24, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N036677

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on July 24, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Silveira for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N036677

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N036677-001B-MS2 and N036677-001B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N036722-001A-MS and N036722-001A-MSD possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *24-Aug-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N036677
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036677-001A	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-001B	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-001C	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-001D	PE-01-0719	Groundwater	7/24/2019 7:30:00 AM	7/24/2019	8/24/2019
N036677-002A	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019
N036677-002B	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019
N036677-002C	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019
N036677-002D	TW-03D-0719	Groundwater	7/24/2019 7:15:00 AM	7/24/2019	8/24/2019

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190725A**	QC Batch: **R135387**			PrepDate:			Analyst: **LR**
Specific Conductance	3300	0.10	0.10		umhos/cm	1	7/25/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190725A**	QC Batch: **R135387**			PrepDate:			Analyst: **LR**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	7/25/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N036677-002CDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **135387**
Client ID: **ZZZZZZ** Batch ID: **R135387** TestNo: **EPA 120.1** Analysis Date: **7/25/2019** SeqNo: **3458446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7220.000	0.10						7200	0.277	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190725C**	QC Batch: **R135389**			PrepDate:			Analyst: **LR**
pH	7.3	0.10	0.10	H	pH Units	1	7/25/2019 10:50 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	7/25/2019 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-002

Client Sample ID: TW-03D-0719
Collection Date: 7/24/2019 7:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190725C**	QC Batch: **R135389**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	7/25/2019 10:50 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	7/25/2019 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N036677-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **135389**
Client ID: **ZZZZZZ** Batch ID: **R135389** TestNo: **SM4500-H+B** Analysis Date: **7/25/2019** SeqNo: **3458451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.330	0.10						7.300	0.410	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190725G**	QC Batch: **74775**			PrepDate:	**7/25/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2000	25	25		mg/L	1	7/25/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190725G**	QC Batch: **74775**			PrepDate:	**7/25/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	7/25/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-74775**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/25/2019**	RunNo: **135422**
Client ID: **LCSW**	Batch ID: **74775**	TestNo: **SM2540C**		Analysis Date: **7/25/2019**	SeqNo: **3460581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	975.000	10	1000	0	97.5	80	120				

Sample ID: **MB-74775**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/25/2019**	RunNo: **135422**
Client ID: **PBW**	Batch ID: **74775**	TestNo: **SM2540C**		Analysis Date: **7/25/2019**	SeqNo: **3460582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **N036678-003ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/25/2019**	RunNo: **135422**
Client ID: **ZZZZZZ**	Batch ID: **74775**	TestNo: **SM2540C**		Analysis Date: **7/25/2019**	SeqNo: **3460588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4140.000	50						4305	3.91	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190803A**	QC Batch: **74799**				PrepDate:	**7/29/2019**	Analyst: **CEI**
Calcium	140000	85	500		µg/L	1	8/3/2019 11:22 AM
Iron	ND	18	20		µg/L	1	8/3/2019 11:22 AM
Magnesium	37000	48	100		µg/L	1	8/3/2019 11:22 AM
Sodium	510000	2400	12000		µg/L	25	8/2/2019 10:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-002

Client Sample ID: TW-03D-0719
Collection Date: 7/24/2019 7:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190803A**	QC Batch: **74799**				PrepDate:	**7/29/2019**	Analyst: **CEI**
Calcium	180000	85	500		µg/L	1	8/3/2019 11:28 AM
Iron	ND	18	20		µg/L	1	8/3/2019 11:28 AM
Magnesium	27000	48	100		µg/L	1	8/3/2019 11:28 AM
Sodium	1400000	4800	25000		µg/L	50	8/2/2019 10:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-74799**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **PBW**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS2-74799**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **LCSW**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20894.774	500	20000	0	104	85	115				

Sample ID: **N036677-001B-MS2**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **ZZZZZZ**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	551798.210	12000	20000	507700	220	75	125				S

Sample ID: **N036677-001B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135566**
Client ID: **ZZZZZZ**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	557204.356	12000	20000	507700	247	75	125	551800	0.975	20	S

Sample ID: **MB-74799**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135570**
Client ID: **PBW**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **LCS-74799** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **7/29/2019** RunNo: **135570**
Client ID: **LCSW** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10028.443	500	10000	0	100	85	115				
Iron	105.453	20	100.0	0	105	85	115				
Magnesium	10126.646	100	10000	0	101	85	115				

Sample ID: **N036722-001A-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **7/29/2019** RunNo: **135570**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	60390.754	500	10000	51380	90.1	75	125				
Iron	359.612	20	100.0	262.1	97.5	75	125				
Magnesium	16010.358	100	10000	6086	99.2	75	125				

Sample ID: **N036722-001A-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **7/29/2019** RunNo: **135570**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	60409.434	500	10000	51380	90.3	75	125	60390	0.0309	20	
Iron	358.462	20	100.0	262.1	96.4	75	125	359.6	0.320	20	
Magnesium	16013.190	100	10000	6086	99.3	75	125	16010	0.0177	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **N036677-001B-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135566**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/2/2019** SeqNo: **3468295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	540070.492	12000	20000	507700	162	80	120				S

Sample ID: **N036722-001A-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **ZZZZZZ** Batch ID: **74799** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	62322.070	500	10000	51380	109	80	120				
Iron	363.550	20	100.0	262.1	101	80	120				
Magnesium	15922.653	100	10000	6086	98.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190730B** QC Batch: **74798** PrepDate: **7/29/2019** Analyst: **CEI**							
Manganese	450	1.3	2.5		µg/L	5	7/30/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190730B**	QC Batch: **74798**			PrepDate:	**7/29/2019**		Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	7/30/2019 01:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **MB-74798**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **PBW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-74798**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **LCSW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	102.699	0.50	100.0	0	103	85	115				

Sample ID: **N036722-001A-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	134.347	0.50	100.0	35.13	99.2	75	125				

Sample ID: **N036722-001A-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	133.532	0.50	100.0	35.13	98.4	75	125	134.3	0.608	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190725A** QC Batch: **R135424**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	7/25/2019 04:17 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190730B** QC Batch: **74798**				PrepDate:	**7/29/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	7/30/2019 01:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-002

Client Sample ID: TW-03D-0719
Collection Date: 7/24/2019 7:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190725A** QC Batch: **R135424**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	450	3.3	20		µg/L	100	7/25/2019 04:36 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190730B** QC Batch: **74798**				PrepDate:	**7/29/2019**		Analyst: **CEI**
Chromium	430	0.65	5.0		µg/L	5	7/30/2019 01:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **MB-74798**	SampType: **MBLK**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **PBW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-74798**	SampType: **LCS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **LCSW**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.676	1.0	10.00	0	96.8	85	115				

Sample ID: **N036722-001A-MS**	SampType: **MS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	56.830	1.0	10.00	49.99	68.4	75	125				S

Sample ID: **N036722-001A-MSD**	SampType: **MSD**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **7/29/2019**	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	56.132	1.0	10.00	49.99	61.4	75	125	56.83	1.24	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R135424** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **PBW** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R135424** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **LCSW** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.089	0.20	5.000	0	102	90	110				

Sample ID: **N036679-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	57.078	1.0	25.00	31.45	103	90	110				

Sample ID: **N036679-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	57.165	1.0	25.00	31.45	103	90	110	57.08	0.153	20	

Sample ID: **N036679-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.466	0.20	1.000	0.4009	106	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036679-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.467	0.20	1.000	0.4065	106	90	110				

Sample ID: **N036676-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.049	0.20	1.000	0	105	90	110				

Sample ID: **N036676-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.113	1.0	5.000	0	102	90	110				

Sample ID: **N036655-017ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.805	0.20						2.790	0.518	20	

Sample ID: **N036677-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.066	0.20	1.000	0	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036677-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135424**
Client ID: **ZZZZZZ** Batch ID: **R135424** TestNo: **EPA 218.6** Analysis Date: **7/25/2019** SeqNo: **3460637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	966.320	20	500.0	449.2	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **N036722-001A-PS** SampType: **PS** TestCode: **200.8DIS_CrP** Units: **µg/L** Prep Date: RunNo: **135484**
Client ID: **ZZZZZZ** Batch ID: **74798** TestNo: **EPA 200.8** Analysis Date: **7/30/2019** SeqNo: **3463710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	60.741	1.0	10.00	49.99	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190726A**	QC Batch: **R135416**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	7/26/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190726A**	QC Batch: **R135416**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	7/26/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R125416**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:				RunNo: **135416**		
Client ID: **LCSW**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**				SeqNo: **3460165**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	96.154	5.0	100.0	0	96.2	85	115				

Sample ID: **MB-R135416**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:				RunNo: **135416**		
Client ID: **PBW**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**				SeqNo: **3460166**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID: **N036703-002ADUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:				RunNo: **135416**		
Client ID: **ZZZZZZ**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**				SeqNo: **3460174**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	36.325	5.0						37.39	2.90	30	

Sample ID: **N036703-003AMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:				RunNo: **135416**		
Client ID: **ZZZZZZ**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**				SeqNo: **3460176**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	177.350	5.0	100.0	83.33	94.0	75	125				

Sample ID: **N036703-003AMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:				RunNo: **135416**		
Client ID: **ZZZZZZ**	Batch ID: **R135416**	TestNo: **SM 2320 B**		Analysis Date: **7/26/2019**				SeqNo: **3460177**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	177.350	5.0	100.0	83.33	94.0	75	125	177.4	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190802A** QC Batch: **R135572**				PrepDate:			Analyst: **RAB**
Chloride	810	3.5	50		mg/L	100	8/2/2019 05:34 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190805A** QC Batch: **R135626**				PrepDate:			Analyst: **RAB**
Sulfate	310	2.0	25		mg/L	50	8/5/2019 05:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190802A**	QC Batch: **R135572**			PrepDate:			Analyst: **RAB**
Chloride	2100	17	250		mg/L	500	8/2/2019 05:14 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190805A**	QC Batch: **R135626**			PrepDate:			Analyst: **RAB**
Sulfate	470	2.0	25		mg/L	50	8/5/2019 06:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R135572_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **135572**			
Client ID: **PBW**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**			SeqNo: **3469041**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R135572_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **135572**			
Client ID: **LCSW**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**			SeqNo: **3469042**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.991	0.50	2.000	0	99.6	90	110				

Sample ID: **N036643-001AMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **135572**			
Client ID: **ZZZZZZ**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**			SeqNo: **3469065**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	647.590	50	200.0	446.3	101	80	120				

Sample ID: **N036643-001AMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **135572**			
Client ID: **ZZZZZZ**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**			SeqNo: **3469066**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	645.460	50	200.0	446.3	99.6	80	120	647.6	0.329	20	

Sample ID: **N036652-001AMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **135572**			
Client ID: **ZZZZZZ**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**			SeqNo: **3469067**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	637.210	50	200.0	431.4	103	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N036703-003ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **135572**
Client ID: **ZZZZZZ** Batch ID: **R135572** TestNo: **EPA 300.0** Analysis Date: **8/2/2019** SeqNo: **3469068**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	766.160	100						770.9	0.612	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R135626_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **PBW** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R135626_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **LCSW** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.943	0.50	4.000	0	98.6	90	110				

Sample ID: **N036641-010CDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	47.397	2.5						47.65	0.531	20	

Sample ID: **N036652-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	220.130	10	80.00	141.6	98.1	80	120				

Sample ID: **N036652-001AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	221.024	10	80.00	141.6	99.2	80	120	220.1	0.405	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N036678-002AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **135626**
Client ID: **ZZZZZZ** Batch ID: **R135626** TestNo: **EPA 300.0** Analysis Date: **8/5/2019** SeqNo: **3472380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	656.070	25	200.0	454.1	101	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036677
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N036677-001

Client Sample ID: PE-01-0719
Collection Date: 7/24/2019 7:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190805C**	QC Batch: **R135621**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	8/5/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0719
Lab Order:	N036677	**Collection Date:**	7/24/2019 7:15:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036677-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190805C**	QC Batch: **R135621**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	2.7	0.16	0.25		mg/L	5	8/5/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R135621**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **PBW**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R135621**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **LCSW**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.503	0.050	0.5000	0	101	85	115				

Sample ID: **N036703-001B-DUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ZZZZZZ**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.440	0.050						0.4357	1.00	20	

Sample ID: **N036677-002D-MS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ZZZZZZ**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.188	0.25	2.500	2.706	99.2	75	125				

Sample ID: **N036677-002D-MSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ZZZZZZ**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.397	0.25	2.500	2.706	108	75	125	5.188	3.96	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD		RTNE		1. Chilled	✓	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker		RWQCB	✓	2. Headspace		
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec		CalTrans		3. Container Intact	✓	
Submitted By:		Phone: 949-727-1400, ext 200	Others	✓	LEVEL III		4. Seal Present	✓	
Title:	Phone: 916-786-3302 Fax:	Fax:	Specify: RWQCB		LEVEL IV		5. IR number	2	
Signature: Date: 7-24-19	Sampled By: Sorina Teramae	P.O.# SWA-ASSET-C9817-051	Global ID:		Regulatory		6. Method of Cooling: Ice		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*				Specify State:		Sample Temp: 2.1°C		
Project Name: PG&E Topock - PMP	Signature: Date: 7/24/19						Courier:		
Project Number: RC000753.801D							Tracking No.:		

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N036677-01	PE-01-0719	7/24/19	0736		X	X	X			X	X	X	X	X		X	m	4	P	BN	
2	-02	TW-03D-0719	7/24/19	0715		X	X	X			X	X	X	X	X		X	m	4	P	BN	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Sorina Teramae	7/24/19 1536	JRDH	7-24-19 1536
JRDH	7-24-19 2000	JRDH	7-24-19 2000

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	7/24/2019	Workorder:	N036677
Rep sample Temp (Deg C):	2.1	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 7/25/2019

Reviewed By: LG 080619

ASSET Laboratories

WORK ORDER Summary

25-Jul-19

WorkOrder: N036677

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 7/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036677-001A	PE-01-0719	7/24/2019 7:30:00 AM	8/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036677-001B			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036677-001C			8/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			8/7/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			8/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			8/7/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			8/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N036677-001D			8/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036677-002A	TW-03D-0719	7/24/2019 7:15:00 AM	8/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036677-002B			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036677-002C			8/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			8/7/2019		SM4500-H+B	pH	☐	☐	☐	LSR

WORK ORDER Summary

25-Jul-19

WorkOrder: N036677

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 7/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036677-002C	TW-03D-0719	7/24/2019 7:15:00 AM	8/7/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			8/7/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			8/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			8/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N036677-002D			8/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036677-003A	FOLDER	8/7/2019	8/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			8/7/2019		Folder	Folder	☐	☐	☐	LAB
			8/7/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N036677

NAME	TEST METHOD
Claire Ignacio	EPA 200.7_Dissolved, EPA 200.8_Dissolved
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B
Ria Abes	EPA 218.6, EPA 300.0, SM 4500-NO3F

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R135387 **Analyst:** LSR

ASSET #: N036677 **Date Analyzed:** 25-Jul

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 7/30/2019

2nd Level Reviewer: NS 8/23/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 7/25/19 1125

Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 us/cm	CINW-190516A	10.16 @25.2°C	% Rec: (90-110%)
1411	190425C	1421 @25.3°C	
10003	190516B	10040 @25.2°C	
99999	190613A	99700 @25.1°C	

	Sample ID	Matrix	Reading	Comments
1	ND36677-1C	H2O	3290 @24.1°C	
2	2C		7200 @23.8°C	
3	2CDUP		7220 @23.8°C	
4				
5				
6				
7				
8				
9	1413 us/cm	CINW-190613A	1437 @25.4°C	
10	10000	B	10050 @25.6°C	
Dup	99999	CINW-190524A	99400 @25.4°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: _____ Julia Ramit 7/30/2019

Analyst: _____

Standard	Std ID	Reading	Comments
			% Rec: (90-110%)

	Sample ID	Matrix	Reading	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

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SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R135389 **Instrument ID:** pH meter

ASSET #: N036677 **Analyst:** LSR

Date Analyzed: 25-Jul

Method: EPA 150.1

pH Meter Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?			X			
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:
Samples were received past holding time.

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 7/30/2019

2nd Level Reviewer NS 8/23/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 7/25/19 910
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CINV-190422A	7.01 @25°C	
Buffer 4	1 B	4.00 @25°C	
Buffer 10	CINV-190430A	10.02 @25°C	
Slope		98.2%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB6674-1A	Soil	8.93 @25°C	
2	1 1ADUP	1	8.95 @25°C	
3	NB6675-1A	1	8.90 @25°C	
4				
5				
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CINV-190422C	6.98 @25°C	Accept: +/-0.05 pH units from expected value

Date: 7/25/19 1050
Analyst: LSR

Julia Ramit 7/30/2019

Standard	Std ID	pH	Comments
Buffer 7	CINV-190422A	7.01 @25°C	
Buffer 4	1 B	4.00 @25°C	
Buffer 10	CINV-190430A	10.02 @25°C	
Slope		98.2%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB6677-1C	Soil	7.30 @25°C	
2	1 1CDUP	1	7.33 @25°C	
3	1 2C	1	7.18 @25°C	
4				
5				
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CINV-190422C	6.99 @25°C	Accept: +/-0.05 pH units from expected value

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ORELAP/NELAP Cert 4046

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74775 **Analyst:** LSR

ASSET #: N036677 **Date Analyzed:** 25-Jul

Method: EPA 160.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			/
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			/
3. ICV within ± 15% of expected value.			X			/
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			/
5. CCV within ± 15% of expected value.			X			/
6. Calibration blanks run after ICV and CCV?			X			/
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			/
Sample Information						
8. All samples are within linear range.			X			/
9. Are all samples analyzed within hold time.	X			/		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			/		
11. LCS compounds within control limits.	X			/		
12. MS/MSD, RPD's are within control limits	X			/		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			/
14. Runlog complete and included in package.	X			/		
15. Spectrophotometer tape included (Spec work only)			X			/
16. Digestion log complete and included in package (if applicable)			X			/
Preliminary Report						
17. Does the raw data match the preliminary report?	X			/		
18. Are analytical results correct?	X			/		
19. Is the QC summary report present and complete?	X			/		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	/		
2. Matrix / units correct	/		
3. Does batch meet QC requirements?	/		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	/		
5. Is first level review correct and complete?	/		

1st Level Reviewer Julia Ramit Date: 7/30/2019

2nd Level Reviewer NS 8/23/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N036677-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(49.2999-49.2203)*1000000}{40}$$

= 1990 mg/L

Reporting result in two significant figures,

TDS=2000 mg/L

Silvia Ramit 7/30/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/25/2019 1:15:30 P**
Prep End Date:
Reviewed/ Date:
Initials/ Date: Lilia Ramit 7/30/2019
Prep Batch **74775** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74775	Water	IWST190716A	100	☐	0	0	100	1.000		
MB-74775	Water		100	☐	0	0	100	1.000		
N036677-001C	Groundwater	3290	100 140	☐	0	0	100	1.000		
N036677-002C	Groundwater	7200	100 120	☐	0	0	100	1.000		
N036678-001A	Groundwater	3580	100 140	☐	0	0	100	1.000		
N036678-002A	Groundwater	7050	100 120	☐	0	0	100	1.000		
N036678-003A	Groundwater	7260	100 120	☐	0	0	100	1.000		
N036678-003A-DU	Groundwater	1	100 120	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10415

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/25/2019 1:15:30 P**
Prep End Date: **7/26/2019 2:30:00 P**
Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 7/30/2019
Prep Batch **74775** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74775	Water		100	☐	0	0	100	1.000		
MB-74775	Water		100	☐	0	0	100	1.000		
N036677-001C	Groundwater		40	☐	0	0	100	2.500		
N036677-002C	Groundwater		20	☐	0	0	100	5.000		
N036678-001A	Groundwater		40	☐	0	0	100	2.500		
N036678-002A	Groundwater		20	☐	0	0	100	5.000		
N036678-003A	Groundwater		20	☐	0	0	100	5.000		
N036678-003A-DU	Groundwater		20	☐	0	0	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10415	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190716A	1000 ppm NaCl	LCS	100

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
7/25/19 1315 LL	MB 74775	100	75.8239 75.8239	75.8242 75.8241	
NN	LCS 74775	100	69.7496 69.7495	69.8465 69.8470	
G	NB36677-1C	40	49.2202 49.2203	49.2997 49.2999	
B1	2C	20	49.0467 49.0471	49.1317 49.1332 49.1329	
K	NB36678-1A	40	47.9811 47.9814	48.0250 48.0262	1
R	2A	20	48.1060 48.1058	48.2068 48.2072	
O	3A	20	50.2497 50.2495	50.3351 50.3356	
B	3A DUP	20	49.6056 49.6053	49.6857 49.6850 49.6881	
	49.9999	1430 @ 7/26/19	HER		

Julia Ramit 7/30/2019

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TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
7/26/2019									
MB-74775	100	75.8239	75.8241	2	1	2			MBLK
LCS-74775	100	69.7495	69.847	975	1	975			LCS
N036677-001C	40	49.2203	49.2999	796	2.5	1990	3290	0.605	SAMP
N036677-002C	20	49.0471	49.1329	858	5	4290	7200	0.596	SAMP
N036678-001A	40	47.9814	48.0662	848	2.5	2120	3580	0.592	SAMP
N036678-002A	20	48.1058	48.2072	1014	5	5070	7050	0.719	SAMP
N036678-003A	20	50.2495	50.3356	861	5	4305	7260	0.593	SAMP
N036678-003ADUP	20	49.6053	49.6881	828	5	4140	7260	0.570	DUP

Sirisha Ramisetty 7/30/2019

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74799
ASSET #: N036677

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/2/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Na run
% Rec of Na in N036677-001B-PS/MS/MSD failed, high bias. Howvr, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 8/23/2019

2nd Level Reviewer NS 8/25/2019 for HSG Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74799
ASSET #: N036677

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/3/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 8/23/2019

2nd Level Reviewer NS 8/25/2019 for HSG Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Magnesium concentration, in ug/L , in the original sample as follows:

Magnesium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N036677-001B** , the concentration ir ug/L is calculated as follows:

Magnesium , ug/L = 36.9351 * 1 * (25/25) * 1000

Magnesium , ug/L = 36935.1

Reporting results in two significant figures,

Magnesium , ug/L = 37000

NS 8/25/2019

% RSD SUMMARY

RSD SUMMARY: 190802A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Na	0	10.072	15	PASS
Standard1	ICAL	1	Na	0.1	4.034	15	PASS
Standard2	ICAL	1	Na	1	0.53	15	PASS
Standard3	ICAL	1	Na	5	0.25	15	PASS
Standard4	ICAL	1	Na	10	0.089	15	PASS
Standard5	ICAL	1	Na	20	0.041	15	PASS
Standard6	ICAL	1	Na	40	0.096	15	PASS
ICV	ICV	1	Na	10.13	0.036	15	PASS
ICB	ICB	1	Na	0.0094	44.052	15	<PQL
LLICV	CCV	1	Na	0.15	4.87	20	PASS
LLICV	CCV	1	Na	0.11	7.28	20	PASS
ICSA1	ICSA	1	Na	-0.0059	73.28	15	<PQL
ICSAB1	ICSAB	1	Na	10.035	0.021	15	PASS
CCV1	CCV	1	Na	10.2	0.089	15	PASS
CCB1	CCB	1	Na	0.045	14.28	15	PASS
CCV2	CCV	1	Na	10.25	0.051	15	PASS
CCB2	CCB	1	Na	0.12	9.52	15	PASS
CCV3	CCV	1	Na	10.27	0.048	15	PASS
CCB3	CCB	1	Na	0.066	11.16	15	PASS
CCV4	CCV	1	Na	10.28	0.15	15	PASS
CCB4	CCB	1	Na	0.047	17.63	15	<PQL
ICSA2	ICSA	1	Na	0.026	28.85	15	<PQL
ICSAB2	ICSAB	1	Na	10.065	0.26	15	PASS
CCV5	CCV	1	Na	10.48	0.27	15	PASS
CCB5	CCB	1	Na	0.1	3.79	15	PASS
CCV6	CCV	1	Na	10.41	0.13	15	PASS
CCB6	CCB	1	Na	0.1	3.69	15	PASS
CCV7	CCV	1	Na	10.32	0.12	15	PASS
CCB7	CCB	1	Na	0.088	5.38	15	PASS
CCV8	CCV	1	Na	10.25	0.03	15	PASS
CCB8	CCB	1	Na	0.064	6.31	15	PASS
ICSA3	ICSA	1	Na	0.034	1.93	15	PASS
ICSAB3	ICSAB	1	Na	10.23	0.051	15	PASS
CCV9	CCV	1	Na	10.25	0.024	15	PASS
CCB9	CCB	1	Na	0.056	2.75	15	PASS
CCV10	CCV	1	Na	10.27	0.2	15	PASS
CCB10	CCB	1	Na	0.091	10.11	15	PASS
CCV11	CCV	1	Na	10.26	0.049	15	PASS
CCB11	CCB	1	Na	0.082	5.46	15	PASS
CCV12	CCV	1	Na	10.21	0.11	15	PASS
CCB12	CCB	1	Na	0.058	7.37	15	PASS
CCV13	CCV	1	Na	10.22	0.17	15	PASS

RSD SUMMARY: 190802A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB13	CCB	1	Na	0.07	3.75	15	PASS
MB-74799	MBLK	1	Na	0.02	2.59	15	PASS
LCS2-74799	LCS	1	Na	20.89	0.079	15	PASS
N036677-001B	SAMP	25	Na	20.31	0.043	15	PASS
CCV14	CCV	1	Na	10.13	0.044	15	PASS
CCB14	CCB	1	Na	0.047	11.64	15	PASS
ICSA4	ICSA	1	Na	0.02	56.2	15	<PQL
ICSAB4	ICSAB	1	Na	10.087	0.11	15	PASS
N036677-001B	SAMP	125	Na	4.33	0.095	15	PASS
N036677-001B-PS	PS	25	Na	21.6	0.059	15	PASS
N036677-001B-MS2	MS	25	Na	22.072	0.033	15	PASS
N036677-001B-MSD2	MSD	25	Na	22.29	0.083	15	PASS
N036677-002B	SAMP	50	Na	27.48	0.11	15	PASS
CCV15	CCV	1	Na	10.26	0.24	15	PASS
CCB15	CCB	1	Na	0.092	8.94	15	PASS
CCV16	CCV	1	Na	10.14	0.12	15	PASS
CCB16	CCB	1	Na	0.074	8.69	15	PASS
CCV17	CCV	1	Na	10.11	0.077	15	PASS
CCB17	CCB	1	Na	0.078	7.2	15	PASS
ICSA5	ICSA	1	Na	0.034	16.78	15	<PQL
ICSAB5	ICSAB	1	Na	10.029	0.032	15	PASS
CCV18	CCV	1	Na	9.9	0.2	15	PASS
CCB18	CCB	1	Na	0.066	15.44	15	<PQL
ICSA6	ICSA	1	Na	0.03	18.16	15	<PQL
ICSAB6	ICSAB	1	Na	9.82	0.15	15	PASS

RSD SUMMARY: 190803A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Ca	0	94.79	15	<PQL
Standard1	ICAL	1	Ca	0.2	8.94	15	PASS
Standard2	ICAL	1	Ca	1	3.86	15	PASS
Standard3	ICAL	1	Ca	2	1.15	15	PASS
Standard4	ICAL	1	Ca	5	0.44	15	PASS
Standard5	ICAL	1	Ca	7.5	0.52	15	PASS
Standard6	ICAL	1	Ca	10	0.76	15	PASS
Standard7	ICAL	1	Ca	20	0.36	15	PASS
ICV	ICV	1	Ca	10.019	0.51	15	PASS
ICB	ICB	1	Ca	-0.016	213.094	15	<PQL
ICB	ICB	1	Ca	0.011	231.13	15	<PQL
LLICV	CCV1	1	Ca	0.23	6.87	20	PASS
ICSA1	ICSA	1	Ca	487.9	0.47	15	PASS
ICSA1	ICSA	1	Ca	464.98	0.048	15	PASS
ICSAB1	ICSAB	1	Ca	447.7	0.19	15	PASS
MB-74799	MBLK	1	Ca	0.045	42.23	15	<PQL
LCS1-74799	LCS	1	Ca	10.028	0.49	15	PASS
CCV1	CCV	1	Ca	10.11	0.19	15	PASS
CCB1	CCB	1	Ca	0.0088	15.3	15	<PQL
N036722-001A	SAMP	1	Ca	51.38	0.19	15	PASS
N036722-001A	SAMP	5	Ca	11.056	0.63	15	PASS
N036722-001A-PS	PS	1	Ca	62.32	0.099	15	PASS
N036722-001A-MS1	MS	1	Ca	60.39	0.13	15	PASS
N036722-001A-MSD1	MSD	1	Ca	60.41	0.33	15	PASS
N036677-001B	SAMP	1	Ca	135.53	0.025	15	PASS
N036677-002B	SAMP	1	Ca	178.95	0.078	15	PASS
CCV2	CCV	1	Ca	10.1	0.38	15	PASS
CCB2	CCB	1	Ca	0.015	85.041	15	<PQL
CCV3	CCV	1	Ca	10.3	1.079	15	PASS
CCB3	CCB	1	Ca	0.056	14.31	15	PASS
CCB3	CCB	1	Ca	0.014	168.79	15	<PQL
CCV4	CCV	1	Ca	10.21	0.41	15	PASS
CCB4	CCB	1	Ca	0.063	92.66	15	<PQL
CCV5	CCV	1	Ca	10.15	0.65	15	PASS
CCB5	CCB	1	Ca	-0.028	34.75	15	<PQL
ICSA2	ICSA	1	Ca	465.17	0.072	15	PASS
ICSA2	ICSA	1	Ca	492.74	0.076	15	PASS
ICSA2	ICSA	1	Ca	492.64	0.026	15	PASS
ICSAB2	ICSAB	1	Ca	448.54	0.052	15	PASS
ICSAB2	ICSAB	1	Ca	464.53	0.16	15	PASS
CCV6	CCV	1	Ca	10.13	0.43	15	PASS
CCB6	CCB	1	Ca	-0.026	57.4	15	<PQL

RSD SUMMARY: 190803A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV7	CCV	1	Ca	10.15	0.76	15	PASS
CCB7	CCB	1	Ca	0.031	90.014	15	<PQL
CCV8	CCV	1	Ca	10.069	0.36	15	PASS
CCB8	CCB	1	Ca	0.01	205.95	15	<PQL
CCV9	CCV	1	Ca	10.14	0.38	15	PASS
CCB9	CCB	1	Ca	0.025	205.13	15	<PQL
ICSA3	ICSA	1	Ca	489.54	0.045	15	PASS
ICSAB3	ICSAB	1	Ca	461.29	0.017	15	PASS
CCV10	CCV	1	Ca	10.1	0.6	15	PASS
CCB10	CCB	1	Ca	0.075	32.55	15	<PQL
CCV11	CCV	1	Ca	10.024	0.079	15	PASS
CCB11	CCB	1	Ca	0.086	23.17	15	<PQL
ICSA4	ICSA	1	Ca	474.31	0.036	15	PASS
ICSAB4	ICSAB	1	Ca	448.52	0.078	15	PASS
CalBlk	IBLK	1	Fe	0	377.77	15	<PQL
Standard1	ICAL	1	Fe	0.02	8.83	15	PASS
Standard2	ICAL	1	Fe	0.05	3.83	15	PASS
Standard3	ICAL	1	Fe	2	0.15	15	PASS
Standard4	ICAL	1	Fe	5	0.18	15	PASS
Standard5	ICAL	1	Fe	7.5	0.2	15	PASS
Standard6	ICAL	1	Fe	10	0.18	15	PASS
Standard7	ICAL	1	Fe	20	0.18	15	PASS
ICV	ICV	1	Fe	9.98	0.49	15	PASS
ICB	ICB	1	Fe	0.0023	50.068	15	<PQL
ICB	ICB	1	Fe	0.00045	251.048	15	<PQL
LLICV	CCV1	1	Fe	0.022	2.45	20	PASS
ICSA1	ICSA	1	Fe	213.37	0.59	15	PASS
ICSA1	ICSA	1	Fe	226.12	0.83	15	PASS
ICSAB1	ICSAB	1	Fe	200.41	0.5	15	PASS
MB-74799	MBLK	1	Fe	0.0006	22.83	15	<PQL
LCS1-74799	LCS	1	Fe	0.11	0.081	15	PASS
CCV1	CCV	1	Fe	10.37	0.1	15	PASS
CCB1	CCB	1	Fe	0.00093	111.19	15	<PQL
N036722-001A	SAMP	1	Fe	0.26	0.5	15	PASS
N036722-001A	SAMP	5	Fe	0.055	1.79	15	PASS
N036722-001A-PS	PS	1	Fe	0.36	1.96	15	PASS
N036722-001A-MS1	MS	1	Fe	0.36	0.93	15	PASS
N036722-001A-MSD1	MSD	1	Fe	0.36	0.88	15	PASS
N036677-001B	SAMP	1	Fe	0.0036	13.33	15	PASS
N036677-002B	SAMP	1	Fe	0.012	2.33	15	PASS
CCV2	CCV	1	Fe	10.46	0.15	15	PASS
CCB2	CCB	1	Fe	0.0011	50.7	15	<PQL

RSD SUMMARY: 190803A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV3	CCV	1	Fe	10.48	0.1	15	PASS
CCB3	CCB	1	Fe	0.013	29.9	15	<PQL
CCB3	CCB	1	Fe	0.0082	30.71	15	<PQL
CCV4	CCV	1	Fe	10.49	0.085	15	PASS
CCB4	CCB	1	Fe	0.0054	24.46	15	<PQL
CCV5	CCV	1	Fe	10.47	0.11	15	PASS
CCB5	CCB	1	Fe	-0.00036	151.56	15	<PQL
ICSA2	ICSA	1	Fe	232.02	0.41	15	PASS
ICSA2	ICSA	1	Fe	218.65	0.55	15	PASS
ICSA2	ICSA	1	Fe	219.03	0.29	15	PASS
ICSAB2	ICSAB	1	Fe	204.42	0.34	15	PASS
ICSAB2	ICSAB	1	Fe	202.12	0.81	15	PASS
CCV6	CCV	1	Fe	10.47	0.053	15	PASS
CCB6	CCB	1	Fe	0.0016	11.89	15	PASS
CCV7	CCV	1	Fe	10.44	0.14	15	PASS
CCB7	CCB	1	Fe	0.0053	29.46	15	<PQL
CCV8	CCV	1	Fe	10.42	0.058	15	PASS
CCB8	CCB	1	Fe	0.0013	15.37	15	<PQL
CCV9	CCV	1	Fe	10.34	0.049	15	PASS
CCB9	CCB	1	Fe	0.003	15.68	15	<PQL
ICSA3	ICSA	1	Fe	216.23	0.44	15	PASS
ICSAB3	ICSAB	1	Fe	200.39	0.64	15	PASS
CCV10	CCV	1	Fe	10.29	0.041	15	PASS
CCB10	CCB	1	Fe	0.0037	34.84	15	<PQL
CCV11	CCV	1	Fe	10.18	0.041	15	PASS
CCB11	CCB	1	Fe	0.014	46.96	15	<PQL
ICSA4	ICSA	1	Fe	212.91	0.56	15	PASS
ICSAB4	ICSAB	1	Fe	197.16	0.12	15	PASS
CalBlk	IBLK	1	Mg	0	1.93	15	PASS
Standard1	ICAL	1	Mg	0.1	1.8	15	PASS
Standard2	ICAL	1	Mg	1	1.066	15	PASS
Standard3	ICAL	1	Mg	2	0.2	15	PASS
Standard4	ICAL	1	Mg	5	0.31	15	PASS
Standard5	ICAL	1	Mg	7.5	0.26	15	PASS
Standard6	ICAL	1	Mg	10	0.3	15	PASS
Standard7	ICAL	1	Mg	20	0.22	15	PASS
ICV	ICV	1	Mg	9.92	0.71	15	PASS
ICB	ICB	1	Mg	0.0014	94.52	15	<PQL
ICB	ICB	1	Mg	-0.00063	162.82	15	<PQL
LLICV	CCV1	1	Mg	0.1	0.9	20	PASS
ICSA1	ICSA	1	Mg	469.02	0.5	15	PASS
ICSA1	ICSA	1	Mg	444.72	0.89	15	PASS

RSD SUMMARY: 190803A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSAB1	ICSAB	1	Mg	442.53	0.35	15	PASS
MB-74799	MBLK	1	Mg	0.0035	1.46	15	PASS
LCS1-74799	LCS	1	Mg	10.13	0.34	15	PASS
CCV1	CCV	1	Mg	10.43	0.013	15	PASS
CCB1	CCB	1	Mg	0.0076	13.68	15	PASS
N036722-001A	SAMP	1	Mg	6.086	0.33	15	PASS
N036722-001A	SAMP	5	Mg	1.31	0.17	15	PASS
N036722-001A-PS	PS	1	Mg	15.92	0.19	15	PASS
N036722-001A-MS1	MS	1	Mg	16.01	0.29	15	PASS
N036722-001A-MSD1	MSD	1	Mg	16.013	0.19	15	PASS
N036677-001B	SAMP	1	Mg	36.94	0.27	15	PASS
N036677-002B	SAMP	1	Mg	26.85	0.26	15	PASS
CCV2	CCV	1	Mg	10.59	0.14	15	PASS
CCB2	CCB	1	Mg	0.0036	39.046	15	<PQL
CCV3	CCV	1	Mg	10.71	0.19	15	PASS
CCB3	CCB	1	Mg	0.056	26.081	15	<PQL
CCB3	CCB	1	Mg	0.037	27.3	15	<PQL
CCV4	CCV	1	Mg	10.64	0.13	15	PASS
CCB4	CCB	1	Mg	0.015	14.65	15	PASS
CCV5	CCV	1	Mg	10.6	0.11	15	PASS
CCB5	CCB	1	Mg	0.0053	13.27	15	PASS
ICSA2	ICSA	1	Mg	464.45	0.43	15	PASS
ICSA2	ICSA	1	Mg	498.02	0.64	15	PASS
ICSA2	ICSA	1	Mg	499.36	0.28	15	PASS
ICSAB2	ICSAB	1	Mg	459.21	0.32	15	PASS
ICSAB2	ICSAB	1	Mg	472.97	0.77	15	PASS
CCV6	CCV	1	Mg	10.61	0.11	15	PASS
CCB6	CCB	1	Mg	0.0052	19.1	15	<PQL
CCV7	CCV	1	Mg	10.62	0.064	15	PASS
CCB7	CCB	1	Mg	0.024	19.95	15	<PQL
CCV8	CCV	1	Mg	10.58	0.088	15	PASS
CCB8	CCB	1	Mg	0.0067	19.62	15	<PQL
CCV9	CCV	1	Mg	10.5	0.12	15	PASS
CCB9	CCB	1	Mg	0.011	12.22	15	PASS
ICSA3	ICSA	1	Mg	494.07	0.46	15	PASS
ICSAB3	ICSAB	1	Mg	470.69	0.69	15	PASS
CCV10	CCV	1	Mg	10.45	0.17	15	PASS
CCB10	CCB	1	Mg	0.016	26.37	15	<PQL
CCV11	CCV	1	Mg	9.74	0.11	15	PASS
CCB11	CCB	1	Mg	0.03	25.04	15	<PQL
ICSA4	ICSA	1	Mg	453.03	0.8	15	PASS
ICSAB4	ICSAB	1	Mg	433.8	0.21	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190802A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401Y,0.025<50mL
Standard2	MWST-190401Y,0.25<50mL
Standard3	MWST-190401Y,1.25<50mL
Standard4	MWST-190401Y,2.5<50mL
Standard5	MWST-190401Y,5<50mL
Standard6	MWST-190401Y,10<50mL
ICV	MWST-190401Z
CCV	MWST-190401Y,2.5<50mL
ICSA/ICSAB	MWST-190401W/MWST-190401AA
Int. Std. (Sc):	MSST-190315B
PS Spike	MSST-140120B/ -180608B/A

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/02/2019	10:56:58 AM
11	Standard1	ICAL	1	08/02/2019	11:00:09 AM
12	Standard2	ICAL	1	08/02/2019	11:03:19 AM
13	Standard3	ICAL	1	08/02/2019	11:06:30 AM
14	Standard4	ICAL	1	08/02/2019	11:10:13 AM
15	Standard5	ICAL	1	08/02/2019	11:13:57 AM
16	Standard6	ICAL	1	08/02/2019	11:17:46 AM
17	ICV	ICV	1	08/02/2019	11:21:36 AM
1	ICB	ICB	1	08/02/2019	11:25:21 AM
11	LLICV	CCV	1	08/02/2019	11:28:32 AM
11	LLICV	CCV	1	08/02/2019	11:31:55 AM
18	ICSA1	ICSA	1	08/02/2019	11:35:04 AM
19	ICSAB1	ICSAB	1	08/02/2019	11:38:18 AM
23	MB-74672	MBLK	1	08/02/2019	11:42:04 AM
24	LCS2-74672	LCS	1	08/02/2019	11:45:16 AM
25	N036567-001E	SAMP	5	08/02/2019	11:49:02 AM
26	N036567-002E	SAMP	5	08/02/2019	11:54:21 AM
27	N036567-003E	SAMP	5	08/02/2019	11:59:06 AM
28	N036567-004E	SAMP	5	08/02/2019	12:03:53 PM
29	N036567-005E	SAMP	5	08/02/2019	12:07:04 PM
30	N036567-006E	SAMP	5	08/02/2019	12:10:47 PM
31	N036567-007E	SAMP	5	08/02/2019	12:15:32 PM
32	N036567-008E	SAMP	5	08/02/2019	12:19:15 PM
14	CCV1	CCV	1	08/02/2019	12:22:30 PM
1	CCB1	CCB	1	08/02/2019	12:26:14 PM
33	N036567-009E	SAMP	5	08/02/2019	12:31:23 PM
34	N036588-001E	SAMP	5	08/02/2019	12:35:06 PM
35	N036588-002E	SAMP	5	08/02/2019	12:39:51 PM
36	N036588-003E	SAMP	5	08/02/2019	12:43:01 PM
37	N036588-004E	SAMP	5	08/02/2019	12:46:13 PM
38	N036588-005E	SAMP	5	08/02/2019	12:50:14 PM
39	N036588-006E	SAMP	5	08/02/2019	12:54:57 PM
40	N036588-007E	SAMP	5	08/02/2019	12:59:39 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
41	N036567-001E	SAMP	250	08/02/2019	01:03:21 PM
42	N036567-002E	SAMP	100	08/02/2019	01:06:35 PM
14	CCV2	CCV	1	08/02/2019	01:09:02 PM
1	CCB2	CCB	1	08/02/2019	01:12:47 PM
43	N036567-003E	SAMP	100	08/02/2019	01:15:57 PM
44	N036567-004E	SAMP	25	08/02/2019	01:19:10 PM
45	N036567-005E	SAMP	25	08/02/2019	01:22:24 PM
46	N036567-006E	SAMP	25	08/02/2019	01:25:37 PM
47	N036567-006E-PS	PS	5	08/02/2019	01:28:50 PM
48	N036567-006E-MS2	MS	5	08/02/2019	01:33:33 PM
49	N036567-006E-MSD2	MSD	5	08/02/2019	01:38:17 PM
50	N036567-006E	SAMP	50	08/02/2019	01:43:00 PM
51	N036567-006E	SAMP	250	08/02/2019	01:46:10 PM
52	N036567-006E-PS	PS	50	08/02/2019	01:49:22 PM
14	CCV3	CCV	1	08/02/2019	01:52:34 PM
1	CCB3	CCB	1	08/02/2019	01:56:18 PM
53	N036567-006E-MS2	MS	50	08/02/2019	01:59:27 PM
54	N036567-006E-MSD2	MSD	50	08/02/2019	02:02:39 PM
55	N036567-007E	SAMP	25	08/02/2019	02:05:52 PM
56	N036567-008E	SAMP	25	08/02/2019	02:09:05 PM
57	N036567-009E	SAMP	25	08/02/2019	02:12:19 PM
58	N036588-001E	SAMP	25	08/02/2019	02:15:33 PM
59	N036588-003E	SAMP	25	08/02/2019	02:18:47 PM
60	N036588-004E	SAMP	25	08/02/2019	02:21:58 PM
61	N036588-005E	SAMP	25	08/02/2019	02:25:09 PM
62	N036588-006E	SAMP	25	08/02/2019	02:28:19 PM
14	CCV4	CCV	1	08/02/2019	02:31:31 PM
1	CCB4	CCB	1	08/02/2019	02:35:16 PM
18	ICSA2	ICSA	1	08/02/2019	02:38:26 PM
19	ICSAB2	ICSAB	1	08/02/2019	02:41:40 PM
63	N036588-007E	SAMP	25	08/02/2019	02:45:26 PM
71	MB-74782	MBLK	1	08/02/2019	02:48:38 PM
72	LCS2-74782	LCS	1	08/02/2019	02:51:50 PM
73	LCS2-74782	LCS	1	08/02/2019	02:57:51 PM
74	N036623-001E	SAMP	5	08/02/2019	03:01:39 PM
75	N036623-002E	SAMP	5	08/02/2019	03:06:21 PM
76	N036623-003E	SAMP	5	08/02/2019	03:11:07 PM
77	N036623-004E	SAMP	5	08/02/2019	03:15:53 PM
78	N036623-005E	SAMP	5	08/02/2019	03:19:06 PM
79	N036623-006E	SAMP	5	08/02/2019	03:22:21 PM
14	CCV5	CCV	1	08/02/2019	03:27:06 PM
1	CCB5	CCB	1	08/02/2019	03:30:51 PM
80	N036643-001E	SAMP	5	08/02/2019	03:34:01 PM
81	N036643-002E	SAMP	5	08/02/2019	03:37:45 PM
82	N036643-003E	SAMP	5	08/02/2019	03:42:32 PM
83	N036643-004E	SAMP	5	08/02/2019	03:47:18 PM
84	N036645-001E	SAMP	5	08/02/2019	03:52:06 PM
85	N036645-002E	SAMP	5	08/02/2019	03:56:49 PM
86	N036652-001E	SAMP	5	08/02/2019	04:00:14 PM
87	N036652-002E	SAMP	5	08/02/2019	04:03:57 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
88	N036652-003E	SAMP	5	08/02/2019	04:08:43 PM
89	N036652-004E	SAMP	5	08/02/2019	04:13:30 PM
14	CCV6	CCV	1	08/02/2019	04:18:13 PM
1	CCB6	CCB	1	08/02/2019	04:21:58 PM
90	N036652-005E	SAMP	5	08/02/2019	04:25:26 PM
91	N036652-006E	SAMP	5	08/02/2019	04:30:11 PM
92	N036652-007E	SAMP	5	08/02/2019	04:34:56 PM
93	N036623-001E	SAMP	25	08/02/2019	04:39:44 PM
94	N036623-002E	SAMP	25	08/02/2019	04:42:57 PM
95	N036623-002E-PS	PS	5	08/02/2019	04:47:42 PM
96	N036623-002E-MS2	MS	5	08/02/2019	04:52:29 PM
97	N036623-002E-MSD2	MSD	5	08/02/2019	04:57:16 PM
98	N036623-002E	SAMP	100	08/02/2019	05:02:04 PM
99	N036623-002E	SAMP	500	08/02/2019	05:05:17 PM
14	CCV7	CCV	1	08/02/2019	05:08:28 PM
1	CCB7	CCB	1	08/02/2019	05:12:12 PM
100	N036623-002E-PS	PS	100	08/02/2019	05:15:21 PM
101	N036623-002E-MS2	MS	100	08/02/2019	05:18:34 PM
102	N036623-002E-MSD2	MSD	100	08/02/2019	05:21:47 PM
103	N036623-003E	SAMP	250	08/02/2019	05:25:00 PM
104	N036623-004E	SAMP	1	08/02/2019	05:28:13 PM
105	N036623-004E	SAMP	25	08/02/2019	05:32:58 PM
106	N036623-005E	SAMP	1	08/02/2019	05:36:11 PM
107	N036623-005E	SAMP	25	08/02/2019	05:40:56 PM
108	N036623-006E	SAMP	50	08/02/2019	05:44:09 PM
109	N036643-001E	SAMP	25	08/02/2019	05:47:21 PM
14	CCV8	CCV	1	08/02/2019	05:50:33 PM
1	CCB8	CCB	1	08/02/2019	05:54:18 PM
18	ICSA3	ICSA	1	08/02/2019	06:06:36 PM
19	ICSAB3	ICSAB	1	08/02/2019	06:09:47 PM
110	N036643-002E	SAMP	25	08/02/2019	06:13:34 PM
111	N036643-003E	SAMP	50	08/02/2019	06:16:47 PM
112	N036643-004E	SAMP	100	08/02/2019	06:19:59 PM
113	N036645-001E	SAMP	25	08/02/2019	06:23:13 PM
114	N036645-002E	SAMP	25	08/02/2019	06:26:27 PM
115	N036652-001E	SAMP	25	08/02/2019	06:29:40 PM
116	N036652-002E	SAMP	100	08/02/2019	06:32:54 PM
117	N036652-003E	SAMP	100	08/02/2019	06:36:07 PM
118	N036652-004E	SAMP	50	08/02/2019	06:39:21 PM
119	N036652-005E	SAMP	50	08/02/2019	06:42:35 PM
14	CCV9	CCV	1	08/02/2019	06:45:47 PM
1	CCB9	CCB	1	08/02/2019	06:49:31 PM
120	N036652-006E	SAMP	50	08/02/2019	06:52:41 PM
121	N036652-007E	SAMP	100	08/02/2019	06:55:54 PM
131	MB-74783	MBLK	1	08/02/2019	06:59:09 PM
132	LCS2-74783	LCS	1	08/02/2019	07:02:21 PM
133	N036643-001D	SAMP	5	08/02/2019	07:06:12 PM
134	N036643-002D	SAMP	5	08/02/2019	07:09:26 PM
135	N036643-003D	SAMP	5	08/02/2019	07:14:11 PM
136	N036643-004D	SAMP	5	08/02/2019	07:18:56 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
137	N036652-001D	SAMP	5	08/02/2019	07:23:46 PM
138	N036652-002D	SAMP	5	08/02/2019	07:27:29 PM
2	CCV10	CCV	1	08/02/2019	07:32:15 PM
1	CCB10	CCB	1	08/02/2019	07:35:59 PM
139	N036652-003D	SAMP	5	08/02/2019	07:39:10 PM
140	N036652-004D	SAMP	5	08/02/2019	07:43:57 PM
141	N036652-005D	SAMP	5	08/02/2019	07:48:43 PM
142	N036652-006D	SAMP	5	08/02/2019	07:53:29 PM
143	N036652-007D	SAMP	5	08/02/2019	07:58:15 PM
144	N036643-001D	SAMP	25	08/02/2019	08:03:03 PM
145	N036643-001D-PS	PS	5	08/02/2019	08:06:17 PM
146	N036643-001D-MS2	MS	5	08/02/2019	08:10:02 PM
147	N036643-001D-MSD2	MSD	5	08/02/2019	08:13:47 PM
148	N036643-001D	SAMP	125	08/02/2019	08:17:33 PM
2	CCV11	CCV	1	08/02/2019	08:20:47 PM
1	CCB11	CCB	1	08/02/2019	08:24:32 PM
149	N036643-001D-PS	PS	25	08/02/2019	08:27:42 PM
150	N036643-001D-MS2	MS	25	08/02/2019	08:30:56 PM
151	N036643-001D-MSD2	MSD	25	08/02/2019	08:34:09 PM
152	N036643-002D	SAMP	25	08/02/2019	08:37:23 PM
153	N036643-003D	SAMP	50	08/02/2019	08:40:37 PM
154	N036643-004D	SAMP	100	08/02/2019	08:43:50 PM
155	N036652-001D	SAMP	25	08/02/2019	08:47:04 PM
156	N036652-002D	SAMP	100	08/02/2019	08:50:19 PM
157	N036652-003D	SAMP	100	08/02/2019	08:53:33 PM
158	N036652-004D	SAMP	50	08/02/2019	08:56:46 PM
2	CCV12	CCV	1	08/02/2019	09:00:01 PM
1	CCB12	CCB	1	08/02/2019	09:03:44 PM
159	N036652-005D	SAMP	50	08/02/2019	09:06:55 PM
160	N036652-006D	SAMP	50	08/02/2019	09:10:10 PM
161	N036652-007D	SAMP	100	08/02/2019	09:13:24 PM
162	MB-74811	MBLK	1	08/02/2019	09:16:38 PM
163	LCS2-74811	LCS	1	08/02/2019	09:19:51 PM
164	N036673-002A	SAMP	1	08/02/2019	09:23:41 PM
165	N036673-002A	SAMP	5	08/02/2019	09:26:55 PM
166	N036673-002A-PS	PS	1	08/02/2019	09:30:08 PM
167	N036673-002A-MS2	MS	1	08/02/2019	09:34:20 PM
168	N036673-002A-MSD2	MSD	1	08/02/2019	09:38:10 PM
2	CCV13	CCV	1	08/02/2019	09:42:00 PM
1	CCB13	CCB	1	08/02/2019	09:45:44 PM
169	MB-74765	MBLK	1	08/02/2019	09:48:54 PM
170	LCS2-74765	LCS	1	08/02/2019	09:52:08 PM
171	N036673-001A	SAMP	1	08/02/2019	09:55:55 PM
172	N036673-001A	SAMP	5	08/02/2019	09:59:40 PM
173	N036673-001A-PS	PS	1	08/02/2019	10:02:54 PM
174	N036673-001A-MS2	MS	1	08/02/2019	10:06:41 PM
175	N036673-001A-MSD2	MSD	1	08/02/2019	10:10:29 PM
176	MB-74799	MBLK	1	08/02/2019	10:14:17 PM
177	LCS2-74799	LCS	1	08/02/2019	10:17:31 PM
178	N036677-001B	SAMP	25	08/02/2019	10:21:21 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
2	CCV14	CCV	1	08/02/2019	10:24:35 PM
1	CCB14	CCB	1	08/02/2019	10:28:19 PM
18	ICSA4	ICSA	1	08/02/2019	10:31:30 PM
19	ICSAB4	ICSAB	1	08/02/2019	10:34:44 PM
179	N036677-001B	SAMP	125	08/02/2019	10:38:30 PM
180	N036677-001B-PS	PS	25	08/02/2019	10:41:44 PM
181	N036677-001B-MS2	MS	25	08/02/2019	10:44:58 PM
182	N036677-001B-MSD2	MSD	25	08/02/2019	10:48:12 PM
183	N036677-002B	SAMP	50	08/02/2019	10:51:26 PM
191	MB-74822	MBLK	1	08/02/2019	10:54:41 PM
192	LCS2-74822	LCS	1	08/02/2019	10:57:55 PM
193	N036678-001D	SAMP	5	08/02/2019	11:01:43 PM
194	N036678-002D	SAMP	5	08/02/2019	11:06:29 PM
195	N036678-003D	SAMP	5	08/02/2019	11:11:18 PM
2	CCV15	CCV	1	08/02/2019	11:16:05 PM
1	CCB15	CCB	1	08/02/2019	11:19:50 PM
196	N036703-001D	SAMP	5	08/02/2019	11:23:00 PM
197	N036703-002D	SAMP	5	08/02/2019	11:27:49 PM
198	N036703-003D	SAMP	5	08/02/2019	11:32:39 PM
199	N036703-004D	SAMP	5	08/02/2019	11:36:24 PM
200	N036678-001D	SAMP	50	08/02/2019	11:40:09 PM
201	N036678-002D	SAMP	50	08/02/2019	11:43:24 PM
202	N036678-003D	SAMP	50	08/02/2019	11:46:40 PM
203	N036703-001D	SAMP	50	08/02/2019	11:49:54 PM
204	N036703-002D	SAMP	50	08/02/2019	11:53:09 PM
205	N036703-003D	SAMP	50	08/02/2019	11:56:24 PM
2	CCV16	CCV	1	08/02/2019	11:59:39 PM
1	CCB16	CCB	1	08/03/2019	12:03:23 AM
206	N036703-004D	SAMP	50	08/03/2019	12:06:33 AM
2	CCV17	CCV	1	08/03/2019	12:09:49 AM
1	CCB17	CCB	1	08/03/2019	12:13:33 AM
18	ICSA5	ICSA	1	08/03/2019	12:16:44 AM
19	ICSAB5	ICSAB	1	08/03/2019	12:19:57 AM
207	N036678-002D	SAMP	25	08/03/2019	05:20:08 AM
208	N036678-002D-PS	PS	5	08/03/2019	05:23:53 AM
209	N036678-002D-MS2	MS	5	08/03/2019	05:28:42 AM
210	N036678-002D-MSD2	MSD	5	08/03/2019	05:33:32 AM
211	N036678-002D	SAMP	100	08/03/2019	05:38:22 AM
212	N036678-002D	SAMP	500	08/03/2019	05:41:36 AM
213	N036678-002D-PS	PS	100	08/03/2019	05:44:51 AM
214	N036678-002D-MS2	MS	100	08/03/2019	05:48:06 AM
215	N036678-002D-MSD2	MSD	100	08/03/2019	05:51:22 AM
216	N036703-001D	SAMP	100	08/03/2019	05:54:38 AM
2	CCV18	CCV	1	08/03/2019	05:57:54 AM
1	CCB18	CCB	1	08/03/2019	06:01:37 AM
18	ICSA6	ICSA	1	08/03/2019	06:04:48 AM
19	ICSAB6	ICSAB	1	08/03/2019	06:08:02 AM

INJECTION LOG: 190803A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/03/2019	07:06:14 AM
2	Standard1	ICAL	1	08/03/2019	07:11:28 AM
3	Standard2	ICAL	1	08/03/2019	07:16:40 AM
4	Standard3	ICAL	1	08/03/2019	07:21:51 AM
5	Standard4	ICAL	1	08/03/2019	07:26:36 AM
6	Standard5	ICAL	1	08/03/2019	07:32:53 AM
7	Standard6	ICAL	1	08/03/2019	07:39:10 AM
8	Standard7	ICAL	1	08/03/2019	07:45:27 AM
250	ICV	ICV	1	08/03/2019	07:52:45 AM
1	ICB	ICB	1	08/03/2019	07:59:05 AM
1	ICB	ICB	1	08/03/2019	08:07:50 AM
2	LLICV	CCV1	1	08/03/2019	08:17:53 AM
9	ICSA1	ICSA	1	08/03/2019	08:23:06 AM
9	ICSA1	ICSA	1	08/03/2019	08:58:59 AM
10	ICSAB1	ICSAB	1	08/03/2019	09:11:26 AM
11	MB-74868	MBLK	1	08/03/2019	09:33:28 AM
12	LCS-74868	LCS	1	08/03/2019	09:38:45 AM
13	N036794-001A	SAMP	1	08/03/2019	09:44:58 AM
14	N036794-001A	SAMP	5	08/03/2019	09:51:12 AM
15	N036794-001A-PS	PS	1	08/03/2019	09:57:25 AM
16	N036794-001A-MS	MS	1	08/03/2019	10:03:41 AM
17	N036794-001A-MSD	MSD	1	08/03/2019	10:09:58 AM
18	N036794-002A	SAMP	1	08/03/2019	10:16:14 AM
19	MB-74799	MBLK	1	08/03/2019	10:25:24 AM
20	LCS1-74799	LCS	1	08/03/2019	10:30:39 AM
7	CCV1	CCV	1	08/03/2019	10:36:55 AM
1	CCB1	CCB	1	08/03/2019	10:46:33 AM
21	N036722-001A	SAMP	1	08/03/2019	10:50:45 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
22	N036722-001A	SAMP	5	08/03/2019	10:57:01 AM
23	N036722-001A-PS	PS	1	08/03/2019	11:03:18 AM
24	N036722-001A-MS1	MS	1	08/03/2019	11:09:33 AM
25	N036722-001A-MSD1	MSD	1	08/03/2019	11:15:47 AM
26	N036677-001B	SAMP	1	08/03/2019	11:22:01 AM
27	N036677-002B	SAMP	1	08/03/2019	11:28:30 AM
28	MB-74782	MBLK	1	08/03/2019	11:34:45 AM
29	LCS1-74782	LCS	1	08/03/2019	11:39:27 AM
30	N036623-001E	SAMP	1	08/03/2019	11:45:42 AM
7	CCV2	CCV	1	08/03/2019	11:51:57 AM
1	CCB2	CCB	1	08/03/2019	12:03:58 PM
28	MB-74782	MBLK	1	08/03/2019	12:09:10 PM
31	N036623-001E	SAMP	5	08/03/2019	12:14:22 PM
32	N036623-001E-PS	PS	1	08/03/2019	12:20:38 PM
33	N036623-001E-MS1	MS	1	08/03/2019	12:26:55 PM
34	N036623-001E-MSD1	MSD	1	08/03/2019	12:33:11 PM
35	N036623-002E	SAMP	1	08/03/2019	12:39:28 PM
36	N036623-003E	SAMP	1	08/03/2019	12:46:15 PM
37	N036623-004E	SAMP	1	08/03/2019	12:53:03 PM
38	N036623-005E	SAMP	1	08/03/2019	12:59:48 PM
39	N036623-006E	SAMP	1	08/03/2019	01:06:33 PM
7	CCV3	CCV	1	08/03/2019	01:13:24 PM
1	CCB3	CCB	1	08/03/2019	01:19:42 PM
1	CCB3	CCB	1	08/03/2019	01:24:14 PM
40	N036643-001E	SAMP	1	08/03/2019	01:28:55 PM
41	N036643-002E	SAMP	1	08/03/2019	01:35:10 PM
42	N036643-003E	SAMP	1	08/03/2019	01:41:25 PM
43	N036643-004E	SAMP	1	08/03/2019	01:47:40 PM
44	N036645-001E	SAMP	1	08/03/2019	01:53:56 PM
45	N036645-002E	SAMP	1	08/03/2019	02:00:40 PM
46	N036652-001E	SAMP	1	08/03/2019	02:07:29 PM
47	N036652-002E	SAMP	1	08/03/2019	02:13:44 PM
48	N036652-003E	SAMP	1	08/03/2019	02:19:56 PM
49	N036652-004E	SAMP	1	08/03/2019	02:26:08 PM
7	CCV4	CCV	1	08/03/2019	02:32:19 PM
1	CCB4	CCB	1	08/03/2019	02:38:36 PM
50	N036652-005E	SAMP	1	08/03/2019	02:43:49 PM
51	N036652-006E	SAMP	1	08/03/2019	02:50:02 PM
52	N036652-007E	SAMP	1	08/03/2019	02:56:17 PM
47	N036652-002E	SAMP	1	08/03/2019	03:02:32 PM
48	N036652-003E	SAMP	1	08/03/2019	03:08:47 PM
49	N036652-004E	SAMP	1	08/03/2019	03:15:02 PM
50	N036652-005E	SAMP	1	08/03/2019	03:21:43 PM
49	N036652-004E	SAMP	1	08/03/2019	03:27:57 PM
7	CCV5	CCV	1	08/03/2019	03:34:11 PM
1	CCB5	CCB	1	08/03/2019	03:40:30 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
9	ICSA2	ICSA	1	08/03/2019	03:45:11 PM
9	ICSA2	ICSA	1	08/03/2019	04:00:22 PM
9	ICSA2	ICSA	1	08/03/2019	04:11:24 PM
10	ICSAB2	ICSAB	1	08/03/2019	04:18:22 PM
10	ICSAB2	ICSAB	1	08/03/2019	04:26:02 PM
71	MB-74783	MBLK	1	08/03/2019	04:41:28 PM
72	LCS1-74783	LCS	1	08/03/2019	04:46:10 PM
73	N036652-001D	SAMP	1	08/03/2019	04:52:24 PM
74	N036652-002D	SAMP	1	08/03/2019	04:58:37 PM
75	N036652-003D	SAMP	1	08/03/2019	05:04:50 PM
76	N036652-004D	SAMP	1	08/03/2019	05:11:05 PM
77	N036652-005D	SAMP	1	08/03/2019	05:17:18 PM
78	N036652-006D	SAMP	1	08/03/2019	05:23:34 PM
79	N036652-007D	SAMP	1	08/03/2019	05:29:48 PM
80	N036623-001D	SAMP	1	08/03/2019	05:36:04 PM
7	CCV6	CCV	1	08/03/2019	05:42:19 PM
1	CCB6	CCB	1	08/03/2019	05:48:36 PM
81	N036623-001D	SAMP	5	08/03/2019	05:53:47 PM
82	N036623-001D-PS	PS	1	08/03/2019	06:00:02 PM
83	N036623-001D-MS1	MS	1	08/03/2019	06:06:18 PM
84	N036623-001D-MSD1	MSD	1	08/03/2019	06:12:32 PM
85	N036623-002D	SAMP	1	08/03/2019	06:18:46 PM
86	N036623-003D	SAMP	1	08/03/2019	06:25:35 PM
87	N036623-004D	SAMP	1	08/03/2019	06:32:24 PM
88	N036623-005D	SAMP	1	08/03/2019	06:39:10 PM
89	N036623-006D	SAMP	1	08/03/2019	06:45:57 PM
90	N036643-001D	SAMP	1	08/03/2019	06:52:50 PM
7	CCV7	CCV	1	08/03/2019	06:59:05 PM
1	CCB7	CCB	1	08/03/2019	07:05:22 PM
91	N036643-002D	SAMP	1	08/03/2019	07:10:32 PM
92	N036643-003D	SAMP	1	08/03/2019	07:16:48 PM
93	N036643-004D	SAMP	1	08/03/2019	07:23:03 PM
94	N036645-001D	SAMP	1	08/03/2019	07:29:20 PM
95	N036645-002D	SAMP	1	08/03/2019	07:36:05 PM
96	MB-74811	MBLK	1	08/03/2019	07:42:50 PM
97	LCS1-74811	LCS	1	08/03/2019	07:47:32 PM
98	N036113-007D	SAMP	5	08/03/2019	07:53:47 PM
99	N036678-001E	SAMP	1	08/03/2019	08:00:01 PM
100	N036678-001E	SAMP	5	08/03/2019	08:06:15 PM
7	CCV8	CCV	1	08/03/2019	08:12:29 PM
1	CCB8	CCB	1	08/03/2019	08:18:47 PM
101	N036678-001E-PS	PS	1	08/03/2019	08:23:58 PM
102	N036678-001E-MS1	MS	1	08/03/2019	08:30:13 PM
103	N036678-001E-MSD1	MSD	1	08/03/2019	08:36:28 PM
104	N036678-002E	SAMP	1	08/03/2019	08:42:45 PM
105	N036678-003E	SAMP	1	08/03/2019	08:49:00 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
106	N036703-001E	SAMP	1	08/03/2019	08:55:16 PM
107	N036703-002E	SAMP	1	08/03/2019	09:01:31 PM
108	N036703-003E	SAMP	1	08/03/2019	09:07:47 PM
109	N036703-004E	SAMP	1	08/03/2019	09:14:02 PM
110	MB-74822	MBLK	1	08/03/2019	09:20:17 PM
7	CCV9	CCV	1	08/03/2019	09:25:30 PM
1	CCB9	CCB	1	08/03/2019	09:31:47 PM
9	ICSA3	ICSA	1	08/03/2019	09:36:58 PM
10	ICSAB3	ICSAB	1	08/03/2019	09:43:56 PM
111	LCS1-74822	LCS	1	08/03/2019	09:50:26 PM
112	N036678-001D	SAMP	1	08/03/2019	09:56:42 PM
113	N036678-001D	SAMP	5	08/03/2019	10:02:57 PM
114	N036678-001D-PS	PS	1	08/03/2019	10:09:11 PM
115	N036678-001D-MS1	MS	1	08/03/2019	10:15:27 PM
116	N036678-001D-MSD1	MSD	1	08/03/2019	10:21:43 PM
117	N036678-002D	SAMP	1	08/03/2019	10:27:59 PM
118	N036678-003D	SAMP	1	08/03/2019	10:34:14 PM
119	N036703-001D	SAMP	1	08/03/2019	10:40:30 PM
120	N036703-002D	SAMP	1	08/03/2019	10:46:44 PM
7	CCV10	CCV	1	08/03/2019	10:53:00 PM
1	CCB10	CCB	1	08/03/2019	10:59:17 PM
121	N036703-003D	SAMP	1	08/03/2019	11:04:28 PM
122	N036703-004D	SAMP	1	08/03/2019	11:10:44 PM
123	N036678-004E	SAMP	1	08/03/2019	11:16:59 PM
124	N036678-005E	SAMP	1	08/03/2019	11:23:15 PM
125	N036678-006E	SAMP	1	08/03/2019	11:30:02 PM
126	N036678-007E	SAMP	1	08/04/2019	01:52:45 AM
127	N036678-008E	SAMP	1	08/04/2019	01:59:01 AM
128	N036678-009E	SAMP	1	08/04/2019	02:05:38 AM
7	CCV11	CCV	1	08/04/2019	02:11:56 AM
1	CCB11	CCB	1	08/04/2019	02:18:13 AM
9	ICSA4	ICSA	1	08/04/2019	02:23:25 AM
10	ICSAB4	ICSAB	1	08/04/2019	02:30:23 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/29/2019 7:58:22 A**
Prep End Date: **7/29/2019 11:00:00**
Prep Batch **74799** Prep Code: **200.7_PR**

Reviewed/ Date: NS 8/25/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74799	Aqueous		25	☐	25	1.000		
LCS2-74799	Aqueous		25	☐	25	1.000		
MB-74799	Aqueous		25	☐	25	1.000		
N036677-001B	Groundwater	<2	25	☐	25	1.000		
N036677-001B-MS	Groundwater	<2	25	☐	25	1.000		
N036677-001B-MS	Groundwater	<2	25	☐	25	1.000		
N036677-002B	Groundwater	<2	25	☐	25	1.000		
N036722-001A	Water	<2	25	☐	25	1.000		
N036722-001A-MS	Water	<2	25	☐	25	1.000		
N036722-001A-MS	Water	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190802A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	08/02/2019	10:56:58 AM	Na	589.62	-193	0.00	mg/L	
Standard1	08/02/2019	11:00:09 AM	Na	589.62	639	0.1000	mg/L	
Standard2	08/02/2019	11:03:19 AM	Na	589.62	4538	1.000	mg/L	
Standard3	08/02/2019	11:06:30 AM	Na	589.62	21353	5.000	mg/L	
Standard4	08/02/2019	11:10:13 AM	Na	589.62	41559	10.000	mg/L	
Standard5	08/02/2019	11:13:57 AM	Na	589.62	82449	20.000	mg/L	
Standard6	08/02/2019	11:17:46 AM	Na	589.62	165533	40.000	mg/L	1.0000

INITIAL CALIBRATION SUMMARY: 190803A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	08/03/2019	07:06:14 AM	Mg	279.077	795	0.00	mg/L	
Standard1	08/03/2019	07:11:28 AM	Mg	279.077	1163	0.1000	mg/L	
Standard2	08/03/2019	07:16:40 AM	Mg	279.077	11457	1.000	mg/L	
Standard3	08/03/2019	07:21:51 AM	Mg	279.077	22026	2.000	mg/L	
Standard4	08/03/2019	07:26:36 AM	Mg	279.077	54958	5.000	mg/L	
Standard5	08/03/2019	07:32:53 AM	Mg	279.077	80397	7.500	mg/L	
Standard6	08/03/2019	07:39:10 AM	Mg	279.077	110847	10.000	mg/L	
Standard7	08/03/2019	07:45:27 AM	Mg	279.077	219499	20.000	mg/L	1.0000
Calcium								
CalBlk	08/03/2019	07:06:14 AM	Ca	227.546	-8	0.00	mg/L	
Standard1	08/03/2019	07:11:28 AM	Ca	227.546	73	0.2000	mg/L	
Standard2	08/03/2019	07:16:40 AM	Ca	227.546	332	1.000	mg/L	
Standard3	08/03/2019	07:21:51 AM	Ca	227.546	659	2.000	mg/L	
Standard4	08/03/2019	07:26:36 AM	Ca	227.546	1640	5.000	mg/L	
Standard5	08/03/2019	07:32:53 AM	Ca	227.546	2433	7.500	mg/L	
Standard6	08/03/2019	07:39:10 AM	Ca	227.546	3256	10.000	mg/L	
Standard7	08/03/2019	07:45:27 AM	Ca	227.546	6452	20.000	mg/L	1.0000
Iron								
CalBlk	08/03/2019	07:06:14 AM	Fe	273.952	-14	0.00	mg/L	
Standard1	08/03/2019	07:11:28 AM	Fe	273.952	548	0.0200	mg/L	
Standard2	08/03/2019	07:16:40 AM	Fe	273.952	1820	0.050	mg/L	
Standard3	08/03/2019	07:21:51 AM	Fe	273.952	47777	2.000	mg/L	
Standard4	08/03/2019	07:26:36 AM	Fe	273.952	119508	5.000	mg/L	
Standard5	08/03/2019	07:32:53 AM	Fe	273.952	175245	7.500	mg/L	
Standard6	08/03/2019	07:39:10 AM	Fe	273.952	241510	10.000	mg/L	
Standard7	08/03/2019	07:45:27 AM	Fe	273.952	478061	20.000	mg/L	1.0000

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10127.106	500	10000	0	101	90	110				

Sample ID **LLICV**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	108.345	500	100.0	0	108	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10199.080	500	10000	0	102	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10248.623	500	10000	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10273.871	500	10000	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10277.679	500	10000	0	103	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468180**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10484.872	500	10000	0	105	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468192**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10406.719	500	10000	0	104	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10320.191	500	10000	0	103	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10248.653	500	10000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV9**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10249.796	500	10000	0	102	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10273.503	500	10000	0	103	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10263.051	500	10000	0	103	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10207.818	500	10000	0	102	90	110				

Sample ID **CCV13**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10219.264	500	10000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV14**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10128.664	500	10000	0	101	90	110				

Sample ID **CCV15**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10259.013	500	10000	0	103	90	110				

Sample ID **CCV17**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10111.076	500	10000	0	101	90	110				

Sample ID **CCV18**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9904.671	500	10000	0	99.0	90	110				

Sample ID **CCV16**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCV**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10144.019	500	10000	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **ICV**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10018.551	500	10000	0	100	90	110				
Iron	9977.510	20	10000	0	99.8	90	110				
Magnesium	9921.636	100	10000	0	99.2	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **ZZZZZZ**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468605**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	232.043	500	200.0	0	116	80	120				
Iron	21.874	20	20.00	0	109	80	120				
Magnesium	104.621	100	100.0	0	105	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **CCV**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10111.937	500	10000	0	101	90	110				
Iron	10373.988	20	10000	0	104	90	110				
Magnesium	10429.875	100	10000	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **CCV**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10104.432	500	10000	0	101	90	110				
Iron	10465.398	20	10000	0	105	90	110				
Magnesium	10587.207	100	10000	0	106	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **CCV**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468643**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10297.149	500	10000	0	103	90	110				
Iron	10484.568	20	10000	0	105	90	110				
Magnesium	10708.846	100	10000	0	107	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **CCV**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468656**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10207.822	500	10000	0	102	90	110				
Iron	10492.418	20	10000	0	105	90	110				
Magnesium	10641.321	100	10000	0	106	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **CCV**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10149.365	500	10000	0	101	90	110				
Iron	10467.155	20	10000	0	105	90	110				
Magnesium	10602.267	100	10000	0	106	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	**ICB**	SampType:	**ICB**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**135566**
Client ID:	**ICB**	Batch ID:	**R135566**	TestNo:	**EPA 200.7**			Analysis Date:	**8/2/2019**	SeqNo:	**3468115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9.455	500									

Sample ID	**CCB1**	SampType:	**CCB**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**135566**
Client ID:	**CCB**	Batch ID:	**R135566**	TestNo:	**EPA 200.7**			Analysis Date:	**8/2/2019**	SeqNo:	**3468131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	45.235	500									

Sample ID	**CCB2**	SampType:	**CCB**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**135566**
Client ID:	**CCB**	Batch ID:	**R135566**	TestNo:	**EPA 200.7**			Analysis Date:	**8/2/2019**	SeqNo:	**3468143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	117.568	500									

Sample ID	**CCB3**	SampType:	**CCB**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**135566**
Client ID:	**CCB**	Batch ID:	**R135566**	TestNo:	**EPA 200.7**			Analysis Date:	**8/2/2019**	SeqNo:	**3468155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	66.117	500									

Sample ID	**CCB4**	SampType:	**CCB**	TestCode:	**200.7_WDPG**	Units:	**µg/L**	Prep Date:		RunNo:	**135566**
Client ID:	**CCB**	Batch ID:	**R135566**	TestNo:	**EPA 200.7**			Analysis Date:	**8/2/2019**	SeqNo:	**3468167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	47.027	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	99.585	500									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	101.589	500									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	87.930	500									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	63.625	500									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	55.838	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	CCB10	SampType:	CCB	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	135566
Client ID:	CCB	Batch ID:	R135566	TestNo:	EPA 200.7			Analysis Date:	8/2/2019	SeqNo:	3468243

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	91.378	500									

Sample ID	CCB11	SampType:	CCB	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	135566
Client ID:	CCB	Batch ID:	R135566	TestNo:	EPA 200.7			Analysis Date:	8/2/2019	SeqNo:	3468255

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	81.707	500									

Sample ID	CCB12	SampType:	CCB	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	135566
Client ID:	CCB	Batch ID:	R135566	TestNo:	EPA 200.7			Analysis Date:	8/2/2019	SeqNo:	3468267

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	57.524	500									

Sample ID	CCB13	SampType:	CCB	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	135566
Client ID:	CCB	Batch ID:	R135566	TestNo:	EPA 200.7			Analysis Date:	8/2/2019	SeqNo:	3468279

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	70.035	500									

Sample ID	CCB14	SampType:	CCB	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	135566
Client ID:	CCB	Batch ID:	R135566	TestNo:	EPA 200.7			Analysis Date:	8/2/2019	SeqNo:	3468291

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	47.470	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB15**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	92.221	500									

Sample ID **CCB16**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	73.792	500									

Sample ID **CCB17**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	78.358	500									

Sample ID **CCB18**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **CCB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	66.201	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB** SampType: **ICB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **ICB** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10.722	500									
Iron	0.454	20									
Magnesium	-0.629766	100									

Sample ID **CCB1** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **CCB** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	8.834	500									
Iron	0.930	20									
Magnesium	7.593	100									

Sample ID **CCB2** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **CCB** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	15.409	500									
Iron	1.130	20									
Magnesium	3.654	100									

Sample ID **CCB3** SampType: **CCB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **CCB** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	14.369	500									
Iron	8.212	20									
Magnesium	36.893	100									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **CCB**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468657**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	63.063	500									
Iron	5.374	20									
Magnesium	14.997	100									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **CCB**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468667**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-28.232141	500									
Iron	-0.359706	20									
Magnesium	5.342	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSA**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468118**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-5.926404	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSAB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468119**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10035.069	500	10000	0	100	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSA**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	26.185	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSAB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10065.372	500	10000	0	101	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSA**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	34.068	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSAB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10227.565	500	10000	0	102	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSA**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20.048	500									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSAB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10086.538	500	10000	0	101	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSA**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	33.867	500									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSAB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468321**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10028.988	500	10000	0	100	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA6**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSA**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	29.501	500									

Sample ID **ICSAB6**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ICSAB**	Batch ID: **R135566**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9822.977	500	10000	0	98.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **ICSA** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	478534.809	50	500000	0	95.7	80	120				
Calcium	464979.005	500	500000	0	93.0	80	120				
Iron	226115.692	20	200000	0	113	80	120				
Magnesium	444720.278	100	500000	0	88.9	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **ICSAB** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	469120.301	50	500000	0	93.8	80	120				
Calcium	447703.654	500	500000	0	89.5	80	120				
Iron	200414.113	20	200000	0	100	80	120				
Magnesium	442533.424	100	500000	0	88.5	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **ICSA** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	515820.686	50	500000	0	103	80	120				
Calcium	492637.155	500	500000	0	98.5	80	120				
Iron	219032.953	20	200000	0	110	80	120				
Magnesium	499358.833	100	500000	0	99.9	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **135570**
Client ID: **ICSAB** Batch ID: **R135570** TestNo: **EPA 200.7** Analysis Date: **8/3/2019** SeqNo: **3468672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	492984.185	50	500000	0	98.6	80	120				
Calcium	464533.290	500	500000	0	92.9	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **ICSAB**	Batch ID: **R135570**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	202120.584	20	200000	0	101	80	120				
Magnesium	472973.544	100	500000	0	94.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190802A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	0.99	99.24	65-125	PASS
Standard2	ICAL	1	1.0013	100.13	65-125	PASS
Standard3	ICAL	1	1.0003	100.03	65-125	PASS
Standard4	ICAL	1	1.0024	100.24	65-125	PASS
Standard5	ICAL	1	1.0032	100.32	65-125	PASS
Standard6	ICAL	1	1.024	102.43	65-125	PASS
ICV	ICV	1	1.037	103.68	65-125	PASS
ICB	ICB	1	1.023	102.32	65-125	PASS
LLICV	CCV	1	1.0034	100.34	65-125	PASS
LLICV	CCV	1	1.0035	100.35	65-125	PASS
ICSA1	ICSA	1	1.02	102.05	65-125	PASS
ICSAB1	ICSAB	1	1.027	102.7	65-125	PASS
CCV1	CCV	1	1.043	104.3	65-125	PASS
CCB1	CCB	1	1.044	104.41	65-125	PASS
CCV2	CCV	1	1.048	104.77	65-125	PASS
CCB2	CCB	1	1.056	105.56	65-125	PASS
CCV3	CCV	1	1.052	105.2	65-125	PASS
CCB3	CCB	1	1.054	105.38	65-125	PASS
CCV4	CCV	1	1.051	105.06	65-125	PASS
CCB4	CCB	1	1.061	106.09	65-125	PASS
ICSA2	ICSA	1	1.065	106.47	65-125	PASS
ICSAB2	ICSAB	1	1.055	105.51	65-125	PASS
CCV5	CCV	1	1.051	105.13	65-125	PASS
CCB5	CCB	1	1.053	105.29	65-125	PASS
CCV6	CCV	1	1.058	105.75	65-125	PASS
CCB6	CCB	1	1.061	106.12	65-125	PASS
CCV7	CCV	1	1.054	105.35	65-125	PASS
CCB7	CCB	1	1.048	104.77	65-125	PASS
CCV8	CCV	1	1.07	106.98	65-125	PASS
CCB8	CCB	1	1.065	106.47	65-125	PASS
ICSA3	ICSA	1	1.072	107.17	65-125	PASS
ICSAB3	ICSAB	1	1.061	106.08	65-125	PASS
CCV9	CCV	1	1.073	107.25	65-125	PASS
CCB9	CCB	1	1.065	106.55	65-125	PASS
CCV10	CCV	1	1.051	105.06	65-125	PASS
CCB10	CCB	1	1.049	104.92	65-125	PASS
CCV11	CCV	1	1.05	105.04	65-125	PASS
CCB11	CCB	1	1.044	104.39	65-125	PASS
CCV12	CCV	1	1.044	104.43	65-125	PASS
CCB12	CCB	1	1.044	104.41	65-125	PASS

INTERNAL STANDARD: 190802A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCV13	CCV	1	1.038	103.82	65-125	PASS
CCB13	CCB	1	1.036	103.6	65-125	PASS
MB-74799	MBLK	1	1.026	102.65	65-125	PASS
LCS2-74799	LCS	1	1.1	110.06	65-125	PASS
N036677-001B	SAMP	25	1.034	103.37	65-125	PASS
CCV14	CCV	1	1.034	103.44	65-125	PASS
CCB14	CCB	1	1.035	103.52	65-125	PASS
ICSA4	ICSA	1	1.053	105.34	65-125	PASS
ICSAB4	ICSAB	1	1.036	103.55	65-125	PASS
N036677-001B	SAMP	125	1.026	102.62	65-125	PASS
N036677-001B-PS	PS	25	1.036	103.61	65-125	PASS
N036677-001B-MS2	MS	25	1.026	102.62	65-125	PASS
N036677-001B-MSD2	MSD	25	1.032	103.16	65-125	PASS
N036677-002B	SAMP	50	1.026	102.56	65-125	PASS
CCV15	CCV	1	1.033	103.29	65-125	PASS
CCB15	CCB	1	1.028	102.83	65-125	PASS
CCV16	CCV	1	1.032	103.15	65-125	PASS
CCB16	CCB	1	1.036	103.58	65-125	PASS
CCV17	CCV	1	1.035	103.54	65-125	PASS
CCB17	CCB	1	1.026	102.64	65-125	PASS
ICSA5	ICSA	1	1.058	105.77	65-125	PASS
ICSAB5	ICSAB	1	1.034	103.42	65-125	PASS
CCV18	CCV	1	1	99.9	65-125	PASS
CCB18	CCB	1	0.99	99.16	65-125	PASS
ICSA6	ICSA	1	1.019	101.88	65-125	PASS
ICSAB6	ICSAB	1	0.99	99.36	65-125	PASS

INTERNAL STANDARD: 190803A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.98	65-125	PASS
Standard2	ICAL	1	1	99.82	65-125	PASS
Standard3	ICAL	1	1.062	106.18	65-125	PASS
Standard4	ICAL	1	1.038	103.79	65-125	PASS
Standard5	ICAL	1	1.045	104.54	65-125	PASS
Standard6	ICAL	1	0.99	98.96	65-125	PASS
Standard7	ICAL	1	0.98	98.31	65-125	PASS
ICV	ICV	1	1.0067	100.67	65-125	PASS
ICB	ICB	1	1	100	65-125	PASS
ICB	ICB	1	1	99.91	65-125	PASS
LLICV	CCV1	1	1.0012	100.12	65-125	PASS
ICSA1	ICSA	1	1.077	107.72	65-125	PASS
ICSA1	ICSA	1	1.25	124.69	65-125	PASS
ICSAB1	ICSAB	1	1.18	117.92	65-125	PASS
MB-74799	MBLK	1	1.017	101.69	65-125	PASS
LCS1-74799	LCS	1	0.94	94.42	65-125	PASS
CCV1	CCV	1	1.022	102.25	65-125	PASS
CCB1	CCB	1	1.024	102.4	65-125	PASS
N036722-001A	SAMP	1	0.98	97.97	65-125	PASS
N036722-001A	SAMP	5	1.0075	100.75	65-125	PASS
N036722-001A-PS	PS	1	1	99.82	65-125	PASS
N036722-001A-MS1	MS	1	1.0091	100.91	65-125	PASS
N036722-001A-MSD1	MSD	1	1.0092	100.92	65-125	PASS
N036677-001B	SAMP	1	1.015	101.53	65-125	PASS
N036677-002B	SAMP	1	0.96	96.15	65-125	PASS
CCV2	CCV	1	1.05	105.04	65-125	PASS
CCB2	CCB	1	1.046	104.58	65-125	PASS
CCV3	CCV	1	1.062	106.17	65-125	PASS
CCB3	CCB	1	1.054	105.41	65-125	PASS
CCB3	CCB	1	1.053	105.28	65-125	PASS
CCV4	CCV	1	1.063	106.32	65-125	PASS
CCB4	CCB	1	1.058	105.8	65-125	PASS
CCV5	CCV	1	1.08	107.98	65-125	PASS
CCB5	CCB	1	1.067	106.69	65-125	PASS
ICSA2	ICSA	1	1.34	134.46	65-125	NR!
ICSA2	ICSA	1	1.13	112.9	65-125	PASS
ICSA2	ICSA	1	1.13	112.75	65-125	PASS
ICSAB2	ICSAB	1	1.27	126.81	65-125	NR!
ICSAB2	ICSAB	1	1.18	118.2	65-125	PASS
CCV6	CCV	1	1.063	106.31	65-125	PASS

INTERNAL STANDARD: 190803A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCB6	CCB	1	1.055	105.48	65-125	PASS
CCV7	CCV	1	1.062	106.2	65-125	PASS
CCB7	CCB	1	1.056	105.56	65-125	PASS
CCV8	CCV	1	1.071	107.12	65-125	PASS
CCB8	CCB	1	1.058	105.77	65-125	PASS
CCV9	CCV	1	1.068	106.77	65-125	PASS
CCB9	CCB	1	1.066	106.59	65-125	PASS
ICSA3	ICSA	1	1.13	112.61	65-125	PASS
ICSAB3	ICSAB	1	1.18	118.47	65-125	PASS
CCV10	CCV	1	1.11	111.22	65-125	PASS
CCB10	CCB	1	1.1	110.45	65-125	PASS
CCV11	CCV	1	1.016	101.6	65-125	PASS
CCB11	CCB	1	1.01	101.05	65-125	PASS
ICSA4	ICSA	1	1.077	107.7	65-125	PASS
ICSAB4	ICSAB	1	1.14	113.68	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N036677
Test Method: EPA 200.7
Analysis Date: 08 / 02-03 / 2019

Matrix: Groundwater
Batch No.: 74799

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036722-001A DT 5x	Calcium	Ca	µg/L	55279.72	PASS	51383.59	7.58%	10
N036722-001A DT 5x	Iron	Fe	µg/L	275.9766	NA	262.0724	5.31%	10
N036722-001A DT 5x	Magnesium	Mg	µg/L	6537.306	PASS	6085.822	7.42%	10
N036677-001B DT 125x	Sodium	Na	µg/L	540831.8	PASS	507719.4	6.52%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N036677-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135566**
Client ID: **ZZZZZZ**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/2/2019**	SeqNo: **3468295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	540070.492	12000	20000	507700	162	80	120				S

Sample ID **N036722-001A-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **135570**
Client ID: **ZZZZZZ**	Batch ID: **74799**	TestNo: **EPA 200.7**		Analysis Date: **8/3/2019**	SeqNo: **3468623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	62322.070	500	10000	51380	109	80	120				
Iron	363.550	20	100.0	262.1	101	80	120				
Magnesium	15922.653	100	10000	6086	98.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

Method Detection Limit

Analytical Method: EPA 6010B / 200.7
Digestion Method: EPA 200.7
Date of Analysis: 4/26/2018,4/27/18, 4/28/18
Instrument Name: ICP2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: mg/L

Analyte	1	2	3	4	5	6	7	SD	Ave	AMT SPIKED	MDL	PQL
Potassium	0.52047	0.51468	0.50982	0.46507	0.46016	0.45873	0.49093	0.02710	0.48855	0.5000	0.08509	0.5
Sodium	0.55314	0.5464	0.5354	0.4861	0.49466	0.48423	0.49053	0.03061	0.51292	0.5000	0.09611	0.5
Strontium	0.0543	0.05418	0.05429	0.05295	0.05353	0.05251	0.05341	0.00070	0.05360	0.0250	0.00220	0.05

MBLK

Analyte	1	2	3	4	5	6	7	SD	Ave	MDL
Potassium	0.046	0.02365	0.01213	-0.00541	-0.0022	-0.00535	0.03047	0.02002	0.01418	0.0771
Sodium	0.04731	0.03661	0.02294	-0.0006	-0.00135	-0.00646	-0.00911	0.02270	0.01276	0.0841
Strontium	0.00006	-0.0006	-0.0002	0.00003	-0.00002	0.00001	0.00035	0.00029	-0.00005	0.0009

Note: MDL spike is used since its value is greater than the MDL blank.

LOD & PQL VERIFICATION

Analytical Method: EPA 6010B / 200.7
Date of Analysis: 4/30/2018
Instrument Name: ICP2
Analyst: MI

Matrix: Water
Units: mg/L

Compound	MDL	LOD		PQL		
		Spike	Recovered	Spike	Recovered	% Recovery
Potassium	0.08509	0.250	0.304	0.500	0.544	108.9
Sodium	0.09611	0.250	0.274	0.500	0.521	104.1
Strontium	0.00220	0.025	0.027	0.050	0.054	108.0

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74798
ASSET #: N036677

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 7/30/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Cr in N036722-001A-MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 8/23/2019

2nd Level Reviewer NS 8/25/2019 Date: –

for HSG

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N036677-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 90.6669 * 5 *(25 / 25)

Manganese , ug/L = 453.3345

Reporting results in two significant figures,

Manganese , ug/L = 450

NS 8/25/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190730A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	5.028	15	PASS	0.11	9.39	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.49	9.16	15	PASS	0.51	11.68	15	PASS
Std3-5/50 ppb	ICAL	1	5.048	1.72	15	PASS	5.19	4.46	15	PASS
Std4-10/100 ppb	ICAL	1	10.13	0.74	15	PASS	10.21	1.38	15	PASS
Std5-20/200 ppb	ICAL	1	20.46	1.26	15	PASS	20.43	1.69	15	PASS
Std6-40/400 ppb	ICAL	1	40.62	0.91	15	PASS	40.47	0.57	15	PASS
Std7-100/1000 ppb	ICAL	1	100.7	0.18	15	PASS	100.99	0.62	15	PASS
Std8-200/2000 ppb	ICAL	1	199.47	1.51	15	PASS	199.35	1.076	15	PASS
ICV	ICV	1	10.031	0.67	15	PASS	103.77	1.78	15	PASS
ICB	ICB	1	0.018	55.84	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.049	3.13	20	PASS	0.53	4.92	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.54	0.7	15	PASS	20.049	0.96	15	PASS
LLICV	CCV1	1	1.11	3.54	20	PASS	0.53	3.96	20	PASS
MB-74798	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-74798	LCS	1	9.68	0.8	15	PASS	102.7	1.49	15	PASS
N036722-001A	SAMP	1	49.99	1.26	15	PASS	35.13	1.32	15	PASS
N036722-001A	SAMP	5	10.56	1.6	15	PASS	7.44	2.051	15	PASS
N036722-001A-PS	PS	1	60.74	1.086	15	PASS	135.66	1.56	15	PASS
N036722-001A-MS	MS	1	56.83	0.44	15	PASS	134.35	1.83	15	PASS
N036722-001A-MSD	MSD	1	56.13	1.16	15	PASS	133.53	2.13	15	PASS
N036723-001A	SAMP	1	15.7	1.11	15	PASS	86.85	0.62	15	PASS
N036646-001A	SAMP	1	0.49	5.57	15	PASS	5.91	3.92	15	PASS
N036696-003C	SAMP	1	<0.000	N/A	15	<PQL	30.29	1.61	15	PASS
CCV1	CCV	1	19.98	0.39	15	PASS	20.27	0.88	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-74798	LCS	1	9.85	3.065	15	PASS	102.25	1.31	15	PASS
N036722-001A	SAMP	1	53.49	0.42	15	PASS	33.1	2.51	15	PASS
N036677-001B	SAMP	1	<0.000	N/A	15	<PQL	419.68	0.88	15	PASS
N036677-001B	SAMP	5	<0.000	N/A	15	<PQL	90.67	2.29	15	PASS
N036677-002B	SAMP	1	458.99	0.98	15	PASS	<0.000	N/A	15	<PQL
N036677-002B	SAMP	5	86.79	0.59	15	PASS	<0.000	N/A	15	<PQL
N036722-001A	SAMP	1	51.89	0.97	15	PASS	33.087	1.29	15	PASS
CCV2	CCV	1	20.51	0.26	15	PASS	20.44	1.11	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.66	1.035	15	PASS	19.06	2.36	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190730A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0730001.D	RINSE	RINSE	1	07/30/19 10:54 AM
A0730002.D	Cal Blank	IBLK	1	07/30/19 11:00 AM
A0730003.D	Std1-0.1/1 ppb	ICAL	1	07/30/19 11:05 AM
A0730004.D	Std2-0.5/5 ppb	ICAL	1	07/30/19 11:10 AM
A0730005.D	Std3-5/50 ppb	ICAL	1	07/30/19 11:15 AM
A0730006.D	Std4-10/100 ppb	ICAL	1	07/30/19 11:20 AM
A0730007.D	Std5-20/200 ppb	ICAL	1	07/30/19 11:25 AM
A0730008.D	Std6-40/400 ppb	ICAL	1	07/30/19 11:30 AM
A0730009.D	Std7-100/1000 ppb	ICAL	1	07/30/19 11:35 AM
A0730010.D	Std8-200/2000 ppb	ICAL	1	07/30/19 11:40 AM
A0730011.D	ICV	ICV	1	07/30/19 11:45 AM
A0730012.D	ICB	ICB	1	07/30/19 11:58 AM
A0730013.D	LLICV	CCV1	1	07/30/19 12:03 PM
A0730014.D	ICSA1	ICSA	1	07/30/19 12:07 PM
A0730015.D	ICSAB1	ICSAB	1	07/30/19 12:12 PM
A0730016.D	LLICV	CCV1	1	07/30/19 12:17 PM
A0730017.D	MB-74798	MBLK	1	07/30/19 12:22 PM
A0730018.D	LCS-74798	LCS	1	07/30/19 12:27 PM
A0730019.D	N036722-001A	SAMP	1	07/30/19 12:32 PM
A0730020.D	N036722-001A	SAMP	5	07/30/19 12:37 PM
A0730021.D	N036722-001A-PS	PS	1	07/30/19 12:41 PM
A0730022.D	N036722-001A-MS	MS	1	07/30/19 12:46 PM
A0730023.D	N036722-001A-MSD	MSD	1	07/30/19 12:51 PM
A0730024.D	N036723-001A	SAMP	1	07/30/19 12:56 PM
A0730025.D	N036646-001A	SAMP	1	07/30/19 1:01 PM
A0730026.D	N036696-003C	SAMP	1	07/30/19 1:06 PM
A0730027.D	CCV1	CCV	1	07/30/19 1:11 PM
A0730028.D	CCB1	CCB	1	07/30/19 1:16 PM
A0730029.D	LCS-74798	LCS	1	07/30/19 1:21 PM
A0730030.D	N036722-001A	SAMP	1	07/30/19 1:26 PM
A0730031.D	N036677-001B	SAMP	1	07/30/19 1:31 PM
A0730032.D	N036677-001B	SAMP	5	07/30/19 1:36 PM
A0730033.D	N036677-002B	SAMP	1	07/30/19 1:41 PM
A0730034.D	N036677-002B	SAMP	5	07/30/19 1:46 PM
A0730035.D	N036722-001A	SAMP	1	07/30/19 1:51 PM
A0730036.D	CCV2	CCV	1	07/30/19 1:56 PM
A0730037.D	CCB2	CCB	1	07/30/19 2:01 PM
A0730038.D	ICSA2	ICSA	1	07/30/19 2:07 PM
A0730039.D	ICSAB2	ICSAB	1	07/30/19 2:11 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/29/2019 7:57:34 A**
Prep End Date: **7/29/2019 12:00:00**
Prep Batch **74798** Prep Code: **200.8_PR**

Reviewed/ Date: NS 8/25/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.8**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74798	Aqueous		25	☐	25	1.000		
MB-74798	Aqueous		25	☐	25	1.000		
N036646-001A	Groundwater	<2	25	☐	25	1.000		
N036677-001B	Groundwater	<2	25	☐	25	1.000		
N036677-002B	Groundwater	<2	25	☐	25	1.000		
N036696-003C	Aqueous	<2	25	☐	25	1.000		
N036722-001A	Water	<2	25	☐	25	1.000		
N036722-001A-MS	Water	<2	25	☐	25	1.000		
N036722-001A-MS	Water	<2	25	☐	25	1.000		
N036723-001A	Water	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 30 Jul 2019 10:32:56 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	115013.00	0.00	
24	Mg	257874.00	0.00	
25	Mg	33673.70	0.00	
26	Mg	38983.10	0.00	
59	Co	250218.00	0.00	
115	In	350362.00	0.00	
206	Pb	103296.00	0.00	
207	Pb	90214.80	0.00	
208	Pb	219737.00	0.00	

RSD (%)

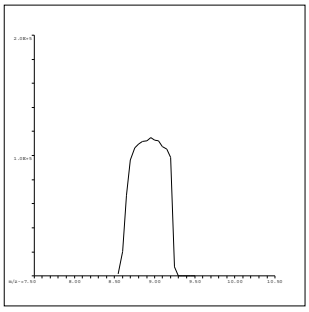
Element		Actual	Required	Flag
9	Be	1.15	5.00	
24	Mg	1.35	5.00	
25	Mg	0.59	5.00	
26	Mg	2.20	5.00	
59	Co	1.00	5.00	
115	In	0.68	5.00	
206	Pb	0.31	5.00	
207	Pb	0.93	5.00	
208	Pb	0.35	5.00	

Ion Ratio

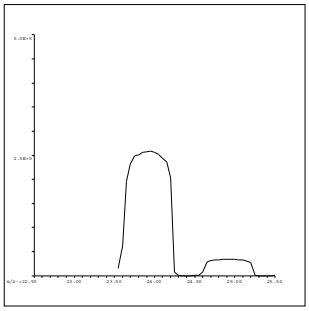
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

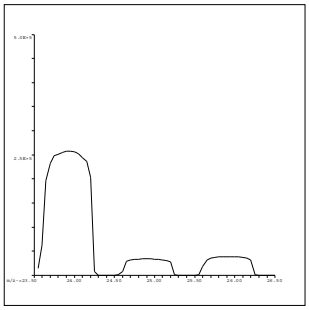
Element	Actual	Required	Flag



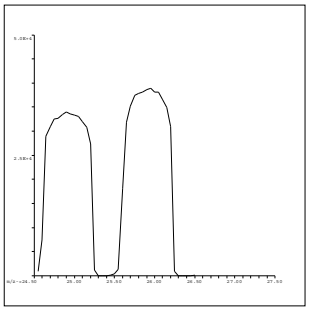
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



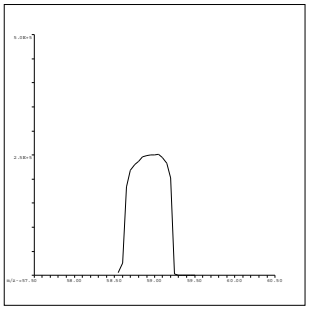
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



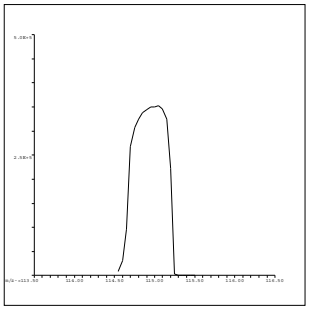
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



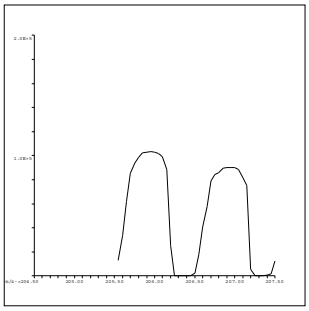
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



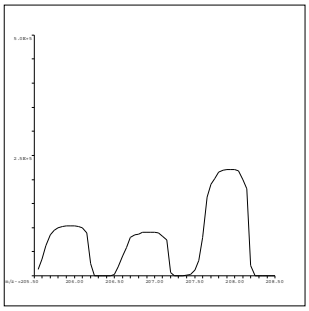
59 Co
Mass Calib.
Actual: 58.95
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



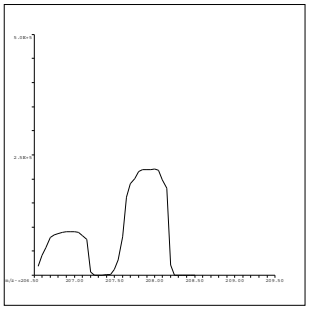
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190730A

Instrument ID: ICPMS-02

Analyte	Data File	A0730002.D	A0730004.D	A0730005.D	A0730006.D	A0730007.D	A0730008.D	A0730009.D	A0730010.D	
	Acq. Date-Time	07/30/2019 11:00 AM	07/30/2019 11:10 AM	07/30/2019 11:15 AM	07/30/2019 11:20 AM	07/30/2019 11:25 AM	07/30/2019 11:30 AM	07/30/2019 11:35 AM	07/30/2019 11:40 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	64309.5	63401.7	63515.4	63999.5	62631	61818	59565.4	59119.5	
55 Mn [2]	CPS	122	1227.7	11406.6	22500	43927.3	85766.9	206051.7	403554.5	1.0000
52 Cr [2]	CPS	411	2507.9	21966	44012.1	86558.6	169269.6	403762	793307.1	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICV**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	103.769	0.50	100.0	0	104	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.532	0.50	0.5000	0	106	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCV**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.267	0.50	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCV**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463696**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.440	0.50	20.00	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICV**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.031	1.0	10.00	0	100	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ZZZZZZ**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463702**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.049	1.0	1.000	0	105	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCV**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.975	1.0	20.00	0	99.9	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCV**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.513	1.0	20.00	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **CCB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	**ICSA1**	SampType:	**ICSA**	TestCode:	**200.8_WDISS**	Units:	**µg/L**	Prep Date:		RunNo:	**135484**
Client ID:	**ICSA**	Batch ID:	**R135484**	TestNo:	**EPA 200.8**			Analysis Date:	**7/30/2019**	SeqNo:	**3463674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID	**ICSAB1**	SampType:	**ICSAB**	TestCode:	**200.8_WDISS**	Units:	**µg/L**	Prep Date:		RunNo:	**135484**
Client ID:	**ICSAB**	Batch ID:	**R135484**	TestNo:	**EPA 200.8**			Analysis Date:	**7/30/2019**	SeqNo:	**3463675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.049	0.50	20.00	0	100	80	120				

Sample ID	**ICSA2**	SampType:	**ICSA**	TestCode:	**200.8_WDISS**	Units:	**µg/L**	Prep Date:		RunNo:	**135484**
Client ID:	**ICSA**	Batch ID:	**R135484**	TestNo:	**EPA 200.8**			Analysis Date:	**7/30/2019**	SeqNo:	**3463698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID	**ICSAB2**	SampType:	**ICSAB**	TestCode:	**200.8_WDISS**	Units:	**µg/L**	Prep Date:		RunNo:	**135484**
Client ID:	**ICSAB**	Batch ID:	**R135484**	TestNo:	**EPA 200.8**			Analysis Date:	**7/30/2019**	SeqNo:	**3463699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.060	0.50	20.00	0	95.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICSA**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICSAB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.543	1.0	20.00	0	103	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICSA**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID: **ICSAB**	Batch ID: **R135484**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.659	1.0	20.00	0	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190730A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	64309.5	64309.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	65067.9	64309.5	101.18	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	63401.7	64309.5	98.59	PASS	70-125
Std3-5/50 ppb	ICAL	1	63515.4	64309.5	98.77	PASS	70-125
Std4-10/100 ppb	ICAL	1	63999.5	64309.5	99.52	PASS	70-125
Std5-20/200 ppb	ICAL	1	62631	64309.5	97.39	PASS	70-125
Std6-40/400 ppb	ICAL	1	61818	64309.5	96.13	PASS	70-125
Std7-100/1000 ppb	ICAL	1	59565.4	64309.5	92.62	PASS	70-125
Std8-200/2000 ppb	ICAL	1	59119.5	64309.5	91.93	PASS	70-125
ICV	ICV	1	56983	64309.5	88.61	PASS	70-125
ICB	ICB	1	51224.4	64309.5	79.65	PASS	70-125
LLICV	CCV1	1	53132.7	64309.5	82.62	PASS	70-125
ICSA1	ICSA	1	54571.8	64309.5	84.86	PASS	70-125
ICSAB1	ICSAB	1	58940.8	64309.5	91.65	PASS	70-125
LLICV	CCV1	1	56374.4	64309.5	87.66	PASS	70-125
MB-74798	MBLK	1	62006.5	64309.5	96.42	PASS	70-125
LCS-74798	LCS	1	66218.2	64309.5	102.97	PASS	70-125
N036722-001A	SAMP	1	58104.8	64309.5	90.35	PASS	70-125
N036722-001A	SAMP	5	60321.3	64309.5	93.8	PASS	70-125
N036722-001A-PS	PS	1	57567.2	64309.5	89.52	PASS	70-125
N036722-001A-MS	MS	1	59293.3	64309.5	92.2	PASS	70-125
N036722-001A-MSD	MSD	1	61102	64309.5	95.012	PASS	70-125
N036723-001A	SAMP	1	60506.5	64309.5	94.086	PASS	70-125
N036646-001A	SAMP	1	59615.5	64309.5	92.7	PASS	70-125
N036696-003C	SAMP	1	59719.2	64309.5	92.86	PASS	70-125
CCV1	CCV	1	65805.5	64309.5	102.33	PASS	70-125
CCB1	CCB	1	62863.7	64309.5	97.75	PASS	70-125
LCS-74798	LCS	1	65178.9	64309.5	101.35	PASS	70-125
N036722-001A	SAMP	1	52682.1	64309.5	81.92	PASS	70-125
N036677-001B	SAMP	1	60339	64309.5	93.83	PASS	70-125
N036677-001B	SAMP	5	61564.8	64309.5	95.73	PASS	70-125
N036677-002B	SAMP	1	58612.9	64309.5	91.14	PASS	70-125
N036677-002B	SAMP	5	62870.9	64309.5	97.76	PASS	70-125
N036722-001A	SAMP	1	60895.9	64309.5	94.69	PASS	70-125
CCV2	CCV	1	67057	64309.5	104.27	PASS	70-125
CCB2	CCB	1	63311.4	64309.5	98.45	PASS	70-125
ICSA2	ICSA	1	60560.2	64309.5	94.17	PASS	70-125
ICSAB2	ICSAB	1	62904	64309.5	97.81	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N036677
Test Method: EPA 200.8
Analysis Date: 7/30/2019

Matrix: Groundwater
Batch No.: 74798

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036722-001A DT 5x	Manganese	Mn	µg/L	37.21226	PASS	35.13309	5.92%	10
N036722-001A DT 5x	Chromium	Cr	µg/L	52.77694	PASS	49.99436	5.57%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N036722-001A-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **135484**
Client ID: **ZZZZZZ** Batch ID: **74798** TestNo: **EPA 200.8** Analysis Date: **7/30/2019** SeqNo: **3463681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	135.662	0.50	100.0	35.13	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	**N036722-001A-PS**	SampType: **PS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **135484**
Client ID:	**ZZZZZZ**	Batch ID: **74798**	TestNo: **EPA 200.8**		Analysis Date: **7/30/2019**	SeqNo: **3463710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	60.741	1.0	10.00	49.99	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R135424
ASSET #: N036677

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 7/25/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 7/29/2019

2nd Level Reviewer: NS 7/29/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N036677-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.4924 * 100$$

$$Cr^{+6}, \mu g/L = 449.2400$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 450}$$

NS 8/25/2019

ANALYSIS RUN LOG

INJECTION LOG: 190702A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:20 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:30 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/02/19 9:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/02/19 9:52 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:03 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:13 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:22 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:32 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:41 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	07/02/19 10:51 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/02/19 11:00 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	07/02/19 11:10 AM	Reported
13	MB-R134865	MBLK	1	Hexavalent Chromium	07/02/19 11:19 AM	Reported
14	LCS-R134865	LCS	1	Hexavalent Chromium	07/02/19 11:28 AM	Reported
15	N036346-001A	SAMP	1	Hexavalent Chromium	07/02/19 11:38 AM	Reported
16	N036348-001A	SAMP	1	Hexavalent Chromium	07/02/19 11:47 AM	Not Reported
17	N036348-002A	SAMP	1	Hexavalent Chromium	07/02/19 11:57 AM	Not Reported
18	N036348-004A	SAMP	1	Hexavalent Chromium	07/02/19 12:06 PM	Not Reported
19	N036349-001A	SAMP	1	Hexavalent Chromium	07/02/19 12:16 PM	Reported
20	N036346-001AMS	MS	1	Hexavalent Chromium	07/02/19 12:25 PM	Reported
21	N036348-001AMS	MS	1	Hexavalent Chromium	07/02/19 12:35 PM	Not Reported
22	N036348-002AMS	MS	1	Hexavalent Chromium	07/02/19 12:44 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	07/02/19 12:54 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	07/02/19 1:03 PM	Reported
25	N036348-004AMS	MS	1	Hexavalent Chromium	07/02/19 1:12 PM	Not Reported
26	N036349-001AMS	MS	1	Hexavalent Chromium	07/02/19 1:22 PM	Not Reported
27	N036346-001AMSD	MSD	1	Hexavalent Chromium	07/02/19 1:33 PM	Reported
28	N036346-001ADUP	DUP	1	Hexavalent Chromium	07/02/19 1:44 PM	Reported
29	N036348-001A	SAMP	5	Hexavalent Chromium	07/02/19 1:54 PM	Reported
30	N036348-001AMS	MS	5	Hexavalent Chromium	07/02/19 2:03 PM	Reported
31	N036348-002A	SAMP	5	Hexavalent Chromium	07/02/19 2:13 PM	Reported
32	N036348-002AMS	MS	5	Hexavalent Chromium	07/02/19 2:22 PM	Reported
33	N036348-004A	SAMP	50	Hexavalent Chromium	07/02/19 2:31 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	07/02/19 2:41 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	07/02/19 2:50 PM	Reported
36	N036349-001AMS	MS	1	Hexavalent Chromium	07/02/19 3:00 PM	Reported
37	N036349-001A	SAMP	5	Hexavalent Chromium	07/02/19 3:09 PM	Not Reported
38	N036349-001AMS	MS	5	Hexavalent Chromium	07/02/19 3:19 PM	Not Reported
39	N036348-004AMS	MS	50	Hexavalent Chromium	07/02/19 3:28 PM	Reported
40	N036308-002A	SAMP	1	Hexavalent Chromium	07/02/19 4:28 PM	Reported
41	N036308-002AMS	MS	1	Hexavalent Chromium	07/02/19 4:39 PM	Reported
42	N036237-002A	SAMP	1	Hexavalent Chromium	07/02/19 4:48 PM	Reported

INJECTION LOG: 190702A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036237-002AMS	MS	1	Hexavalent Chromium	07/02/19 4:57 PM	Reported
44	N036239-002A	SAMP	1	Hexavalent Chromium	07/02/19 5:07 PM	Reported
45	N036239-002AMS	MS	1	Hexavalent Chromium	07/02/19 5:16 PM	Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	07/02/19 5:26 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	07/02/19 5:35 PM	Reported
48	N036306-002A	SAMP	1	Hexavalent Chromium	07/02/19 5:45 PM	Reported
49	N036306-002AMS	MS	1	Hexavalent Chromium	07/02/19 5:54 PM	Reported
50	N036309-002A	SAMP	1	Hexavalent Chromium	07/02/19 6:04 PM	Reported
51	N036309-002AMS	MS	1	Hexavalent Chromium	07/02/19 6:13 PM	Reported
52	N036316-002A	SAMP	1	Hexavalent Chromium	07/02/19 6:23 PM	Reported
53	N036316-002AMS	MS	1	Hexavalent Chromium	07/02/19 6:32 PM	Reported
54	N036318-002A	SAMP	1	Hexavalent Chromium	07/02/19 6:42 PM	Reported
55	N036318-002AMS	MS	1	Hexavalent Chromium	07/02/19 6:51 PM	Reported
56	N036320-002A	SAMP	1	Hexavalent Chromium	07/02/19 7:00 PM	Reported
57	N036320-002AMS	MS	1	Hexavalent Chromium	07/02/19 7:10 PM	Reported
58	CCV-4	CCV	1	Hexavalent Chromium	07/02/19 7:19 PM	Reported
59	CCB-4	CCB	1	Hexavalent Chromium	07/02/19 7:29 PM	Reported
60	N036322-002A	SAMP	1	Hexavalent Chromium	07/02/19 7:38 PM	Reported
61	N036322-002AMS	MS	1	Hexavalent Chromium	07/02/19 7:48 PM	Reported
62	N036324-002A	SAMP	1	Hexavalent Chromium	07/02/19 7:57 PM	Reported
63	N036324-002AMS	MS	1	Hexavalent Chromium	07/02/19 8:07 PM	Reported
64	N036347-002A	SAMP	1	Hexavalent Chromium	07/02/19 8:16 PM	Not Reported
65	N036347-002AMS	MS	1	Hexavalent Chromium	07/02/19 8:26 PM	Not Reported
66	N036348-003A	SAMP	1	Hexavalent Chromium	07/02/19 8:35 PM	Reported
67	N036348-003AMS	MS	1	Hexavalent Chromium	07/02/19 8:45 PM	Reported
N036428	~~N036349~~-002A	SAMP	1	Hexavalent Chromium	07/02/19 8:54 PM	Reported
N036428	~~N036349~~-002AMS	MS	1	Hexavalent Chromium	07/02/19 9:03 PM	Reported
70	CCV-5	CCV1	1	Hexavalent Chromium	07/02/19 9:13 PM	Reported
71	CCB-5	CCB	1	Hexavalent Chromium	07/02/19 9:22 PM	Reported
72	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:32 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190702A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Jul/19 22:02:40**
No. of Injections:	**75**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/02/2019 09:20	Finished	BLANK
2	BLANK	2	1000	Unknown		07/02/2019 09:30	Finished	BLANK
3	iBLANK	3	1000	Unknown		07/02/2019 09:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	07/02/2019 09:52	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	07/02/2019 10:03	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	07/02/2019 10:13	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	07/02/2019 10:22	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	07/02/2019 10:32	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	07/02/2019 10:41	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1,	12	1000	Unknown		07/02/2019 10:51	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	13	1000	Unknown		07/02/2019 11:00	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		07/02/2019 11:10	Finished	ICB R190701B
13	MB-H2O,MBLK,1,	15	1000	Unknown		07/02/2019 11:19	Finished	MB R190617C
14	LCS-H2O,LCS,1,	16	1000	Unknown		07/02/2019 11:28	Finished	LCS @5ppb, IWST-190702B
15	N036346-001A,SAMF	17	1000	Unknown		07/02/2019 11:38	Finished	SAMP, 10mL
16	N036348-001A,SAMF	18	1000	Unknown		07/02/2019 11:47	Finished	SAMP, 10mL
17	N036348-002A,SAMF	19	1000	Unknown		07/02/2019 11:57	Finished	SAMP, 10mL
18	N036348-004A,SAMF	20	1000	Unknown		07/02/2019 12:06	Finished	SAMP, 10mL
19	N036349-001A,SAMF	21	1000	Unknown		07/02/2019 12:16	Finished	SAMP, 10mL
20	N036346-001AMS,MS	22	1000	Unknown		07/02/2019 12:25	Finished	MS (1ppb), IWST-190702B,10
21	N036348-001AMS,MS	23	1000	Unknown		07/02/2019 12:35	Finished	MS (1ppb), IWST-190702B,10
22	N036348-002AMS,MS	24	1000	Unknown		07/02/2019 12:44	Finished	MS (1ppb), IWST-190702B,10
23	CCV-1,CCV1,1,	25	1000	Unknown		07/02/2019 12:54	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	26	1000	Unknown		07/02/2019 13:03	Finished	CCB R190617C
25	N036348-004AMS,MS	27	1000	Unknown		07/02/2019 13:12	Finished	MS (1ppb), IWST-190702B,10
26	N036349-001AMS,MS	28	1000	Unknown		07/02/2019 13:22	Finished	MS (1ppb), IWST-190702B,10
27	N036346-001AMSD,M	30	1000	Unknown		07/02/2019 13:33	Finished	MSD (1ppb), IWST-190702B,1
28	N036346-001ADUP,D	31	1000	Unknown		07/02/2019 13:44	Finished	DUP, 10mL
29	N036348-001A,SAMF	32	1000	Unknown		07/02/2019 13:54	Finished	SAMP, 2>10mL
30	N036348-001AMS,MS	33	1000	Unknown		07/02/2019 14:03	Finished	MS (1ppb), IWST-190702B,2>1
31	N036348-002A,SAMF	34	1000	Unknown		07/02/2019 14:13	Finished	SAMP, 2>10mL
32	N036348-002AMS,MS	35	1000	Unknown		07/02/2019 14:22	Finished	MS (1ppb), IWST-190702B,2>1
33	N036348-004A,SAMF	36	1000	Unknown		07/02/2019 14:31	Finished	SAMP, 0.2>10mL
34	CCV-2,CCV,1,	37	1000	Unknown		07/02/2019 14:41	Finished	CCV @5ppb, IWST-190702A
35	CCB-2,CCB,1,	38	1000	Unknown		07/02/2019 14:50	Finished	CCB R190617C
36	N036349-001AMS,MS	39	1000	Unknown		07/02/2019 15:00	Finished	MS (1ppb), IWST-190702B,10
37	N036349-001A,SAMF	40	1000	Unknown		07/02/2019 15:09	Finished	SAMP, 2>10mL
38	N036349-001AMS,MS	41	1000	Unknown		07/02/2019 15:19	Finished	MS (1ppb), IWST-190702B,2>1
39	N036348-004AMS,MS	42	1000	Unknown		07/02/2019 15:28	Finished	MS (5ppb), IWST-190702B,0.2
40	N036308-002A,SAMF	1	1000	Unknown		07/02/2019 16:28	Finished	SAMP, 10mL
41	N036308-002AMS,MS	2	1000	Unknown		07/02/2019 16:39	Finished	MS (1ppb), IWST-190702B,10
42	N036237-002A,SAMF	3	1000	Unknown		07/02/2019 16:48	Finished	SAMP, 10mL
43	N036237-002AMS,MS	4	1000	Unknown		07/02/2019 16:57	Finished	MS (1ppb), IWST-190702B,10
44	N036239-002A,SAMF	5	1000	Unknown		07/02/2019 17:07	Finished	SAMP, 10mL
45	N036239-002AMS,MS	6	1000	Unknown		07/02/2019 17:16	Finished	MS (1ppb), IWST-190702B,10
46	CCV-3,CCV1,1,	7	1000	Unknown		07/02/2019 17:26	Finished	CCV @10ppb, IWST-190702A
47	CCB-3,CCB,1,	8	1000	Unknown		07/02/2019 17:35	Finished	CCB R190617C
48	N036306-002A,SAMF	9	1000	Unknown		07/02/2019 17:45	Finished	SAMP, 10mL
49	N036306-002AMS,MS	10	1000	Unknown		07/02/2019 17:54	Finished	MS (1ppb), IWST-190702B,10
50	N036309-002A,SAMF	11	1000	Unknown		07/02/2019 18:04	Finished	SAMP, 10mL
51	N036309-002AMS,MS	12	1000	Unknown		07/02/2019 18:13	Finished	MS (1ppb), IWST-190702B,10
52	N036316-002A,SAMF	13	1000	Unknown		07/02/2019 18:23	Finished	SAMP, 10mL
53	N036316-002AMS,MS	14	1000	Unknown		07/02/2019 18:32	Finished	MS (1ppb), IWST-190702B,10
54	N036318-002A,SAMF	15	1000	Unknown		07/02/2019 18:42	Finished	SAMP, 10mL
55	N036318-002AMS,MS	16	1000	Unknown		07/02/2019 18:51	Finished	MS (1ppb), IWST-190702B,10
56	N036320-002A,SAMF	17	1000	Unknown		07/02/2019 19:00	Finished	SAMP, 10mL
57	N036320-002AMS,MS	18	1000	Unknown		07/02/2019 19:10	Finished	MS (1ppb), IWST-190702B,10
58	CCV-4,CCV,1,	19	1000	Unknown		07/02/2019 19:19	Finished	CCV @5ppb, IWST-190702A
59	CCB-4,CCB,1,	20	1000	Unknown		07/02/2019 19:29	Finished	CCB R190617C
60	N036322-002A,SAMF	21	1000	Unknown		07/02/2019 19:38	Finished	SAMP, 10mL

61	N036322-002AMS,MS	22	1000	Unknown		07/02/2019 19:48	Finished	MS (1ppb), IWST-190702B,10
62	N036324-002A,SAMP	23	1000	Unknown		07/02/2019 19:57	Finished	SAMP, 10mL
63	N036324-002AMS,MS	24	1000	Unknown		07/02/2019 20:07	Finished	MS (1ppb), IWST-190702B,10
64	N036347-002A,SAMP	25	1000	Unknown		07/02/2019 20:16	Finished	SAMP, 10mL
65	N036347-002AMS,MS	26	1000	Unknown		07/02/2019 20:26	Finished	MS (1ppb), IWST-190702B,10
66	N036348-003A,SAMP	27	1000	Unknown		07/02/2019 20:35	Finished	SAMP, 10mL
67	N036348-003AMS,MS	28	1000	Unknown		07/02/2019 20:45	Finished	MS (1ppb), IWST-190702B,10
N036428 68	~~N036349~~ 002A,SAMP	29	1000	Unknown		07/02/2019 20:54	Finished	SAMP, 10mL
N036428 69	~~N036349~~-002AMS,MS	30	1000	Unknown		07/02/2019 21:03	Finished	MS (1ppb), IWST-190702B,10
70	CCV-5,CCV1,1,	31	1000	Unknown		07/02/2019 21:13	Finished	CCV @10ppb, IWST-190702A
71	CCB-5,CCB,1,	32	1000	Unknown		07/02/2019 21:22	Finished	CCB R190508A
72	BLANK	33	1000	Unknown		07/02/2019 21:32	Finished	BLANK
73	SHUTDOWN	34	1000	Unknown		07/02/2019 21:41	Finished	
74	Eluent: R190701A	35	1000	Unknown		n.a.	Finished	Eluent
75	PCR: R190702A	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190725A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:20 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:30 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/02/19 9:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/02/19 9:52 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:03 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:13 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:22 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:32 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:41 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	07/25/19 7:25 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	07/25/19 7:36 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/25/19 7:45 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	07/25/19 7:55 AM	Reported
14	MB-R135424	MBLK	1	Hexavalent Chromium	07/25/19 8:04 AM	Reported
15	LCS-R135424	LCS	1	Hexavalent Chromium	07/25/19 8:13 AM	Reported
16	N036669-003AMS	MS	400	Hexavalent Chromium	07/25/19 8:36 AM	Not Reported
17	N036669-004AMS	MS	400	Hexavalent Chromium	07/25/19 8:47 AM	Not Reported
18	N036669-003AMS	MS	800	Hexavalent Chromium	07/25/19 9:01 AM	Not Reported
19	N036669-003AMS	MS	1600	Hexavalent Chromium	07/25/19 9:13 AM	Not Reported
20	N036669-004AMS	MS	800	Hexavalent Chromium	07/25/19 9:22 AM	Not Reported
21	N036669-003AMS	MS	3125	Hexavalent Chromium	07/25/19 9:38 AM	Reported
22	N036669-003A	SAMP	3125	Hexavalent Chromium	07/25/19 9:49 AM	Reported
23	N036669-004A	SAMP	800	Hexavalent Chromium	07/25/19 9:59 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	07/25/19 10:08 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	07/25/19 10:18 AM	Reported
26	N036669-003AREP	DUP	3125	Hexavalent Chromium	07/25/19 10:27 AM	Reported
27	N036669-004AREP	DUP	800	Hexavalent Chromium	07/25/19 10:36 AM	Not Reported
28	N036669-004A	SAMP	400	Hexavalent Chromium	07/25/19 10:46 AM	Not Reported
29	N036669-003A	SAMP	800	Hexavalent Chromium	07/25/19 10:55 AM	Not Reported
30	N036669-003A	SAMP	1600	Hexavalent Chromium	07/25/19 11:05 AM	Not Reported
31	N036669-003AREP	DUP	800	Hexavalent Chromium	07/25/19 11:14 AM	Not Reported
32	N036669-003AREP	DUP	1600	Hexavalent Chromium	07/25/19 11:24 AM	Not Reported
33	N036669-003A	SAMP	400	Hexavalent Chromium	07/25/19 11:33 AM	Not Reported
34	N036679-001A	SAMP	20	Hexavalent Chromium	07/25/19 11:43 AM	Not Reported
35	N036679-002A	SAMP	1	Hexavalent Chromium	07/25/19 11:52 AM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	07/25/19 12:02 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	07/25/19 12:11 PM	Reported
38	N036679-003A	SAMP	1	Hexavalent Chromium	07/25/19 12:21 PM	Reported
39	N036676-001A	SAMP	1	Hexavalent Chromium	07/25/19 12:30 PM	Not Reported
40	N036676-002A	SAMP	1	Hexavalent Chromium	07/25/19 12:39 PM	Reported
41	N036679-001A	SAMP	5	Hexavalent Chromium	07/25/19 12:49 PM	Reported
42	N036679-001AMS	MS	5	Hexavalent Chromium	07/25/19 12:58 PM	Reported

INJECTION LOG: 190725A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036679-001AMSD	MSD	5	Hexavalent Chromium	07/25/19 1:08 PM	Reported
44	N036679-002AMS	MS	1	Hexavalent Chromium	07/25/19 1:17 PM	Reported
45	N036679-003AMS	MS	1	Hexavalent Chromium	07/25/19 1:27 PM	Reported
46	N036676-001AMS	MS	1	Hexavalent Chromium	07/25/19 1:36 PM	Not Reported
47	N036676-002AMS	MS	1	Hexavalent Chromium	07/25/19 1:46 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	07/25/19 1:55 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	07/25/19 2:05 PM	Reported
50	N036655-014A	SAMP	1	Hexavalent Chromium	07/25/19 2:14 PM	Reported
51	N036655-017A	SAMP	1	Hexavalent Chromium	07/25/19 2:24 PM	Reported
52	N036655-018A	SAMP	1	Hexavalent Chromium	07/25/19 2:33 PM	Reported
53	N036655-019A	SAMP	1	Hexavalent Chromium	07/25/19 2:42 PM	Reported
54	N036655-020A	SAMP	1	Hexavalent Chromium	07/25/19 2:52 PM	Reported
55	N036655-021A	SAMP	50	Hexavalent Chromium	07/25/19 3:01 PM	Reported
56	N036655-022A	SAMP	1	Hexavalent Chromium	07/25/19 3:11 PM	Reported
57	N036655-023A	SAMP	1	Hexavalent Chromium	07/25/19 3:20 PM	Reported
58	N036676-001A	SAMP	5	Hexavalent Chromium	07/25/19 3:30 PM	Reported
59	N036676-001AMS	MS	5	Hexavalent Chromium	07/25/19 3:39 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	07/25/19 3:49 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	07/25/19 3:58 PM	Reported
62	N036655-017ADUP	DUP	1	Hexavalent Chromium	07/25/19 4:08 PM	Reported
63	N036677-001A	SAMP	1	Hexavalent Chromium	07/25/19 4:17 PM	Reported
64	N036677-001AMS	MS	1	Hexavalent Chromium	07/25/19 4:27 PM	Reported
65	N036677-002A	SAMP	100	Hexavalent Chromium	07/25/19 4:36 PM	Reported
66	N036677-002AMS	MS	100	Hexavalent Chromium	07/25/19 4:45 PM	Reported
67	N036670-001A	SAMP	5	Hexavalent Chromium	07/25/19 4:55 PM	Reported
68	N036670-002A	SAMP	20	Hexavalent Chromium	07/25/19 5:04 PM	Not Reported
69	N036670-003A	SAMP	1	Hexavalent Chromium	07/25/19 5:14 PM	Reported
70	LCS-R135425	LCS	1	Hexavalent Chromium	07/25/19 5:26 PM	Reported
71	MB-R135425	MBLK	1	Hexavalent Chromium	07/25/19 5:37 PM	Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	07/25/19 5:46 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	07/25/19 5:56 PM	Reported
74	N036671-014A	SAMP	1	Hexavalent Chromium	07/25/19 6:05 PM	Reported
75	N036671-009A	SAMP	100	Hexavalent Chromium	07/25/19 6:15 PM	Reported
76	N036671-002A	SAMP	1	Hexavalent Chromium	07/25/19 6:24 PM	Reported
77	N036671-014AMS	MS	1	Hexavalent Chromium	07/25/19 6:56 PM	Reported
78	N036671-014AMSD	MSD	1	Hexavalent Chromium	07/25/19 7:07 PM	Reported
79	N036671-009AMS	MS	100	Hexavalent Chromium	07/25/19 7:17 PM	Reported
80	N036671-002ADUP	DUP	1	Hexavalent Chromium	07/25/19 7:26 PM	Reported
81	N036671-001A	SAMP	1	Hexavalent Chromium	07/25/19 7:35 PM	Reported
82	N036671-003A	SAMP	1	Hexavalent Chromium	07/25/19 7:45 PM	Reported
83	N036670-002A	SAMP	50	Hexavalent Chromium	07/25/19 7:54 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	07/25/19 8:04 PM	Reported

INJECTION LOG: 190725A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	07/25/19 8:13 PM	Reported
86	N036671-004A	SAMP	1	Hexavalent Chromium	07/25/19 8:23 PM	Reported
87	N036671-005A	SAMP	1	Hexavalent Chromium	07/25/19 8:32 PM	Reported
88	N036671-006A	SAMP	1	Hexavalent Chromium	07/25/19 8:42 PM	Not Reported
89	N036671-007A	SAMP	10	Hexavalent Chromium	07/25/19 8:51 PM	Not Reported
90	N036671-008A	SAMP	1	Hexavalent Chromium	07/25/19 9:01 PM	Reported
91	N036671-010A	SAMP	1	Hexavalent Chromium	07/25/19 9:10 PM	Reported
92	N036671-011A	SAMP	1	Hexavalent Chromium	07/25/19 9:20 PM	Reported
93	N036671-012A	SAMP	1	Hexavalent Chromium	07/25/19 9:29 PM	Reported
94	N036671-013A	SAMP	1	Hexavalent Chromium	07/25/19 9:38 PM	Reported
95	N036671-015A	SAMP	1	Hexavalent Chromium	07/25/19 9:48 PM	Reported
96	CCV-8	CCV1	1	Hexavalent Chromium	07/25/19 9:57 PM	Reported
97	CCB-8	CCB	1	Hexavalent Chromium	07/25/19 10:07 PM	Reported
98	N036448-002A	SAMP	1	Hexavalent Chromium	07/25/19 10:16 PM	Not Reported
99	N036448-002AMS	MS	1	Hexavalent Chromium	07/25/19 10:26 PM	Not Reported
100	N036448-003A	SAMP	1	Hexavalent Chromium	07/25/19 10:35 PM	Not Reported
101	N036448-003AMS	MS	1	Hexavalent Chromium	07/25/19 10:45 PM	Not Reported
102	N036448-004A	SAMP	1	Hexavalent Chromium	07/25/19 10:54 PM	Not Reported
103	N036448-004AMS	MS	1	Hexavalent Chromium	07/25/19 11:04 PM	Not Reported
104	N036448-005A	SAMP	1	Hexavalent Chromium	07/25/19 11:13 PM	Not Reported
105	N036448-005AMS	MS	1	Hexavalent Chromium	07/25/19 11:23 PM	Not Reported
106	N036448-008A	SAMP	1	Hexavalent Chromium	07/25/19 11:32 PM	Not Reported
107	N036448-008AMS	MS	1	Hexavalent Chromium	07/25/19 11:41 PM	Not Reported
108	CCV-9	CCV	1	Hexavalent Chromium	07/25/19 11:51 PM	Reported
109	CCB-9	CCB	1	Hexavalent Chromium	07/26/19 12:00 AM	Reported
110	BLANK	BLANK	1	Hexavalent Chromium	07/26/19 12:10 AM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190725A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**26/Jul/19 07:25:28**
No. of Injections:	**113**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/02/2019 09:20	Finished	BLANK
2	BLANK	2	1000	Unknown		07/02/2019 09:30	Finished	BLANK
3	iBLANK	3	1000	Unknown		07/02/2019 09:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	07/02/2019 09:52	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	07/02/2019 10:03	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	07/02/2019 10:13	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	07/02/2019 10:22	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	07/02/2019 10:32	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	07/02/2019 10:41	Finished	20 ppb, IWST-190702A
10	BLANK	1	1000	Unknown		07/25/2019 07:25	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		07/25/2019 07:36	Finished	CCV @5ppb, IWST-190702A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		07/25/2019 07:45	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		07/25/2019 07:55	Finished	CCB R190701B
14	MB-H2O,MBLK,1,	5	1000	Unknown		07/25/2019 08:04	Finished	MB R190701B
15	LCS-H2O,LCS,1,	6	1000	Unknown		07/25/2019 08:13	Finished	LCS @5ppb, IWST-190702B
16	N036669-003AMS,MS	1	1000	Unknown		07/25/2019 08:36	Finished	MS (1ppb), IWST-190702B,0.0
17	N036669-004AMS,MS	2	1000	Unknown		07/25/2019 08:47	Finished	MS (1ppb), IWST-190702B,0.0
18	N036669-003AMS,MS	4	1000	Unknown		07/25/2019 09:01	Finished	MS (1ppb), IWST-190702B,0.0
19	N036669-003AMS,MS	5	1000	Unknown		07/25/2019 09:13	Finished	MS (1ppb), IWST-190702B,0.0
20	N036669-004AMS,MS	6	1000	Unknown		07/25/2019 09:22	Finished	MS (1ppb), IWST-190702B,0.0
21	N036669-003AMS,MS	1	1000	Unknown		07/25/2019 09:38	Finished	MS (1ppb), IWST-190702B,0.0
22	N036669-003A,SAMP	2	1000	Unknown		07/25/2019 09:49	Finished	SAMP,0.0032>10mL
23	N036669-004A,SAMP	3	1000	Unknown		07/25/2019 09:59	Finished	SAMP,0.0125>10mL
24	CCV-2,CCV1,1,	4	1000	Blank		07/25/2019 10:08	Finished	CCV @10ppb, IWST-190702A
25	CCB-2,CCB,1,	5	1000	Unknown		07/25/2019 10:18	Finished	CCB R190701B
26	N036669-003AREP,D	6	1000	Unknown		07/25/2019 10:27	Finished	REP,0.0032>10mL
27	N036669-004AREP,D	7	1000	Unknown		07/25/2019 10:36	Finished	REP,0.0125>10mL
28	N036669-004A,SAMP	8	1000	Unknown		07/25/2019 10:46	Finished	REP,0.025>10mL
29	N036669-003A,SAMP	9	1000	Unknown		07/25/2019 10:55	Finished	SAMP,0.0125>10mL
30	N036669-003A,SAMP	10	1000	Unknown		07/25/2019 11:05	Finished	SAMP,0.00625>10mL
31	N036669-003AREP,D	11	1000	Unknown		07/25/2019 11:14	Finished	REP,0.0125>10mL
32	N036669-003AREP,D	12	1000	Unknown		07/25/2019 11:24	Finished	REP,0.00625>10mL
33	N036669-003A,SAMP	13	1000	Unknown		07/25/2019 11:33	Finished	REP,0.025>10mL
34	N036679-001A,SAMP	14	1000	Unknown		07/25/2019 11:43	Finished	SAMP, 0.5>10mL
35	N036679-002A,SAMP	15	1000	Unknown		07/25/2019 11:52	Finished	MS (1ppb), IWST-190702B,2>1
36	CCV-3,CCV,1,	16	1000	Unknown		07/25/2019 12:02	Finished	CCV @5ppb, IWST-190702A
37	CCB-3,CCB,1,	17	1000	Unknown		07/25/2019 12:11	Finished	CCB R190701B
38	N036679-003A,SAMP	18	1000	Unknown		07/25/2019 12:21	Finished	SAMP, 10mL
39	N036676-001A,SAMP	19	1000	Unknown		07/25/2019 12:30	Finished	SAMP, 10mL
40	N036676-002A,SAMP	20	1000	Unknown		07/25/2019 12:39	Finished	SAMP, 10mL
41	N036679-001A,SAMP	21	1000	Unknown		07/25/2019 12:49	Finished	SAMP,2> 10mL
42	N036679-001AMS,MS	22	1000	Unknown		07/25/2019 12:58	Finished	MS (5ppb), IWST-190702B,2>1
43	N036679-001AMSD,M	23	1000	Unknown		07/25/2019 13:08	Finished	MSD (5ppb), IWST-190702B,2>
44	N036679-002AMS,MS	24	1000	Unknown		07/25/2019 13:17	Finished	MS (1ppb), IWST-190702B,10
45	N036679-003AMS,MS	25	1000	Unknown		07/25/2019 13:27	Finished	MS (1ppb), IWST-190702B,10
46	N036676-001AMS,MS	26	1000	Unknown		07/25/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
47	N036676-002AMS,MS	27	1000	Unknown		07/25/2019 13:46	Finished	MS (1ppb), IWST-190702B,10
48	CCV-4,CCV1,1,	28	1000	Unknown		07/25/2019 13:55	Finished	CCV @10ppb, IWST-190702A
49	CCB-4,CCB,1,	29	1000	Unknown		07/25/2019 14:05	Finished	CCB R190701B
50	N036655-014A,SAMP	31	1000	Unknown		07/25/2019 14:14	Finished	SAMP,10mL
51	N036655-017A,SAMP	32	1000	Unknown		07/25/2019 14:24	Finished	SAMP,10mL
52	N036655-018A,SAMP	33	1000	Unknown		07/25/2019 14:33	Finished	SAMP,10mL
53	N036655-019A,SAMP	34	1000	Unknown		07/25/2019 14:42	Finished	SAMP,10mL
54	N036655-020A,SAMP	35	1000	Unknown		07/25/2019 14:52	Finished	SAMP,10mL
55	N036655-021A,SAMP	36	1000	Unknown		07/25/2019 15:01	Finished	SAMP, 0.2>10mL
56	N036655-022A,SAMP	37	1000	Unknown		07/25/2019 15:11	Finished	SAMP,10mL
57	N036655-023A,SAMP	38	1000	Unknown		07/25/2019 15:20	Finished	SAMP,10mL
58	N036676-001A,SAMP	39	1000	Unknown		07/25/2019 15:30	Finished	SAMP,2> 10mL
59	N036676-001AMS,MS	40	1000	Unknown		07/25/2019 15:39	Finished	MS (1ppb), IWST-190702B,2>1
60	CCV-5,CCV,1,	41	1000	Unknown		07/25/2019 15:49	Finished	CCV @5ppb, IWST-190702A

61	CCB-5,CCB,1,	42	1000	Unknown		07/25/2019 15:58	Finished	CCB R190701B
62	N036655-017ADUP,D	43	1000	Unknown		07/25/2019 16:08	Finished	DUP,10mL
63	N036677-001A,SAMF	44	1000	Unknown		07/25/2019 16:17	Finished	SAMP,10mL
64	N036677-001AMS,MS	45	1000	Unknown		07/25/2019 16:27	Finished	MS (1ppb), IWST-190702B,10
65	N036677-002A,SAMF	46	1000	Unknown		07/25/2019 16:36	Finished	SAMP,0.1>10mL
66	N036677-002AMS,MS	47	1000	Unknown		07/25/2019 16:45	Finished	MS (5ppb), IWST-190702B,0.1
67	N036670-001A,SAMF	48	1000	Unknown		07/25/2019 16:55	Finished	SAMP,2>10mL
68	N036670-002A,SAMF	49	1000	Unknown		07/25/2019 17:04	Finished	SAMP,0.5>10mL
69	N036670-003A,SAMF	50	1000	Unknown		07/25/2019 17:14	Finished	SAMP, 10mL
70	LCS-2,LCS,1,	1	1000	Unknown		07/25/2019 17:26	Finished	LCS @5ppb, IWST-190702B
71	MB-2,MBLK,1,	2	1000	Unknown		07/25/2019 17:37	Finished	MB R190701B
72	CCV-6,CCV1,1,	3	1000	Unknown		07/25/2019 17:46	Finished	CCV @10ppb, IWST-190702A
73	CCB-6,CCB,1,	4	1000	Unknown		07/25/2019 17:56	Finished	CCB R190701B
74	N036671-014A,SAMF	5	1000	Unknown		07/25/2019 18:05	Finished	SAMP, 10mL
75	N036671-009A,SAMF	6	1000	Unknown		07/25/2019 18:15	Finished	SAMP,0.1> 10mL
76	N036671-002A,SAMF	7	1000	Unknown		07/25/2019 18:24	Finished	SAMP, 10mL
77	N036671-014AMS,MS	8	1000	Unknown		07/25/2019 18:56	Finished	MS (1ppb), IWST-190702B,10
78	N036671-014AMSD,M	9	1000	Unknown		07/25/2019 19:07	Finished	MSD (1ppb), IWST-190702B,10
79	N036671-009AMS,MS	10	1000	Unknown		07/25/2019 19:17	Finished	MS (5ppb), IWST-190702B,0.1
80	N036671-002ADUP,D	11	1000	Unknown		07/25/2019 19:26	Finished	SAMP, 10mL
81	N036671-001A,SAMF	12	1000	Unknown		07/25/2019 19:35	Finished	SAMP, 10mL
82	N036671-003A,SAMF	13	1000	Unknown		07/25/2019 19:45	Finished	SAMP, 10mL
83	N036670-002A,SAMF	14	1000	Unknown		07/25/2019 19:54	Finished	SAMP, 0.2>10mL
84	CCV-7,CCV,1,	15	1000	Unknown		07/25/2019 20:04	Finished	CCV @5ppb, IWST-190702A
85	CCB-7,CCB,1,	16	1000	Unknown		07/25/2019 20:13	Finished	CCB R190701B
86	N036671-004A,SAMF	17	1000	Unknown		07/25/2019 20:23	Finished	SAMP, 10mL
87	N036671-005A,SAMF	18	1000	Unknown		07/25/2019 20:32	Finished	SAMP, 10mL
88	N036671-006A,SAMF	19	1000	Unknown		07/25/2019 20:42	Finished	SAMP, 10mL
89	N036671-007A,SAMF	20	1000	Unknown		07/25/2019 20:51	Finished	SAMP, 1>10mL
90	N036671-008A,SAMF	21	1000	Unknown		07/25/2019 21:01	Finished	SAMP, 10mL
91	N036671-010A,SAMF	22	1000	Unknown		07/25/2019 21:10	Finished	SAMP, 10mL
92	N036671-011A,SAMF	23	1000	Unknown		07/25/2019 21:20	Finished	SAMP, 10mL
93	N036671-012A,SAMF	24	1000	Unknown		07/25/2019 21:29	Finished	SAMP, 10mL
94	N036671-013A,SAMF	25	1000	Unknown		07/25/2019 21:38	Finished	SAMP, 10mL
95	N036671-015A,SAMF	26	1000	Unknown		07/25/2019 21:48	Finished	SAMP, 10mL
96	CCV-8,CCV1,1,	27	1000	Unknown		07/25/2019 21:57	Finished	CCV @10ppb, IWST-190702A
97	CCB-8,CCB,1,	28	1000	Unknown		07/25/2019 22:07	Finished	CCB R190701B
98	N036448-002A,SAMF	29	1000	Unknown		07/25/2019 22:16	Finished	SAMP, 10mL
99	N036448-002AMS,MS	30	1000	Unknown		07/25/2019 22:26	Finished	MS (5ppb), IWST-190702B,10
100	N036448-003A,SAMF	31	1000	Unknown		07/25/2019 22:35	Finished	SAMP, 10mL
101	N036448-003AMS,MS	32	1000	Unknown		07/25/2019 22:45	Finished	MS (5ppb), IWST-190702B,10
102	N036448-004A,SAMF	33	1000	Unknown		07/25/2019 22:54	Finished	SAMP, 10mL
103	N036448-004AMS,MS	34	1000	Unknown		07/25/2019 23:04	Finished	MS (5ppb), IWST-190702B,10
104	N036448-005A,SAMF	35	1000	Unknown		07/25/2019 23:13	Finished	SAMP, 10mL
105	N036448-005AMS,MS	36	1000	Unknown		07/25/2019 23:23	Finished	MS (5ppb), IWST-190702B,10
106	N036448-008A,SAMF	37	1000	Unknown		07/25/2019 23:32	Finished	SAMP, 10mL
107	N036448-008AMS,MS	38	1000	Unknown		07/25/2019 23:41	Finished	MS (5ppb), IWST-190702B,10
108	CCV-9,CCV,1,	39	1000	Unknown		07/25/2019 23:51	Finished	CCV @5ppb, IWST-190702A
109	CCB-9,CCB,1,	40	1000	Unknown		07/26/2019 00:00	Finished	CCB R190701B
110	BLANK	41	1000	Unknown		07/26/2019 00:10	Finished	CCB R190701B
111	SHUTDOWN	42	1000	Unknown		07/26/2019 00:19	Finished	
112	Eluent: R190725A	43	1000	Unknown		n.a.	Finished	Eluent
113	PCR: R190725B	44	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 7/24/19
Time Prepared: 1041
Prepared By: FL

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV 190329A
NH4OH + NH4SO4 eluent: R190722A 24A
NH4OH + NH4SO4 buffer: ~~R190723B~~ R190701B
GN NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036653-1A	9.44	~~200~~	200 ml	200 ml	—	
2)	2	9.45	—			—	
3)	3	9.46	—			—	
4)	4	9.48	—			—	
5)	N036655-22A	9.48	—			—	
6)	N036652-00A	9.34	—			—	
7)	L9A	9.24	9.33			+1 drp NaOH	
8)	N036654-8A	9.22	9.33			+1	
9)	9	9.14	9.31			+3	
10)	10	9.01	9.35			+7	
11)	11	9.01	9.33			+6	
12)	N036655 1A	9.14	9.40			+4	
13)	2	9.21	9.30			+1	
14)	21	9.09	9.37			+4	
15)	23	9.53	—			—	

Sample Preparation

Date Prepared: 7/25/19
Time Prepared: 945
Prepared By: FL

SLOPE 973
4 : 401
7 : 7.00
10 : 10.01

Reagent ID:
Sulfuric Acid: 11235, 190329A
Diphenylcarbazide: CINV
NH4OH + NH4SO4 eluent: R190722A ~~24A~~ ~~25A~~ 1907 24A
NH4OH + NH4SO4 buffer: ~~R190723B~~ R190701B
GN NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036679-1A	9.20	9.38			+2 drop NaOH	
2)	2A	9.27	9.40			+1	
3)	3A ~~3 FL~~	9.28	9.33			~~+1~~ drp NaOH	
4)	~~N036669-12A FL~~					—	
5)	~~13A FL~~		FL			—	
6)	N036670-1A	8.99	9.31			+6 drop NaOH	
7)	2A	9.2	9.42			+3 drop NaOH	
8)	~~N036671~~ N036671-1A	9.27	9.31			+1	
9)	2A	9.10	9.32			+4	
10)	3A	9.13	9.36			+3	
11)	10A	8.86	9.33			+7	
12)	N036677-00A	8.94	9.46			+6	
13)	N036676-1A	9.12	9.41			+ 4 drps NaOH	
14)	2A	9.42	—			—	
15)	N036671-4A	9.06	9.44			+6 drops NaOH	
	5A	9.11	9.31			+3	

Logbook No. 16

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 7/25/19
Time Prepared: 945
Prepared By: FL

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: 9NV 190329A
NH4OH + NH4SO4 eluent: ~~R190723A~~ 25A
NH4OH + NH4SO4 buffer: R190701B

GN NaOH: R190722A
R190724A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036671-6A	9.12	9.35	200 mL	200 mL	+4 drops NaOH	
2)	7	8.96	9.32			+6	
3)	8	9.03	9.31			+6	
4)	9	9.03	9.43			+7	
5)	11	8.82	9.36			+9	
6)	12	8.78	9.39			+9	
7)	13	8.81	9.35			+7	
8)	14	8.75	9.32			+8	
9)	N036677-2A	8.86	9.33			+7	
10)	N036671-15A	8.86	9.35			+6	
11)	16	9.05	9.33			+5	
12)	17	8.95	9.31			+6	
13)	18	9.15	9.36			+3	
14)	19	9.39	—			—	
15)	20	9.36	—			—	
	N036670-3A	9.37	—			—	

Sample Preparation

Date Prepared: 7/29/19
Time Prepared: 0945 / 0958
Prepared By: FL

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: 9NV 190329A
NH4OH + NH4SO4 eluent: ~~R190723A~~ 25A
NH4OH + NH4SO4 buffer: R190701B

GN NaOH: R190722A
R190724A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036678-10A	9.34	—	200 mL	200 mL	—	
2)	11A	9.34	—			—	
3)	4	9.05	9.33			+4 drops NaOH	
4)	5	8.88	9.43			+7	
5)	6	9.18	9.42			+3	
6)	7	8.93	9.34			+5	
7)	8	8.24	9.39			+10	
8)	9	9.14	9.34			+3	
9)	N036669-007A	2.41	9.38			+ 0.2 mL R190701B / 10 mL C3125A	
10)	4A	3.				- HOLD	
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 7/2/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0523	0.2511	1.2567	2.4980	3.7475	4.9080	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ICV**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/2/2019**	SeqNo: **3460595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.022	0.20	5.000	0	100	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/2/2019**	SeqNo: **3460596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.197	0.20	0.2000	0	98.2	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCV**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.079	0.20	5.000	0	102	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.218	0.20	0.2000	0	109	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460605**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.152	0.20	10.00	0	102	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCV**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.114	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.221	0.20	10.00	0	102	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCV**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.124	0.20	5.000	0	102	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ZZZZZZ**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.222	0.20	10.00	0	102	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **ICB**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/2/2019**	SeqNo: **3460597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCB**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460600**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCB**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCB**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCB**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCB**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135424**
Client ID: **CCB**	Batch ID: **R135424**	TestNo: **EPA 218.6**		Analysis Date: **7/25/2019**	SeqNo: **3460641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.723	
CCV-1	4.706	
CCV-2	4.698	
CCV-3	4.706	
CCV-4	4.706	
CCV-5	4.690	
CCV-6	4.706	
CCV-7	4.698	
CCV-8	4.706	
CCV-9	4.706	

Average	4.702
Actual RT Window	4.622 - 4.782
Applied RT Window	4.502 - 4.902

MB-R135424	N.A.	N.A.
LCS-R135424	4.706	PASS
N036669-003AMS	N.A.	N.A.
N036669-004AMS	4.706	PASS
N036669-003AMS	4.698	PASS
N036669-003AMS	4.715	PASS
N036669-004AMS	4.706	PASS
N036669-003AMS	4.706	PASS
N036669-003A	N.A.	N.A.
N036669-004A	N.A.	N.A.
N036669-003AREP	N.A.	N.A.
N036669-004AREP	N.A.	N.A.
N036669-004A	N.A.	N.A.
N036669-003A	N.A.	N.A.
N036669-003A	N.A.	N.A.
N036669-003AREP	N.A.	N.A.
N036669-003AREP	N.A.	N.A.
N036669-003A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.723	
CCV-1	4.706	
CCV-2	4.698	
CCV-3	4.706	
CCV-4	4.706	
CCV-5	4.690	
CCV-6	4.706	
CCV-7	4.698	
CCV-8	4.706	
CCV-9	4.706	
Average	4.702	
Actual RT Window	4.622 - 4.782	
Applied RT Window	4.502 - 4.902	
N036679-001A	4.706	PASS
N036679-002A	4.590	PASS
N036679-003A	4.598	PASS
N036676-001A	N.A.	N.A.
N036676-002A	N.A.	N.A.
N036679-001A	4.698	PASS
N036679-001AMS	4.673	PASS
N036679-001AMSD	4.698	PASS
N036679-002AMS	4.598	PASS
N036679-003AMS	4.598	PASS
N036676-001AMS	4.506	PASS
N036676-002AMS	4.706	PASS
N036655-014A	4.698	PASS
N036655-017A	4.698	PASS
N036655-018A	N.A.	N.A.
N036655-019A	N.A.	N.A.
N036655-020A	N.A.	N.A.
N036655-021A	4.706	PASS
N036655-022A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.723	
CCV-1	4.706	
CCV-2	4.698	
CCV-3	4.706	
CCV-4	4.706	
CCV-5	4.690	
CCV-6	4.706	
CCV-7	4.698	
CCV-8	4.706	
CCV-9	4.706	
Average	4.702	
Actual RT Window	4.622 - 4.782	
Applied RT Window	4.502 - 4.902	
N036655-023A	N.A.	N.A.
N036676-001A	N.A.	N.A.
N036676-001AMS	4.665	PASS
N036655-017ADUP	4.698	PASS
N036677-001A	N.A.	N.A.
N036677-001AMS	4.665	PASS
N036677-002A	4.706	PASS
N036677-002AMS	4.706	PASS
N036670-001A	4.706	PASS
N036670-002A	4.706	PASS
N036670-003A	N.A.	N.A.
LCS-R135425	4.706	PASS
MB-R135425	N.A.	N.A.
N036671-014A	4.698	PASS
N036671-009A	4.706	PASS
N036671-002A	4.681	PASS
N036671-014AMS	4.698	PASS
N036671-014AMSD	4.698	PASS
N036671-009AMS	4.706	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.723	
CCV-1	4.706	
CCV-2	4.698	
CCV-3	4.706	
CCV-4	4.706	
CCV-5	4.690	
CCV-6	4.706	
CCV-7	4.698	
CCV-8	4.706	
CCV-9	4.706	
Average	4.702	
Actual RT Window	4.622 - 4.782	
Applied RT Window	4.502 - 4.902	
N036671-002ADUP	4.698	PASS
N036671-001A	4.698	PASS
N036671-003A	4.681	PASS
N036670-002A	4.698	PASS
N036671-004A	4.690	PASS
N036671-005A	4.690	PASS
N036671-006A	4.698	PASS
N036671-007A	N.A.	N.A.
N036671-008A	N.A.	N.A.
N036671-010A	N.A.	N.A.
N036671-011A	N.A.	N.A.
N036671-012A	N.A.	N.A.
N036671-013A	N.A.	N.A.
N036671-015A	4.723	PASS
N036448-002A	4.640	PASS
N036448-002AMS	4.640	PASS
N036448-003A	4.631	PASS
N036448-003AMS	4.640	PASS
N036448-004A	4.615	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.723	
CCV-1	4.706	
CCV-2	4.698	
CCV-3	4.706	
CCV-4	4.706	
CCV-5	4.690	
CCV-6	4.706	
CCV-7	4.698	
CCV-8	4.706	
CCV-9	4.706	
Average	4.702	
Actual RT Window	4.622 - 4.782	
Applied RT Window	4.502 - 4.902	
N036448-004AMS	4.623	PASS
N036448-005A	4.623	PASS
N036448-005AMS	4.623	PASS
N036448-008A	4.631	PASS
N036448-008AMS	4.623	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190702A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:20 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:30 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/02/19 9:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/02/19 9:52 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:03 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:13 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:22 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:32 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:41 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	07/02/19 10:51 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/02/19 11:00 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	07/02/19 11:10 AM	Reported
13	MB-R134865	MBLK	1	Hexavalent Chromium	07/02/19 11:19 AM	Reported
14	LCS-R134865	LCS	1	Hexavalent Chromium	07/02/19 11:28 AM	Reported
15	N036346-001A	SAMP	1	Hexavalent Chromium	07/02/19 11:38 AM	Reported
16	N036348-001A	SAMP	1	Hexavalent Chromium	07/02/19 11:47 AM	Not Reported
17	N036348-002A	SAMP	1	Hexavalent Chromium	07/02/19 11:57 AM	Not Reported
18	N036348-004A	SAMP	1	Hexavalent Chromium	07/02/19 12:06 PM	Not Reported
19	N036349-001A	SAMP	1	Hexavalent Chromium	07/02/19 12:16 PM	Reported
20	N036346-001AMS	MS	1	Hexavalent Chromium	07/02/19 12:25 PM	Reported
21	N036348-001AMS	MS	1	Hexavalent Chromium	07/02/19 12:35 PM	Not Reported
22	N036348-002AMS	MS	1	Hexavalent Chromium	07/02/19 12:44 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	07/02/19 12:54 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	07/02/19 1:03 PM	Reported
25	N036348-004AMS	MS	1	Hexavalent Chromium	07/02/19 1:12 PM	Not Reported
26	N036349-001AMS	MS	1	Hexavalent Chromium	07/02/19 1:22 PM	Not Reported
27	N036346-001AMSD	MSD	1	Hexavalent Chromium	07/02/19 1:33 PM	Reported
28	N036346-001ADUP	DUP	1	Hexavalent Chromium	07/02/19 1:44 PM	Reported
29	N036348-001A	SAMP	5	Hexavalent Chromium	07/02/19 1:54 PM	Reported
30	N036348-001AMS	MS	5	Hexavalent Chromium	07/02/19 2:03 PM	Reported
31	N036348-002A	SAMP	5	Hexavalent Chromium	07/02/19 2:13 PM	Reported
32	N036348-002AMS	MS	5	Hexavalent Chromium	07/02/19 2:22 PM	Reported
33	N036348-004A	SAMP	50	Hexavalent Chromium	07/02/19 2:31 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	07/02/19 2:41 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	07/02/19 2:50 PM	Reported
36	N036349-001AMS	MS	1	Hexavalent Chromium	07/02/19 3:00 PM	Reported
37	N036349-001A	SAMP	5	Hexavalent Chromium	07/02/19 3:09 PM	Not Reported
38	N036349-001AMS	MS	5	Hexavalent Chromium	07/02/19 3:19 PM	Not Reported
39	N036348-004AMS	MS	50	Hexavalent Chromium	07/02/19 3:28 PM	Reported
40	N036308-002A	SAMP	1	Hexavalent Chromium	07/02/19 4:28 PM	Reported
41	N036308-002AMS	MS	1	Hexavalent Chromium	07/02/19 4:39 PM	Reported
42	N036237-002A	SAMP	1	Hexavalent Chromium	07/02/19 4:48 PM	Reported

INJECTION LOG: 190702A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036237-002AMS	MS	1	Hexavalent Chromium	07/02/19 4:57 PM	Reported
44	N036239-002A	SAMP	1	Hexavalent Chromium	07/02/19 5:07 PM	Reported
45	N036239-002AMS	MS	1	Hexavalent Chromium	07/02/19 5:16 PM	Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	07/02/19 5:26 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	07/02/19 5:35 PM	Reported
48	N036306-002A	SAMP	1	Hexavalent Chromium	07/02/19 5:45 PM	Reported
49	N036306-002AMS	MS	1	Hexavalent Chromium	07/02/19 5:54 PM	Reported
50	N036309-002A	SAMP	1	Hexavalent Chromium	07/02/19 6:04 PM	Reported
51	N036309-002AMS	MS	1	Hexavalent Chromium	07/02/19 6:13 PM	Reported
52	N036316-002A	SAMP	1	Hexavalent Chromium	07/02/19 6:23 PM	Reported
53	N036316-002AMS	MS	1	Hexavalent Chromium	07/02/19 6:32 PM	Reported
54	N036318-002A	SAMP	1	Hexavalent Chromium	07/02/19 6:42 PM	Reported
55	N036318-002AMS	MS	1	Hexavalent Chromium	07/02/19 6:51 PM	Reported
56	N036320-002A	SAMP	1	Hexavalent Chromium	07/02/19 7:00 PM	Reported
57	N036320-002AMS	MS	1	Hexavalent Chromium	07/02/19 7:10 PM	Reported
58	CCV-4	CCV	1	Hexavalent Chromium	07/02/19 7:19 PM	Reported
59	CCB-4	CCB	1	Hexavalent Chromium	07/02/19 7:29 PM	Reported
60	N036322-002A	SAMP	1	Hexavalent Chromium	07/02/19 7:38 PM	Reported
61	N036322-002AMS	MS	1	Hexavalent Chromium	07/02/19 7:48 PM	Reported
62	N036324-002A	SAMP	1	Hexavalent Chromium	07/02/19 7:57 PM	Reported
63	N036324-002AMS	MS	1	Hexavalent Chromium	07/02/19 8:07 PM	Reported
64	N036347-002A	SAMP	1	Hexavalent Chromium	07/02/19 8:16 PM	Not Reported
65	N036347-002AMS	MS	1	Hexavalent Chromium	07/02/19 8:26 PM	Not Reported
66	N036348-003A	SAMP	1	Hexavalent Chromium	07/02/19 8:35 PM	Reported
67	N036348-003AMS	MS	1	Hexavalent Chromium	07/02/19 8:45 PM	Reported
68	N036349-002A	SAMP	1	Hexavalent Chromium	07/02/19 8:54 PM	Reported
69	N036349-002AMS	MS	1	Hexavalent Chromium	07/02/19 9:03 PM	Reported
70	CCV-5	CCV1	1	Hexavalent Chromium	07/02/19 9:13 PM	Reported
71	CCB-5	CCB	1	Hexavalent Chromium	07/02/19 9:22 PM	Reported
72	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:32 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190702A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Jul/19 22:02:40**
No. of Injections:	**75**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/02/2019 09:20	Finished	BLANK
2	BLANK	2	1000	Unknown		07/02/2019 09:30	Finished	BLANK
3	iBLANK	3	1000	Unknown		07/02/2019 09:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	07/02/2019 09:52	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	07/02/2019 10:03	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	07/02/2019 10:13	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	07/02/2019 10:22	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	07/02/2019 10:32	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	07/02/2019 10:41	Finished	20 ppb, IWST-190702A
10	ICV,ICV,1,	12	1000	Unknown		07/02/2019 10:51	Finished	ICV @5ppb, IWST-190702B
11	PQL@0.2ppb,CCV2,1	13	1000	Unknown		07/02/2019 11:00	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		07/02/2019 11:10	Finished	ICB R190701B
13	MB-H2O,MBLK,1,	15	1000	Unknown		07/02/2019 11:19	Finished	MB R190617C
14	LCS-H2O,LCS,1,	16	1000	Unknown		07/02/2019 11:28	Finished	LCS @5ppb, IWST-190702B
15	N036346-001A,SAMF	17	1000	Unknown		07/02/2019 11:38	Finished	SAMP, 10mL
16	N036348-001A,SAMF	18	1000	Unknown		07/02/2019 11:47	Finished	SAMP, 10mL
17	N036348-002A,SAMF	19	1000	Unknown		07/02/2019 11:57	Finished	SAMP, 10mL
18	N036348-004A,SAMF	20	1000	Unknown		07/02/2019 12:06	Finished	SAMP, 10mL
19	N036349-001A,SAMF	21	1000	Unknown		07/02/2019 12:16	Finished	SAMP, 10mL
20	N036346-001AMS,MS	22	1000	Unknown		07/02/2019 12:25	Finished	MS (1ppb), IWST-190702B,10
21	N036348-001AMS,MS	23	1000	Unknown		07/02/2019 12:35	Finished	MS (1ppb), IWST-190702B,10
22	N036348-002AMS,MS	24	1000	Unknown		07/02/2019 12:44	Finished	MS (1ppb), IWST-190702B,10
23	CCV-1,CCV1,1,	25	1000	Unknown		07/02/2019 12:54	Finished	CCV @10ppb, IWST-190702A
24	CCB-1,CCB,1,	26	1000	Unknown		07/02/2019 13:03	Finished	CCB R190617C
25	N036348-004AMS,MS	27	1000	Unknown		07/02/2019 13:12	Finished	MS (1ppb), IWST-190702B,10
26	N036349-001AMS,MS	28	1000	Unknown		07/02/2019 13:22	Finished	MS (1ppb), IWST-190702B,10
27	N036346-001AMSD,M	30	1000	Unknown		07/02/2019 13:33	Finished	MSD (1ppb), IWST-190702B,1
28	N036346-001ADUP,D	31	1000	Unknown		07/02/2019 13:44	Finished	DUP, 10mL
29	N036348-001A,SAMF	32	1000	Unknown		07/02/2019 13:54	Finished	SAMP, 2>10mL
30	N036348-001AMS,MS	33	1000	Unknown		07/02/2019 14:03	Finished	MS (1ppb), IWST-190702B,2>1
31	N036348-002A,SAMF	34	1000	Unknown		07/02/2019 14:13	Finished	SAMP, 2>10mL
32	N036348-002AMS,MS	35	1000	Unknown		07/02/2019 14:22	Finished	MS (1ppb), IWST-190702B,2>1
33	N036348-004A,SAMF	36	1000	Unknown		07/02/2019 14:31	Finished	SAMP, 0.2>10mL
34	CCV-2,CCV,1,	37	1000	Unknown		07/02/2019 14:41	Finished	CCV @5ppb, IWST-190702A
35	CCB-2,CCB,1,	38	1000	Unknown		07/02/2019 14:50	Finished	CCB R190617C
36	N036349-001AMS,MS	39	1000	Unknown		07/02/2019 15:00	Finished	MS (1ppb), IWST-190702B,10
37	N036349-001A,SAMF	40	1000	Unknown		07/02/2019 15:09	Finished	SAMP, 2>10mL
38	N036349-001AMS,MS	41	1000	Unknown		07/02/2019 15:19	Finished	MS (1ppb), IWST-190702B,2>1
39	N036348-004AMS,MS	42	1000	Unknown		07/02/2019 15:28	Finished	MS (5ppb), IWST-190702B,0.2
40	N036308-002A,SAMF	1	1000	Unknown		07/02/2019 16:28	Finished	SAMP, 10mL
41	N036308-002AMS,MS	2	1000	Unknown		07/02/2019 16:39	Finished	MS (1ppb), IWST-190702B,10
42	N036237-002A,SAMF	3	1000	Unknown		07/02/2019 16:48	Finished	SAMP, 10mL
43	N036237-002AMS,MS	4	1000	Unknown		07/02/2019 16:57	Finished	MS (1ppb), IWST-190702B,10
44	N036239-002A,SAMF	5	1000	Unknown		07/02/2019 17:07	Finished	SAMP, 10mL
45	N036239-002AMS,MS	6	1000	Unknown		07/02/2019 17:16	Finished	MS (1ppb), IWST-190702B,10
46	CCV-3,CCV1,1,	7	1000	Unknown		07/02/2019 17:26	Finished	CCV @10ppb, IWST-190702A
47	CCB-3,CCB,1,	8	1000	Unknown		07/02/2019 17:35	Finished	CCB R190617C
48	N036306-002A,SAMF	9	1000	Unknown		07/02/2019 17:45	Finished	SAMP, 10mL
49	N036306-002AMS,MS	10	1000	Unknown		07/02/2019 17:54	Finished	MS (1ppb), IWST-190702B,10
50	N036309-002A,SAMF	11	1000	Unknown		07/02/2019 18:04	Finished	SAMP, 10mL
51	N036309-002AMS,MS	12	1000	Unknown		07/02/2019 18:13	Finished	MS (1ppb), IWST-190702B,10
52	N036316-002A,SAMF	13	1000	Unknown		07/02/2019 18:23	Finished	SAMP, 10mL
53	N036316-002AMS,MS	14	1000	Unknown		07/02/2019 18:32	Finished	MS (1ppb), IWST-190702B,10
54	N036318-002A,SAMF	15	1000	Unknown		07/02/2019 18:42	Finished	SAMP, 10mL
55	N036318-002AMS,MS	16	1000	Unknown		07/02/2019 18:51	Finished	MS (1ppb), IWST-190702B,10
56	N036320-002A,SAMF	17	1000	Unknown		07/02/2019 19:00	Finished	SAMP, 10mL
57	N036320-002AMS,MS	18	1000	Unknown		07/02/2019 19:10	Finished	MS (1ppb), IWST-190702B,10
58	CCV-4,CCV,1,	19	1000	Unknown		07/02/2019 19:19	Finished	CCV @5ppb, IWST-190702A
59	CCB-4,CCB,1,	20	1000	Unknown		07/02/2019 19:29	Finished	CCB R190617C
60	N036322-002A,SAMF	21	1000	Unknown		07/02/2019 19:38	Finished	SAMP, 10mL

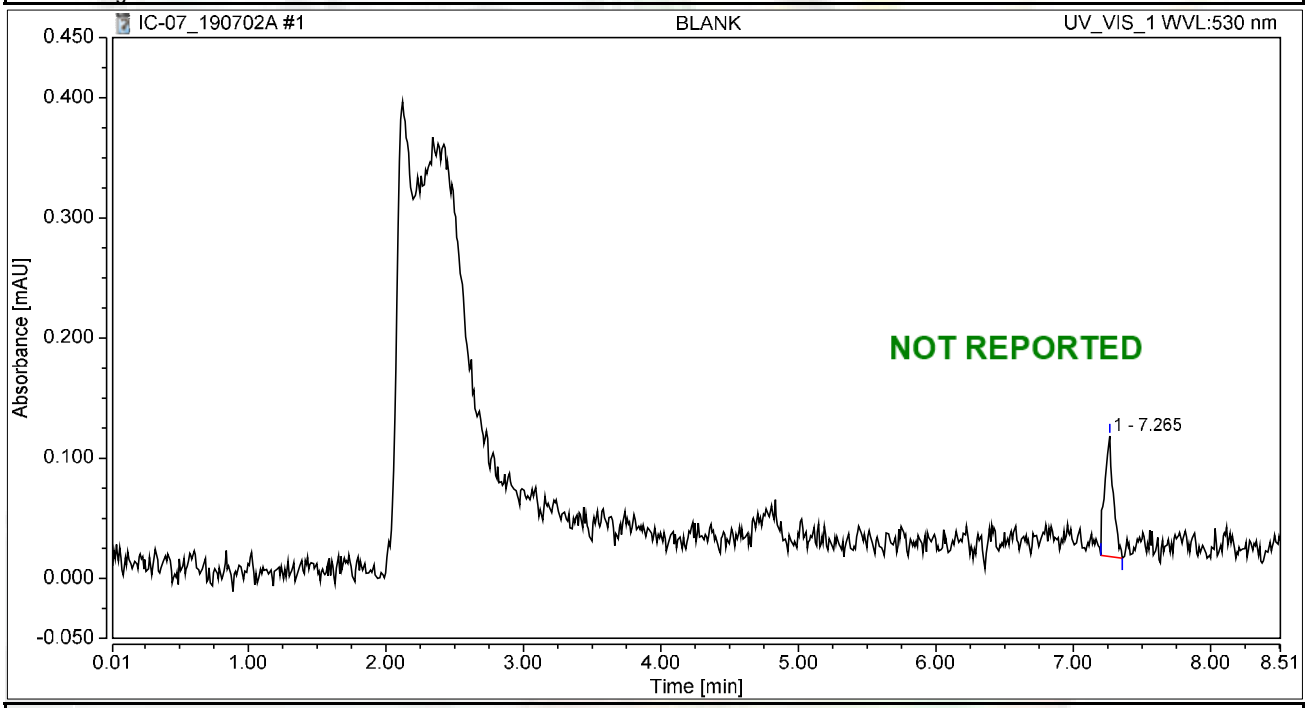
61	N036322-002AMS,MS	22	1000	Unknown		07/02/2019 19:48	Finished	MS (1ppb), IWST-190702B,10
62	N036324-002A,SAMP	23	1000	Unknown		07/02/2019 19:57	Finished	SAMP, 10mL
63	N036324-002AMS,MS	24	1000	Unknown		07/02/2019 20:07	Finished	MS (1ppb), IWST-190702B,10
64	N036347-002A,SAMP	25	1000	Unknown		07/02/2019 20:16	Finished	SAMP, 10mL
65	N036347-002AMS,MS	26	1000	Unknown		07/02/2019 20:26	Finished	MS (1ppb), IWST-190702B,10
66	N036348-003A,SAMP	27	1000	Unknown		07/02/2019 20:35	Finished	SAMP, 10mL
67	N036348-003AMS,MS	28	1000	Unknown		07/02/2019 20:45	Finished	MS (1ppb), IWST-190702B,10
68	N036349-002A,SAMP	29	1000	Unknown		07/02/2019 20:54	Finished	SAMP, 10mL
69	N036349-002AMS,MS	30	1000	Unknown		07/02/2019 21:03	Finished	MS (1ppb), IWST-190702B,10
70	CCV-5,CCV1,1,	31	1000	Unknown		07/02/2019 21:13	Finished	CCV @10ppb, IWST-190702A
71	CCB-5,CCB,1,	32	1000	Unknown		07/02/2019 21:22	Finished	CCB R190508A
72	BLANK	33	1000	Unknown		07/02/2019 21:32	Finished	BLANK
73	SHUTDOWN	34	1000	Unknown		07/02/2019 21:41	Finished	
74	Eluent: R190701A	35	1000	Unknown		n.a.	Finished	Eluent
75	PCR: R190702A	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 09:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

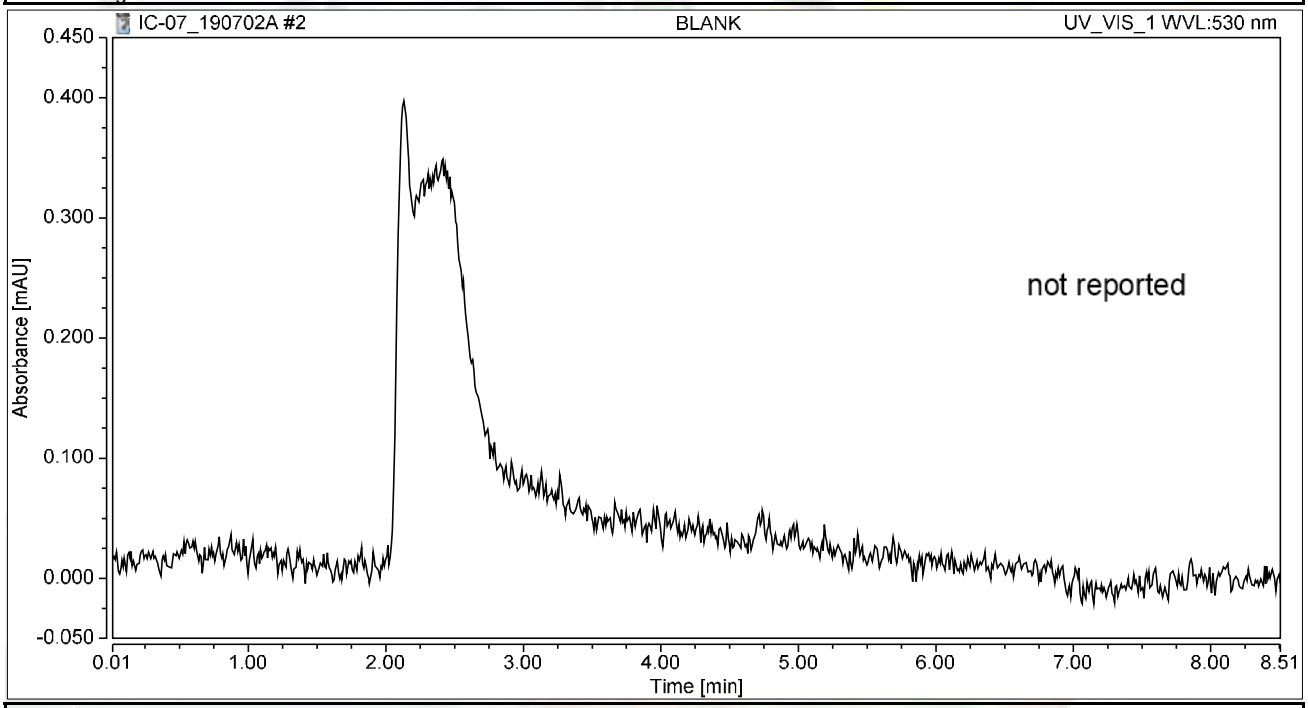
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.265	0.007	0.100	100.00	100.00	n.a.
Total:			**0.007**	**0.100**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 09:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

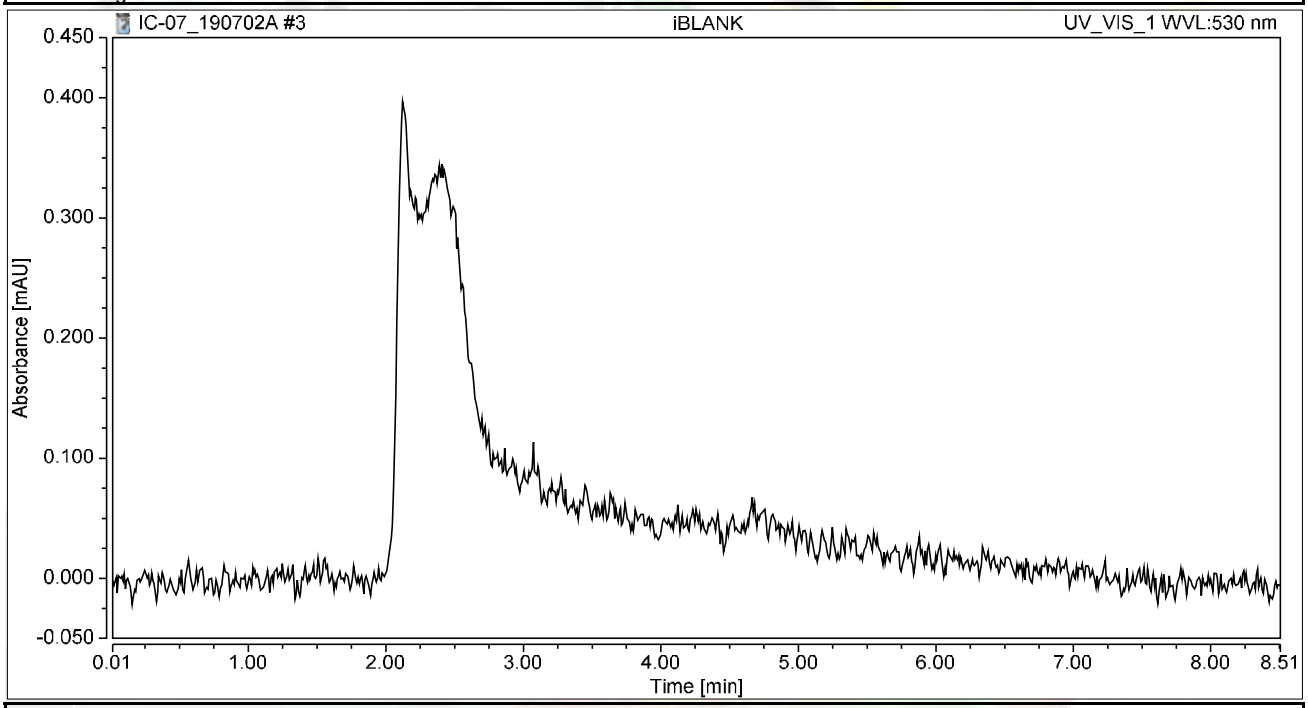
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 09:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

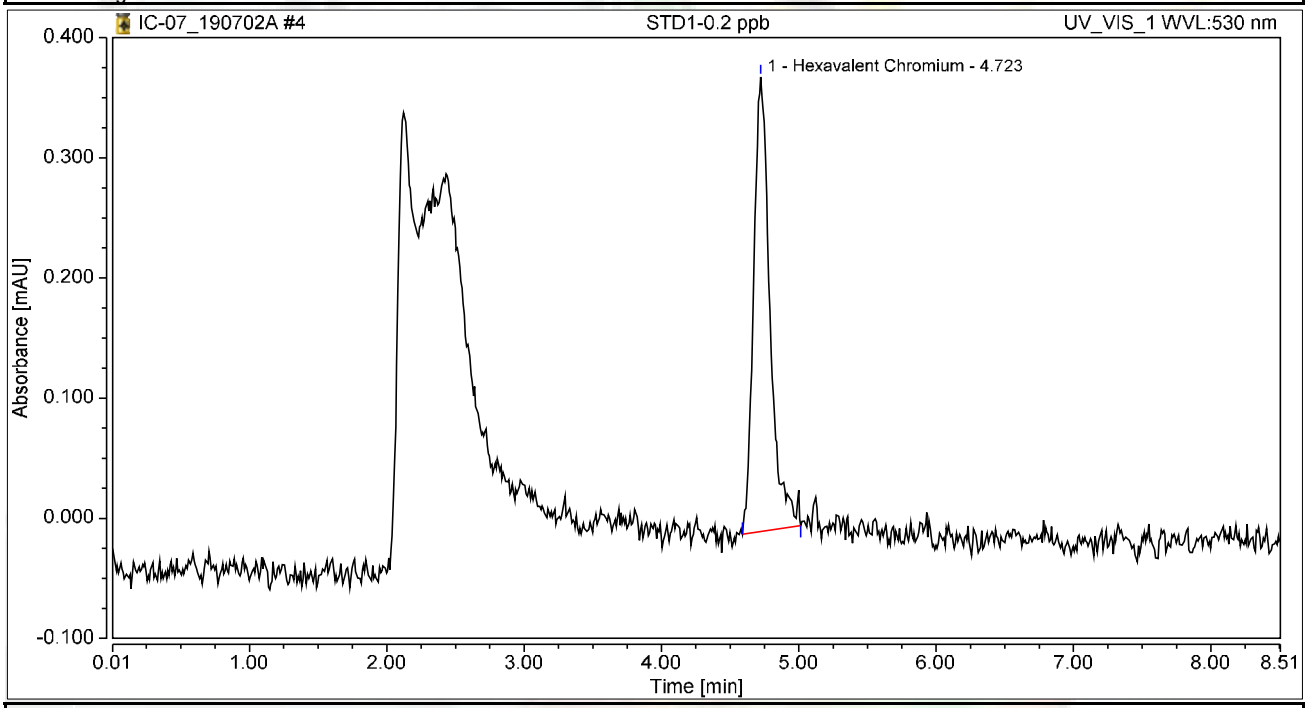
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

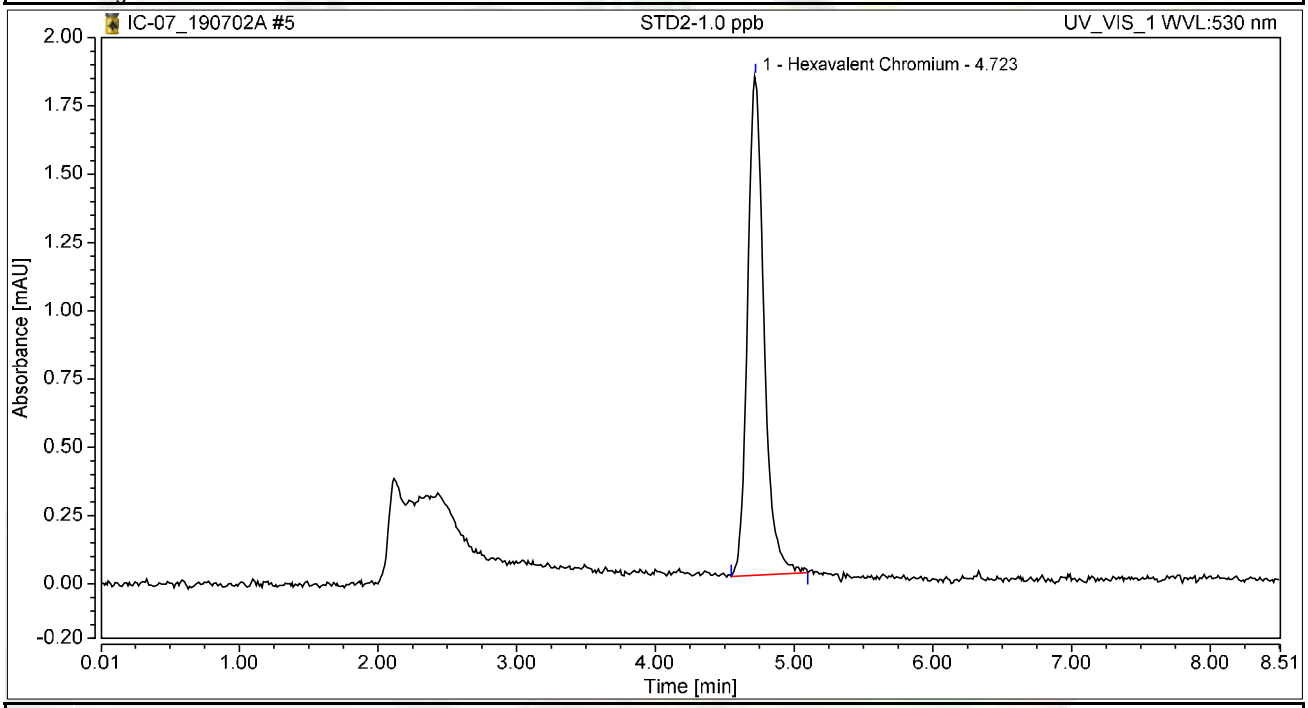
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.052	0.378	100.00	100.00	0.2114
Total:			**0.052**	**0.378**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

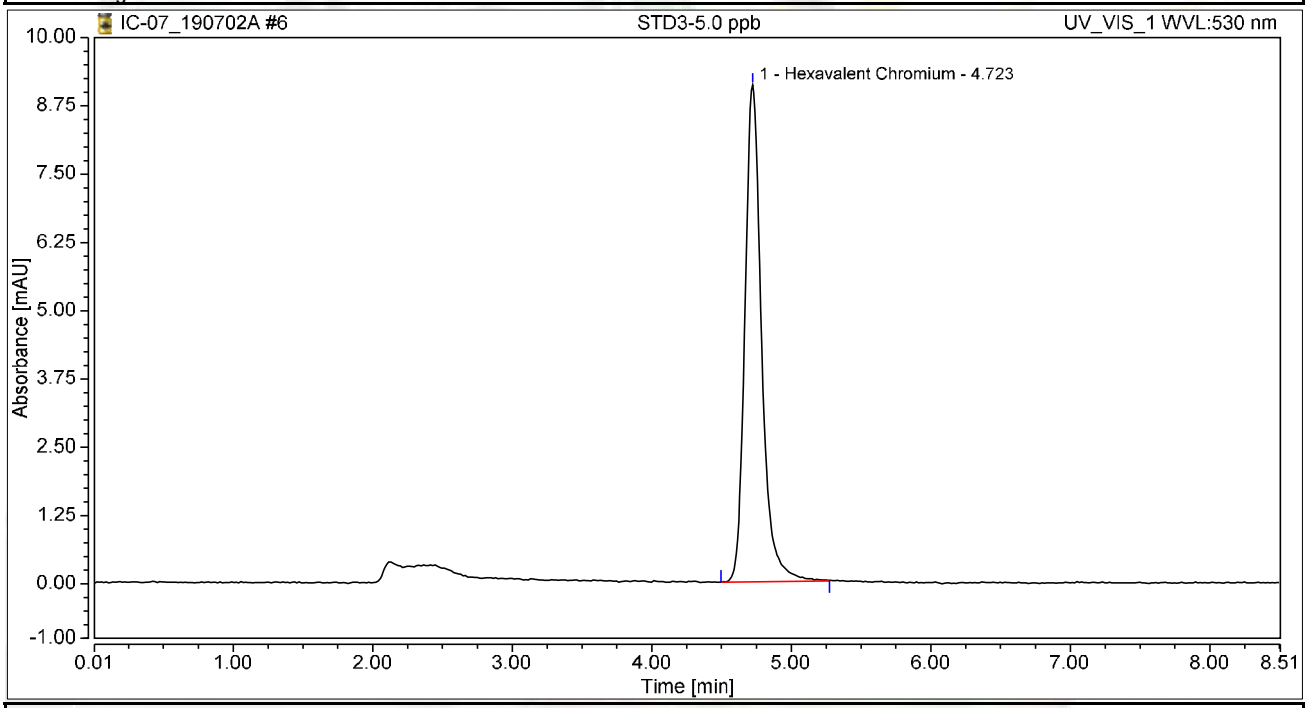
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.251	1.829	100.00	100.00	1.0144
Total:			**0.251**	**1.829**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

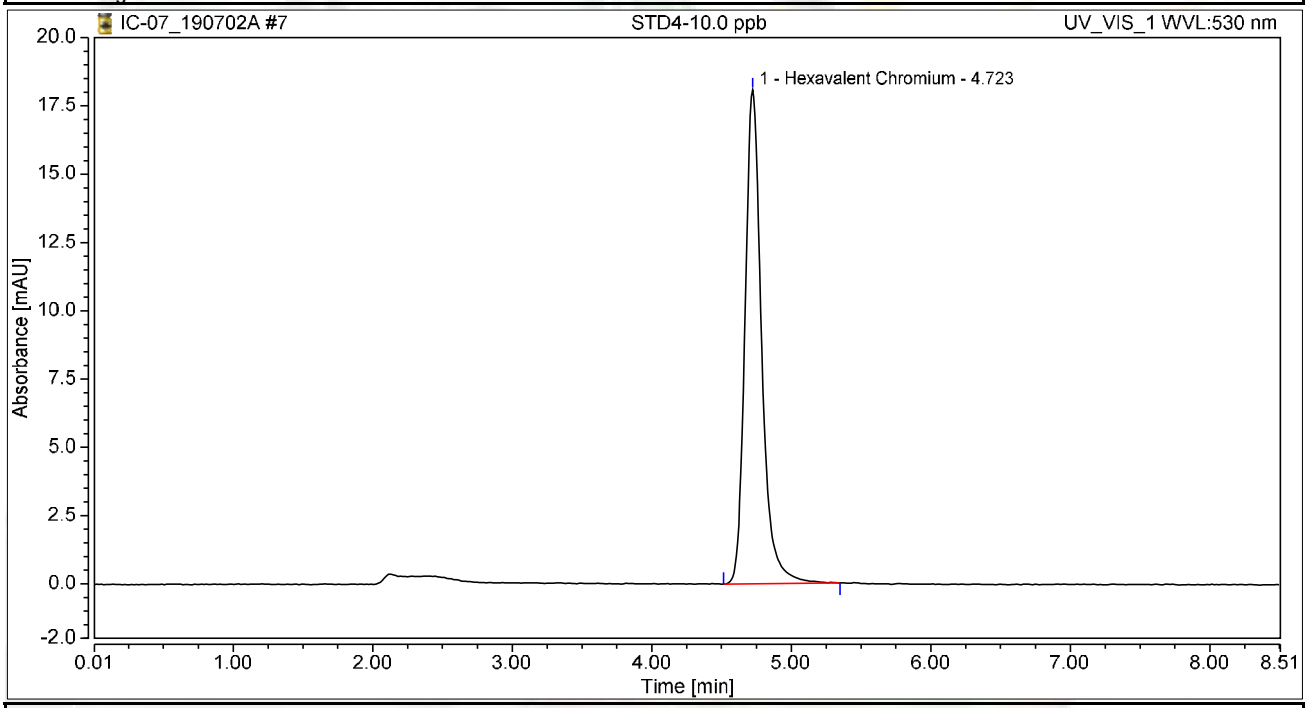
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.257	9.097	100.00	100.00	5.0771
Total:			**1.257**	**9.097**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

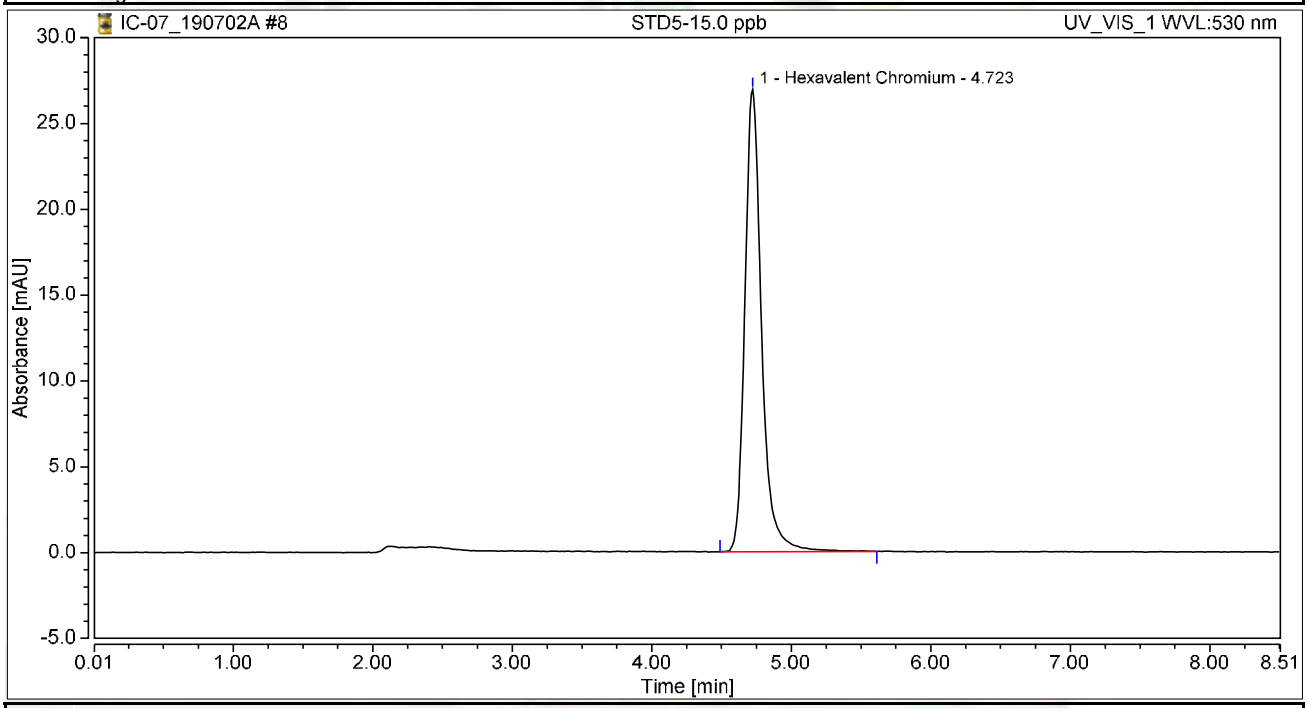
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.498	18.097	100.00	100.00	10.0919
Total:			**2.498**	**18.097**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

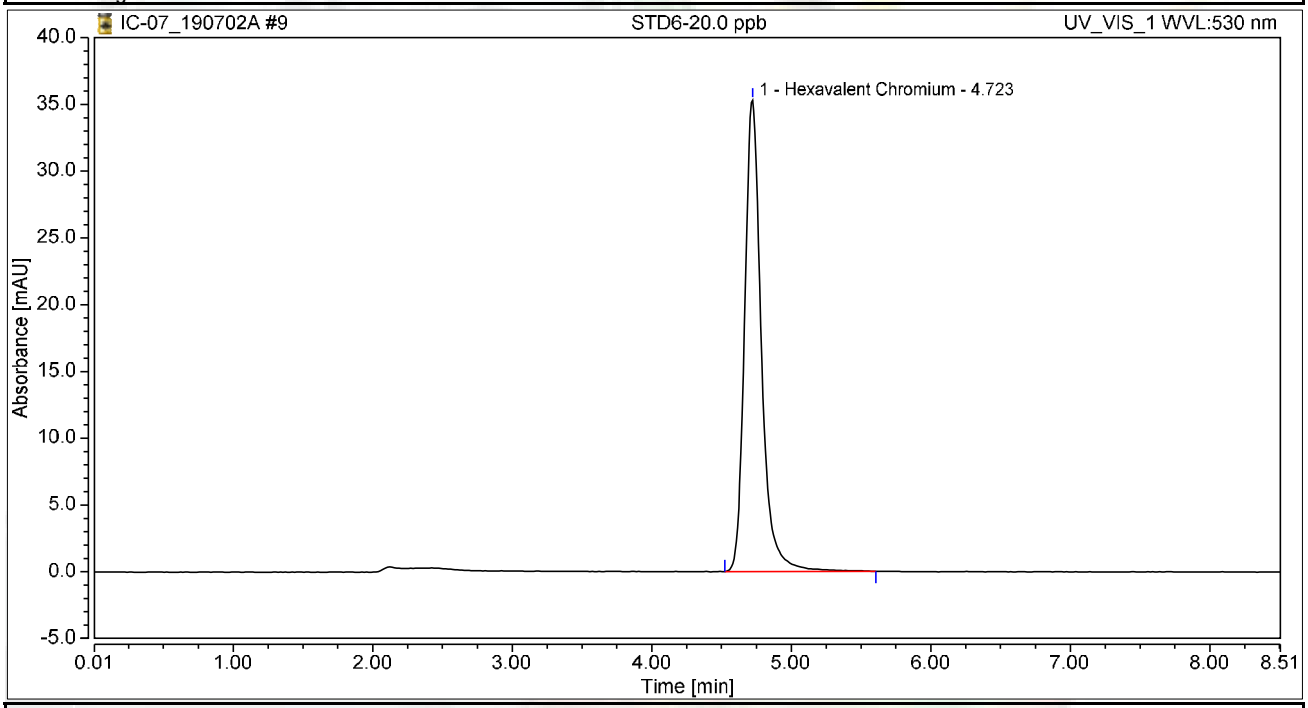
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	3.748	26.944	100.00	100.00	15.1403
Total:			**3.748**	**26.944**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



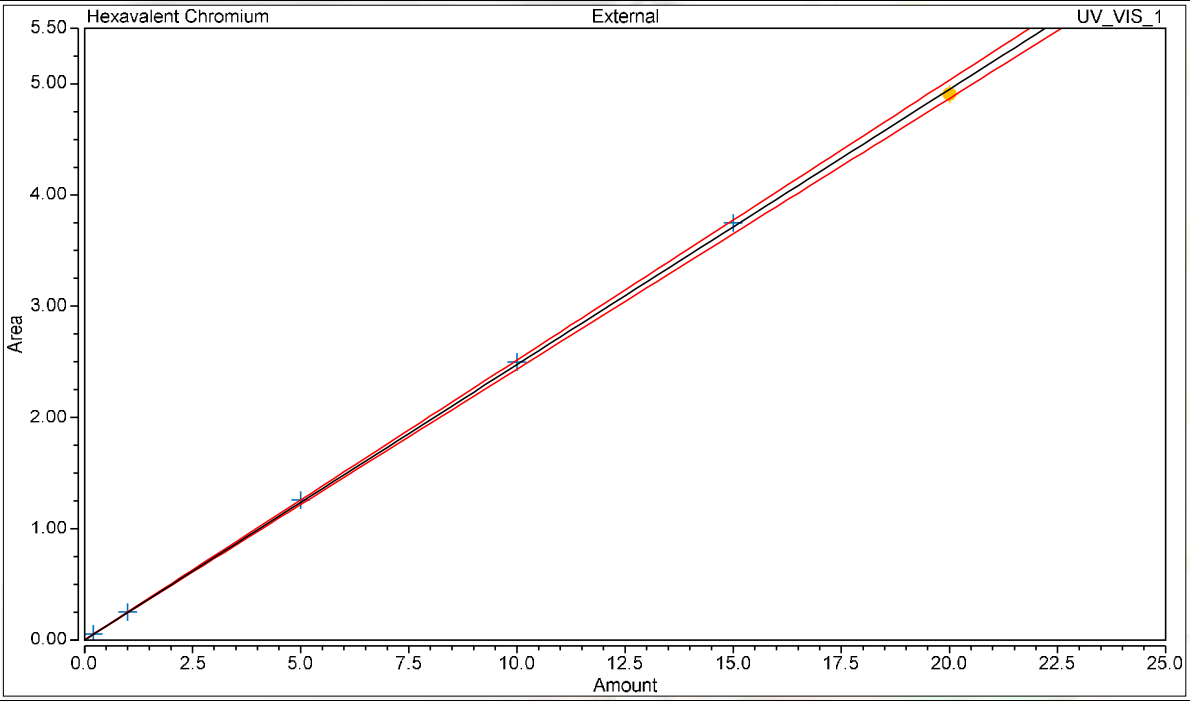
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	4.908	35.295	100.00	100.00	19.8287
Total:			**4.908**	**35.295**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2475
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99980

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

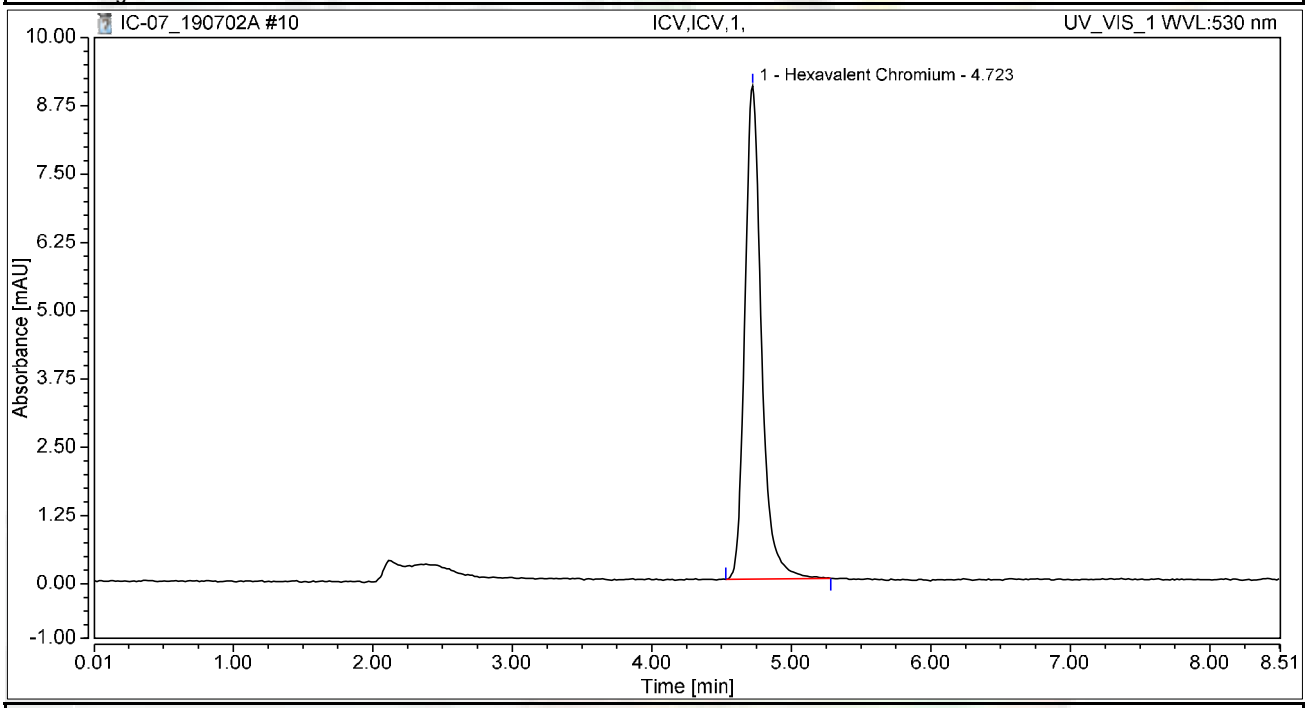
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0523	0.052	0.378
5	STD2-1.0 ppb	02	1.0000	0.2511	0.251	1.829
6	STD3-5.0 ppb	03	5.0000	1.2567	1.257	9.097
7	STD4-10.0 ppb	04	10.0000	2.4980	2.498	18.097
8	STD5-15.0 ppb	05	15.0000	3.7475	3.748	26.944
9	STD6-20.0 ppb	06	20.0000	4.9080	4.908	35.295

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

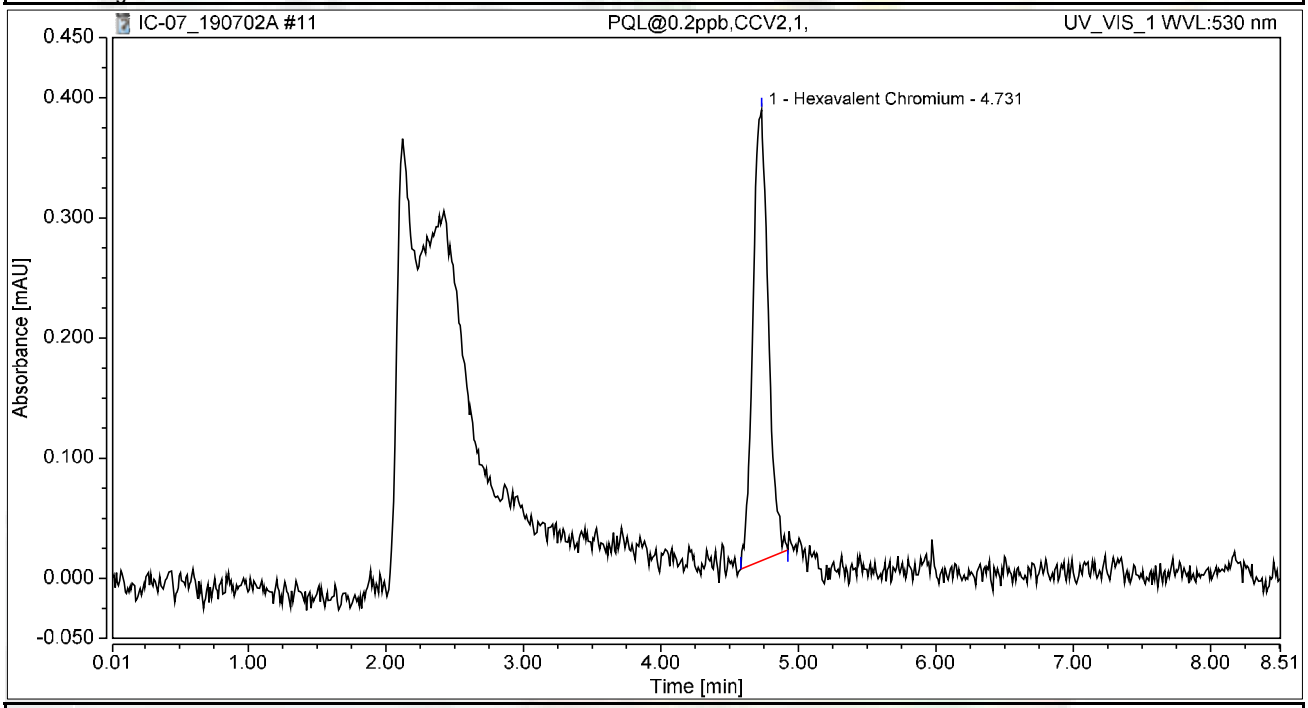
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.243	9.034	100.00	100.00	5.0216
Total:			**1.243**	**9.034**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

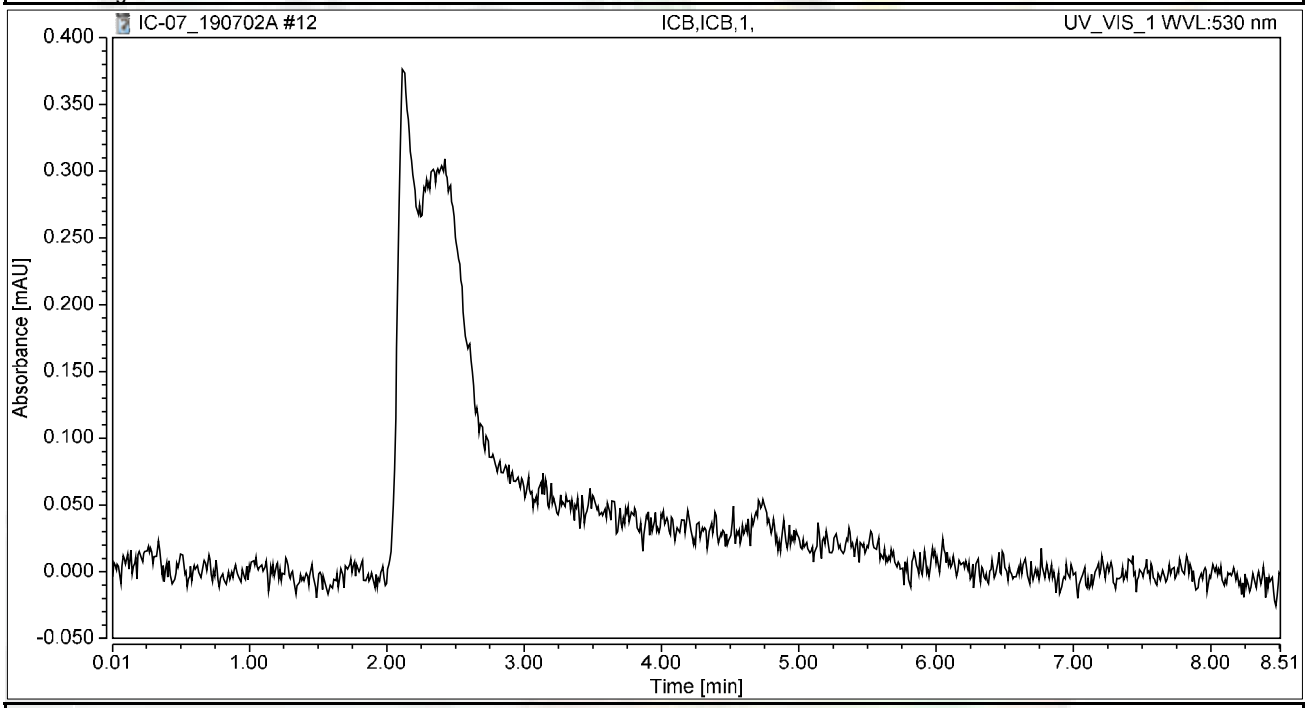
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.049	0.375	100.00	100.00	0.1965
Total:			**0.049**	**0.375**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Jul/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190725A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:20 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/02/19 9:30 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/02/19 9:40 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/02/19 9:52 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:03 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:13 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:22 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:32 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/02/19 10:41 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	07/25/19 7:25 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	07/25/19 7:36 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/25/19 7:45 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	07/25/19 7:55 AM	Reported
14	MB-R135424	MBLK	1	Hexavalent Chromium	07/25/19 8:04 AM	Reported
15	LCS-R135424	LCS	1	Hexavalent Chromium	07/25/19 8:13 AM	Reported
16	N036669-003AMS	MS	400	Hexavalent Chromium	07/25/19 8:36 AM	Not Reported
17	N036669-004AMS	MS	400	Hexavalent Chromium	07/25/19 8:47 AM	Not Reported
18	N036669-003AMS	MS	800	Hexavalent Chromium	07/25/19 9:01 AM	Not Reported
19	N036669-003AMS	MS	1600	Hexavalent Chromium	07/25/19 9:13 AM	Not Reported
20	N036669-004AMS	MS	800	Hexavalent Chromium	07/25/19 9:22 AM	Not Reported
21	N036669-003AMS	MS	3125	Hexavalent Chromium	07/25/19 9:38 AM	Reported
22	N036669-003A	SAMP	3125	Hexavalent Chromium	07/25/19 9:49 AM	Reported
23	N036669-004A	SAMP	800	Hexavalent Chromium	07/25/19 9:59 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	07/25/19 10:08 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	07/25/19 10:18 AM	Reported
26	N036669-003AREP	DUP	3125	Hexavalent Chromium	07/25/19 10:27 AM	Reported
27	N036669-004AREP	DUP	800	Hexavalent Chromium	07/25/19 10:36 AM	Not Reported
28	N036669-004A	SAMP	400	Hexavalent Chromium	07/25/19 10:46 AM	Not Reported
29	N036669-003A	SAMP	800	Hexavalent Chromium	07/25/19 10:55 AM	Not Reported
30	N036669-003A	SAMP	1600	Hexavalent Chromium	07/25/19 11:05 AM	Not Reported
31	N036669-003AREP	DUP	800	Hexavalent Chromium	07/25/19 11:14 AM	Not Reported
32	N036669-003AREP	DUP	1600	Hexavalent Chromium	07/25/19 11:24 AM	Not Reported
33	N036669-003A	SAMP	400	Hexavalent Chromium	07/25/19 11:33 AM	Not Reported
34	N036679-001A	SAMP	20	Hexavalent Chromium	07/25/19 11:43 AM	Not Reported
35	N036679-002A	SAMP	1	Hexavalent Chromium	07/25/19 11:52 AM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	07/25/19 12:02 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	07/25/19 12:11 PM	Reported
38	N036679-003A	SAMP	1	Hexavalent Chromium	07/25/19 12:21 PM	Reported
39	N036676-001A	SAMP	1	Hexavalent Chromium	07/25/19 12:30 PM	Not Reported
40	N036676-002A	SAMP	1	Hexavalent Chromium	07/25/19 12:39 PM	Reported
41	N036679-001A	SAMP	5	Hexavalent Chromium	07/25/19 12:49 PM	Reported
42	N036679-001AMS	MS	5	Hexavalent Chromium	07/25/19 12:58 PM	Reported

7/29/2019

INJECTION LOG: 190725A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036679-001AMSD	MSD	5	Hexavalent Chromium	07/25/19 1:08 PM	Reported
44	N036679-002AMS	MS	1	Hexavalent Chromium	07/25/19 1:17 PM	Reported
45	N036679-003AMS	MS	1	Hexavalent Chromium	07/25/19 1:27 PM	Reported
46	N036676-001AMS	MS	1	Hexavalent Chromium	07/25/19 1:36 PM	Not Reported
47	N036676-002AMS	MS	1	Hexavalent Chromium	07/25/19 1:46 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	07/25/19 1:55 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	07/25/19 2:05 PM	Reported
50	N036655-014A	SAMP	1	Hexavalent Chromium	07/25/19 2:14 PM	Reported
51	N036655-017A	SAMP	1	Hexavalent Chromium	07/25/19 2:24 PM	Reported
52	N036655-018A	SAMP	1	Hexavalent Chromium	07/25/19 2:33 PM	Reported
53	N036655-019A	SAMP	1	Hexavalent Chromium	07/25/19 2:42 PM	Reported
54	N036655-020A	SAMP	1	Hexavalent Chromium	07/25/19 2:52 PM	Reported
55	N036655-021A	SAMP	50	Hexavalent Chromium	07/25/19 3:01 PM	Reported
56	N036655-022A	SAMP	1	Hexavalent Chromium	07/25/19 3:11 PM	Reported
57	N036655-023A	SAMP	1	Hexavalent Chromium	07/25/19 3:20 PM	Reported
58	N036676-001A	SAMP	5	Hexavalent Chromium	07/25/19 3:30 PM	Reported
59	N036676-001AMS	MS	5	Hexavalent Chromium	07/25/19 3:39 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	07/25/19 3:49 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	07/25/19 3:58 PM	Reported
62	N036655-017ADUP	DUP	1	Hexavalent Chromium	07/25/19 4:08 PM	Reported
63	N036677-001A	SAMP	1	Hexavalent Chromium	07/25/19 4:17 PM	Reported
64	N036677-001AMS	MS	1	Hexavalent Chromium	07/25/19 4:27 PM	Reported
65	N036677-002A	SAMP	100	Hexavalent Chromium	07/25/19 4:36 PM	Reported
66	N036677-002AMS	MS	100	Hexavalent Chromium	07/25/19 4:45 PM	Reported
67	N036670-001A	SAMP	5	Hexavalent Chromium	07/25/19 4:55 PM	Reported
68	N036670-002A	SAMP	20	Hexavalent Chromium	07/25/19 5:04 PM	Not Reported
69	N036670-003A	SAMP	1	Hexavalent Chromium	07/25/19 5:14 PM	Reported
70	LCS-R135425	LCS	1	Hexavalent Chromium	07/25/19 5:26 PM	Reported
71	MB-R135425	MBLK	1	Hexavalent Chromium	07/25/19 5:37 PM	Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	07/25/19 5:46 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	07/25/19 5:56 PM	Reported
74	N036671-014A	SAMP	1	Hexavalent Chromium	07/25/19 6:05 PM	Reported
75	N036671-009A	SAMP	100	Hexavalent Chromium	07/25/19 6:15 PM	Reported
76	N036671-002A	SAMP	1	Hexavalent Chromium	07/25/19 6:24 PM	Reported
77	N036671-014AMS	MS	1	Hexavalent Chromium	07/25/19 6:56 PM	Reported
78	N036671-014AMSD	MSD	1	Hexavalent Chromium	07/25/19 7:07 PM	Reported
79	N036671-009AMS	MS	100	Hexavalent Chromium	07/25/19 7:17 PM	Reported
80	N036671-002ADUP	DUP	1	Hexavalent Chromium	07/25/19 7:26 PM	Reported
81	N036671-001A	SAMP	1	Hexavalent Chromium	07/25/19 7:35 PM	Reported
82	N036671-003A	SAMP	1	Hexavalent Chromium	07/25/19 7:45 PM	Reported
83	N036670-002A	SAMP	50	Hexavalent Chromium	07/25/19 7:54 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	07/25/19 8:04 PM	Reported

INJECTION LOG: 190725A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	07/25/19 8:13 PM	Reported
86	N036671-004A	SAMP	1	Hexavalent Chromium	07/25/19 8:23 PM	Reported
87	N036671-005A	SAMP	1	Hexavalent Chromium	07/25/19 8:32 PM	Reported
88	N036671-006A	SAMP	1	Hexavalent Chromium	07/25/19 8:42 PM	Not Reported
89	N036671-007A	SAMP	10	Hexavalent Chromium	07/25/19 8:51 PM	Not Reported
90	N036671-008A	SAMP	1	Hexavalent Chromium	07/25/19 9:01 PM	Reported
91	N036671-010A	SAMP	1	Hexavalent Chromium	07/25/19 9:10 PM	Reported
92	N036671-011A	SAMP	1	Hexavalent Chromium	07/25/19 9:20 PM	Reported
93	N036671-012A	SAMP	1	Hexavalent Chromium	07/25/19 9:29 PM	Reported
94	N036671-013A	SAMP	1	Hexavalent Chromium	07/25/19 9:38 PM	Reported
95	N036671-015A	SAMP	1	Hexavalent Chromium	07/25/19 9:48 PM	Reported
96	CCV-8	CCV1	1	Hexavalent Chromium	07/25/19 9:57 PM	Reported
97	CCB-8	CCB	1	Hexavalent Chromium	07/25/19 10:07 PM	Reported
98	N036448-002A	SAMP	1	Hexavalent Chromium	07/25/19 10:16 PM	Not Reported
99	N036448-002AMS	MS	1	Hexavalent Chromium	07/25/19 10:26 PM	Not Reported
100	N036448-003A	SAMP	1	Hexavalent Chromium	07/25/19 10:35 PM	Not Reported
101	N036448-003AMS	MS	1	Hexavalent Chromium	07/25/19 10:45 PM	Not Reported
102	N036448-004A	SAMP	1	Hexavalent Chromium	07/25/19 10:54 PM	Not Reported
103	N036448-004AMS	MS	1	Hexavalent Chromium	07/25/19 11:04 PM	Not Reported
104	N036448-005A	SAMP	1	Hexavalent Chromium	07/25/19 11:13 PM	Not Reported
105	N036448-005AMS	MS	1	Hexavalent Chromium	07/25/19 11:23 PM	Not Reported
106	N036448-008A	SAMP	1	Hexavalent Chromium	07/25/19 11:32 PM	Not Reported
107	N036448-008AMS	MS	1	Hexavalent Chromium	07/25/19 11:41 PM	Not Reported
108	CCV-9	CCV	1	Hexavalent Chromium	07/25/19 11:51 PM	Reported
109	CCB-9	CCB	1	Hexavalent Chromium	07/26/19 12:00 AM	Reported
110	BLANK	BLANK	1	Hexavalent Chromium	07/26/19 12:10 AM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190725A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**26/Jul/19 07:25:28**
No. of Injections:	**113**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/02/2019 09:20	Finished	BLANK
2	BLANK	2	1000	Unknown		07/02/2019 09:30	Finished	BLANK
3	iBLANK	3	1000	Unknown		07/02/2019 09:40	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	07/02/2019 09:52	Finished	0.2 ppb, IWST-190702A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	07/02/2019 10:03	Finished	1.0 ppb, IWST-190702A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	07/02/2019 10:13	Finished	5.0 ppb, IWST-190702A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	07/02/2019 10:22	Finished	10 ppb, IWST-190702A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	07/02/2019 10:32	Finished	15 ppb, IWST-190702A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	07/02/2019 10:41	Finished	20 ppb, IWST-190702A
10	BLANK	1	1000	Unknown		07/25/2019 07:25	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		07/25/2019 07:36	Finished	CCV @5ppb, IWST-190702A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		07/25/2019 07:45	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		07/25/2019 07:55	Finished	CCB R190701B
14	MB-H2O,MBLK,1,	5	1000	Unknown		07/25/2019 08:04	Finished	MB R190701B
15	LCS-H2O,LCS,1,	6	1000	Unknown		07/25/2019 08:13	Finished	LCS @5ppb, IWST-190702B
16	N036669-003AMS,MS	1	1000	Unknown		07/25/2019 08:36	Finished	MS (1ppb), IWST-190702B,0.0
17	N036669-004AMS,MS	2	1000	Unknown		07/25/2019 08:47	Finished	MS (1ppb), IWST-190702B,0.0
18	N036669-003AMS,MS	4	1000	Unknown		07/25/2019 09:01	Finished	MS (1ppb), IWST-190702B,0.0
19	N036669-003AMS,MS	5	1000	Unknown		07/25/2019 09:13	Finished	MS (1ppb), IWST-190702B,0.0
20	N036669-004AMS,MS	6	1000	Unknown		07/25/2019 09:22	Finished	MS (1ppb), IWST-190702B,0.0
21	N036669-003AMS,MS	1	1000	Unknown		07/25/2019 09:38	Finished	MS (1ppb), IWST-190702B,0.0
22	N036669-003A,SAMP	2	1000	Unknown		07/25/2019 09:49	Finished	SAMP,0.0032>10mL
23	N036669-004A,SAMP	3	1000	Unknown		07/25/2019 09:59	Finished	SAMP,0.0125>10mL
24	CCV-2,CCV1,1,	4	1000	Blank		07/25/2019 10:08	Finished	CCV @10ppb, IWST-190702A
25	CCB-2,CCB,1,	5	1000	Unknown		07/25/2019 10:18	Finished	CCB R190701B
26	N036669-003AREP,D	6	1000	Unknown		07/25/2019 10:27	Finished	REP,0.0032>10mL
27	N036669-004AREP,D	7	1000	Unknown		07/25/2019 10:36	Finished	REP,0.0125>10mL
28	N036669-004A,SAMP	8	1000	Unknown		07/25/2019 10:46	Finished	REP,0.025>10mL
29	N036669-003A,SAMP	9	1000	Unknown		07/25/2019 10:55	Finished	SAMP,0.0125>10mL
30	N036669-003A,SAMP	10	1000	Unknown		07/25/2019 11:05	Finished	SAMP,0.00625>10mL
31	N036669-003AREP,D	11	1000	Unknown		07/25/2019 11:14	Finished	REP,0.0125>10mL
32	N036669-003AREP,D	12	1000	Unknown		07/25/2019 11:24	Finished	REP,0.00625>10mL
33	N036669-003A,SAMP	13	1000	Unknown		07/25/2019 11:33	Finished	REP,0.025>10mL
34	N036679-001A,SAMP	14	1000	Unknown		07/25/2019 11:43	Finished	SAMP, 0.5>10mL
35	N036679-002A,SAMP	15	1000	Unknown		07/25/2019 11:52	Finished	MS (1ppb), IWST-190702B,2>1
36	CCV-3,CCV,1,	16	1000	Unknown		07/25/2019 12:02	Finished	CCV @5ppb, IWST-190702A
37	CCB-3,CCB,1,	17	1000	Unknown		07/25/2019 12:11	Finished	CCB R190701B
38	N036679-003A,SAMP	18	1000	Unknown		07/25/2019 12:21	Finished	SAMP, 10mL
39	N036676-001A,SAMP	19	1000	Unknown		07/25/2019 12:30	Finished	SAMP, 10mL
40	N036676-002A,SAMP	20	1000	Unknown		07/25/2019 12:39	Finished	SAMP, 10mL
41	N036679-001A,SAMP	21	1000	Unknown		07/25/2019 12:49	Finished	SAMP,2> 10mL
42	N036679-001AMS,MS	22	1000	Unknown		07/25/2019 12:58	Finished	MS (5ppb), IWST-190702B,2>1
43	N036679-001AMSD,M	23	1000	Unknown		07/25/2019 13:08	Finished	MSD (5ppb), IWST-190702B,2>
44	N036679-002AMS,MS	24	1000	Unknown		07/25/2019 13:17	Finished	MS (1ppb), IWST-190702B,10
45	N036679-003AMS,MS	25	1000	Unknown		07/25/2019 13:27	Finished	MS (1ppb), IWST-190702B,10
46	N036676-001AMS,MS	26	1000	Unknown		07/25/2019 13:36	Finished	MS (1ppb), IWST-190702B,10
47	N036676-002AMS,MS	27	1000	Unknown		07/25/2019 13:46	Finished	MS (1ppb), IWST-190702B,10
48	CCV-4,CCV1,1,	28	1000	Unknown		07/25/2019 13:55	Finished	CCV @10ppb, IWST-190702A
49	CCB-4,CCB,1,	29	1000	Unknown		07/25/2019 14:05	Finished	CCB R190701B
50	N036655-014A,SAMP	31	1000	Unknown		07/25/2019 14:14	Finished	SAMP,10mL
51	N036655-017A,SAMP	32	1000	Unknown		07/25/2019 14:24	Finished	SAMP,10mL
52	N036655-018A,SAMP	33	1000	Unknown		07/25/2019 14:33	Finished	SAMP,10mL
53	N036655-019A,SAMP	34	1000	Unknown		07/25/2019 14:42	Finished	SAMP,10mL
54	N036655-020A,SAMP	35	1000	Unknown		07/25/2019 14:52	Finished	SAMP,10mL
55	N036655-021A,SAMP	36	1000	Unknown		07/25/2019 15:01	Finished	SAMP, 0.2>10mL
56	N036655-022A,SAMP	37	1000	Unknown		07/25/2019 15:11	Finished	SAMP,10mL
57	N036655-023A,SAMP	38	1000	Unknown		07/25/2019 15:20	Finished	SAMP,10mL
58	N036676-001A,SAMP	39	1000	Unknown		07/25/2019 15:30	Finished	SAMP,2> 10mL
59	N036676-001AMS,MS	40	1000	Unknown		07/25/2019 15:39	Finished	MS (1ppb), IWST-190702B,2>1
60	CCV-5,CCV,1,	41	1000	Unknown		07/25/2019 15:49	Finished	CCV @5ppb, IWST-190702A

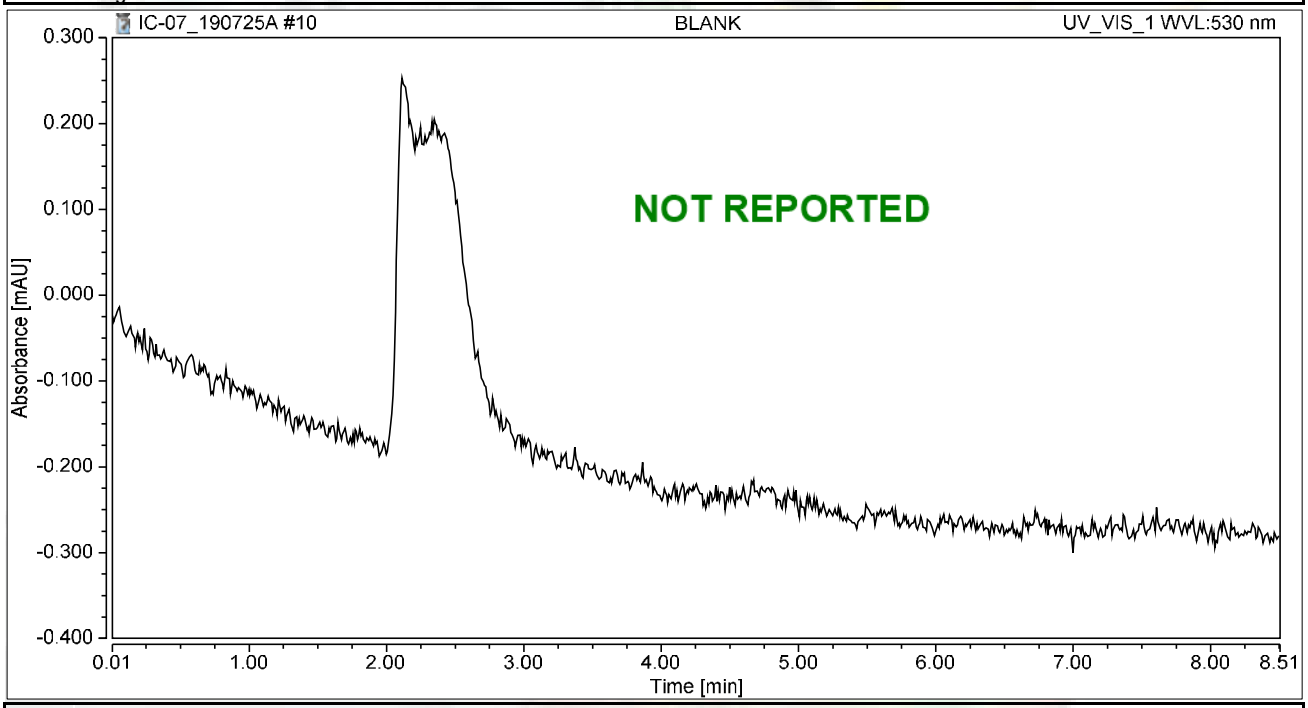
61	CCB-5,CCB,1,	42	1000	Unknown		07/25/2019 15:58	Finished	CCB R190701B
62	N036655-017ADUP,D	43	1000	Unknown		07/25/2019 16:08	Finished	DUP,10mL
63	N036677-001A,SAMF	44	1000	Unknown		07/25/2019 16:17	Finished	SAMP,10mL
64	N036677-001AMS,MS	45	1000	Unknown		07/25/2019 16:27	Finished	MS (1ppb), IWST-190702B,10
65	N036677-002A,SAMF	46	1000	Unknown		07/25/2019 16:36	Finished	SAMP,0.1>10mL
66	N036677-002AMS,MS	47	1000	Unknown		07/25/2019 16:45	Finished	MS (5ppb), IWST-190702B,0.1
67	N036670-001A,SAMF	48	1000	Unknown		07/25/2019 16:55	Finished	SAMP,2>10mL
68	N036670-002A,SAMF	49	1000	Unknown		07/25/2019 17:04	Finished	SAMP,0.5>10mL
69	N036670-003A,SAMF	50	1000	Unknown		07/25/2019 17:14	Finished	SAMP, 10mL
70	LCS-2,LCS,1,	1	1000	Unknown		07/25/2019 17:26	Finished	LCS @5ppb, IWST-190702B
71	MB-2,MBLK,1,	2	1000	Unknown		07/25/2019 17:37	Finished	MB R190701B
72	CCV-6,CCV1,1,	3	1000	Unknown		07/25/2019 17:46	Finished	CCV @10ppb, IWST-190702A
73	CCB-6,CCB,1,	4	1000	Unknown		07/25/2019 17:56	Finished	CCB R190701B
74	N036671-014A,SAMF	5	1000	Unknown		07/25/2019 18:05	Finished	SAMP, 10mL
75	N036671-009A,SAMF	6	1000	Unknown		07/25/2019 18:15	Finished	SAMP,0.1> 10mL
76	N036671-002A,SAMF	7	1000	Unknown		07/25/2019 18:24	Finished	SAMP, 10mL
77	N036671-014AMS,MS	8	1000	Unknown		07/25/2019 18:56	Finished	MS (1ppb), IWST-190702B,10
78	N036671-014AMSD,M	9	1000	Unknown		07/25/2019 19:07	Finished	MSD (1ppb), IWST-190702B,10
79	N036671-009AMS,MS	10	1000	Unknown		07/25/2019 19:17	Finished	MS (5ppb), IWST-190702B,0.1
80	N036671-002ADUP,D	11	1000	Unknown		07/25/2019 19:26	Finished	SAMP, 10mL
81	N036671-001A,SAMF	12	1000	Unknown		07/25/2019 19:35	Finished	SAMP, 10mL
82	N036671-003A,SAMF	13	1000	Unknown		07/25/2019 19:45	Finished	SAMP, 10mL
83	N036670-002A,SAMF	14	1000	Unknown		07/25/2019 19:54	Finished	SAMP, 0.2>10mL
84	CCV-7,CCV,1,	15	1000	Unknown		07/25/2019 20:04	Finished	CCV @5ppb, IWST-190702A
85	CCB-7,CCB,1,	16	1000	Unknown		07/25/2019 20:13	Finished	CCB R190701B
86	N036671-004A,SAMF	17	1000	Unknown		07/25/2019 20:23	Finished	SAMP, 10mL
87	N036671-005A,SAMF	18	1000	Unknown		07/25/2019 20:32	Finished	SAMP, 10mL
88	N036671-006A,SAMF	19	1000	Unknown		07/25/2019 20:42	Finished	SAMP, 10mL
89	N036671-007A,SAMF	20	1000	Unknown		07/25/2019 20:51	Finished	SAMP, 1>10mL
90	N036671-008A,SAMF	21	1000	Unknown		07/25/2019 21:01	Finished	SAMP, 10mL
91	N036671-010A,SAMF	22	1000	Unknown		07/25/2019 21:10	Finished	SAMP, 10mL
92	N036671-011A,SAMF	23	1000	Unknown		07/25/2019 21:20	Finished	SAMP, 10mL
93	N036671-012A,SAMF	24	1000	Unknown		07/25/2019 21:29	Finished	SAMP, 10mL
94	N036671-013A,SAMF	25	1000	Unknown		07/25/2019 21:38	Finished	SAMP, 10mL
95	N036671-015A,SAMF	26	1000	Unknown		07/25/2019 21:48	Finished	SAMP, 10mL
96	CCV-8,CCV1,1,	27	1000	Unknown		07/25/2019 21:57	Finished	CCV @10ppb, IWST-190702A
97	CCB-8,CCB,1,	28	1000	Unknown		07/25/2019 22:07	Finished	CCB R190701B
98	N036448-002A,SAMF	29	1000	Unknown		07/25/2019 22:16	Finished	SAMP, 10mL
99	N036448-002AMS,MS	30	1000	Unknown		07/25/2019 22:26	Finished	MS (5ppb), IWST-190702B,10
100	N036448-003A,SAMF	31	1000	Unknown		07/25/2019 22:35	Finished	SAMP, 10mL
101	N036448-003AMS,MS	32	1000	Unknown		07/25/2019 22:45	Finished	MS (5ppb), IWST-190702B,10
102	N036448-004A,SAMF	33	1000	Unknown		07/25/2019 22:54	Finished	SAMP, 10mL
103	N036448-004AMS,MS	34	1000	Unknown		07/25/2019 23:04	Finished	MS (5ppb), IWST-190702B,10
104	N036448-005A,SAMF	35	1000	Unknown		07/25/2019 23:13	Finished	SAMP, 10mL
105	N036448-005AMS,MS	36	1000	Unknown		07/25/2019 23:23	Finished	MS (5ppb), IWST-190702B,10
106	N036448-008A,SAMF	37	1000	Unknown		07/25/2019 23:32	Finished	SAMP, 10mL
107	N036448-008AMS,MS	38	1000	Unknown		07/25/2019 23:41	Finished	MS (5ppb), IWST-190702B,10
108	CCV-9,CCV,1,	39	1000	Unknown		07/25/2019 23:51	Finished	CCV @5ppb, IWST-190702A
109	CCB-9,CCB,1,	40	1000	Unknown		07/26/2019 00:00	Finished	CCB R190701B
110	BLANK	41	1000	Unknown		07/26/2019 00:10	Finished	CCB R190701B
111	SHUTDOWN	42	1000	Unknown		07/26/2019 00:19	Finished	
112	Eluent: R190725A	43	1000	Unknown		n.a.	Finished	Eluent
113	PCR: R190725B	44	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 07:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

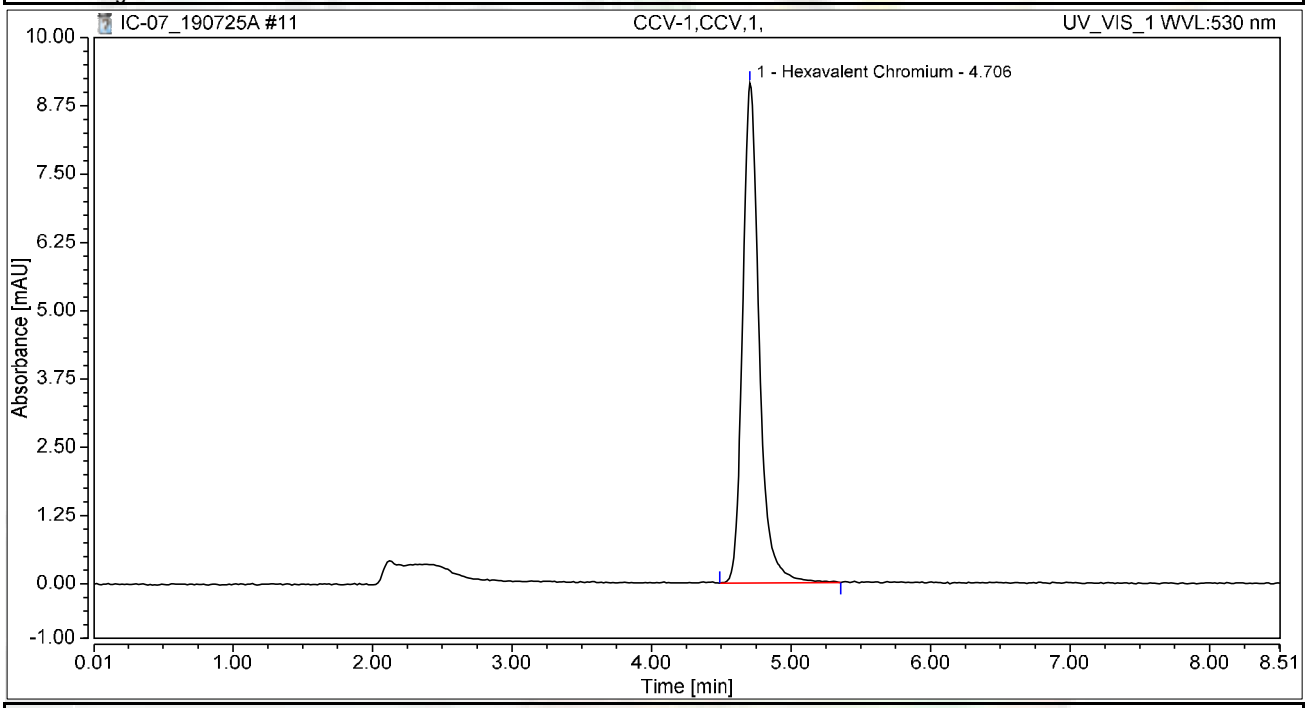
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 07:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

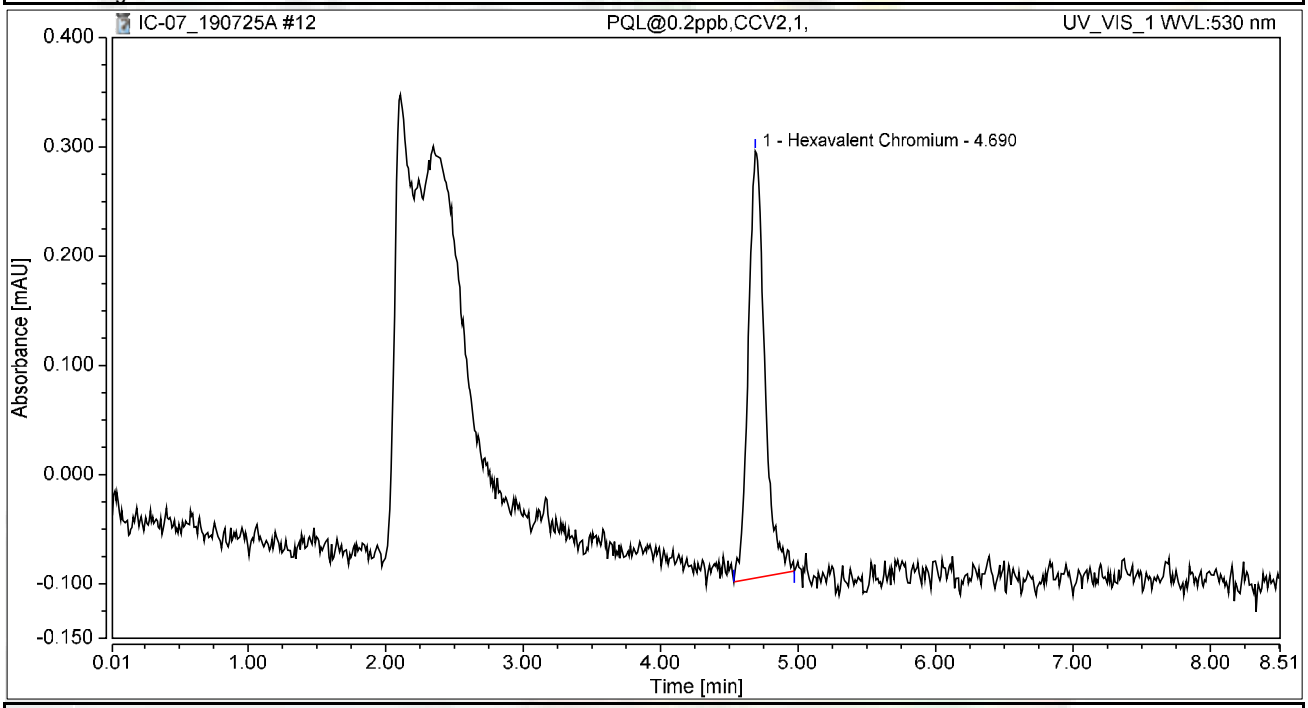
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.257	9.153	100.00	100.00	5.0789
Total:			**1.257**	**9.153**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 07:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

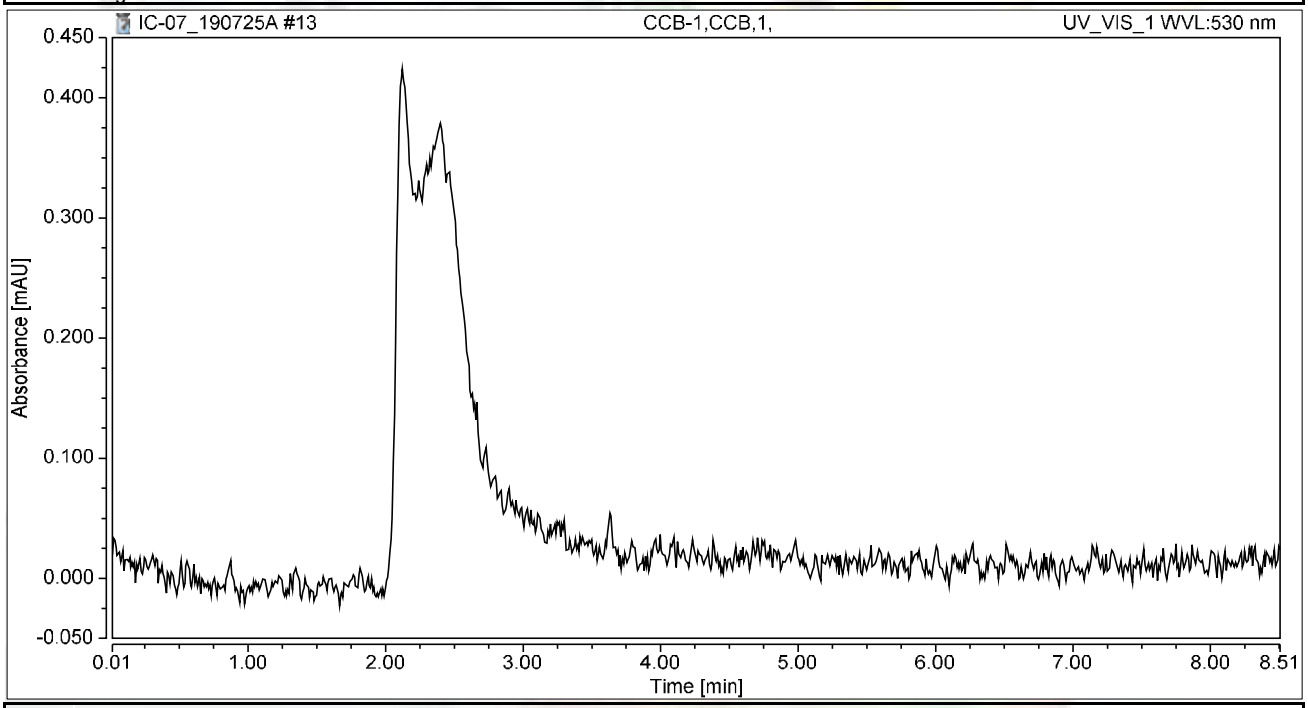
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.054	0.391	100.00	100.00	0.2179
Total:			**0.054**	**0.391**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 07:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

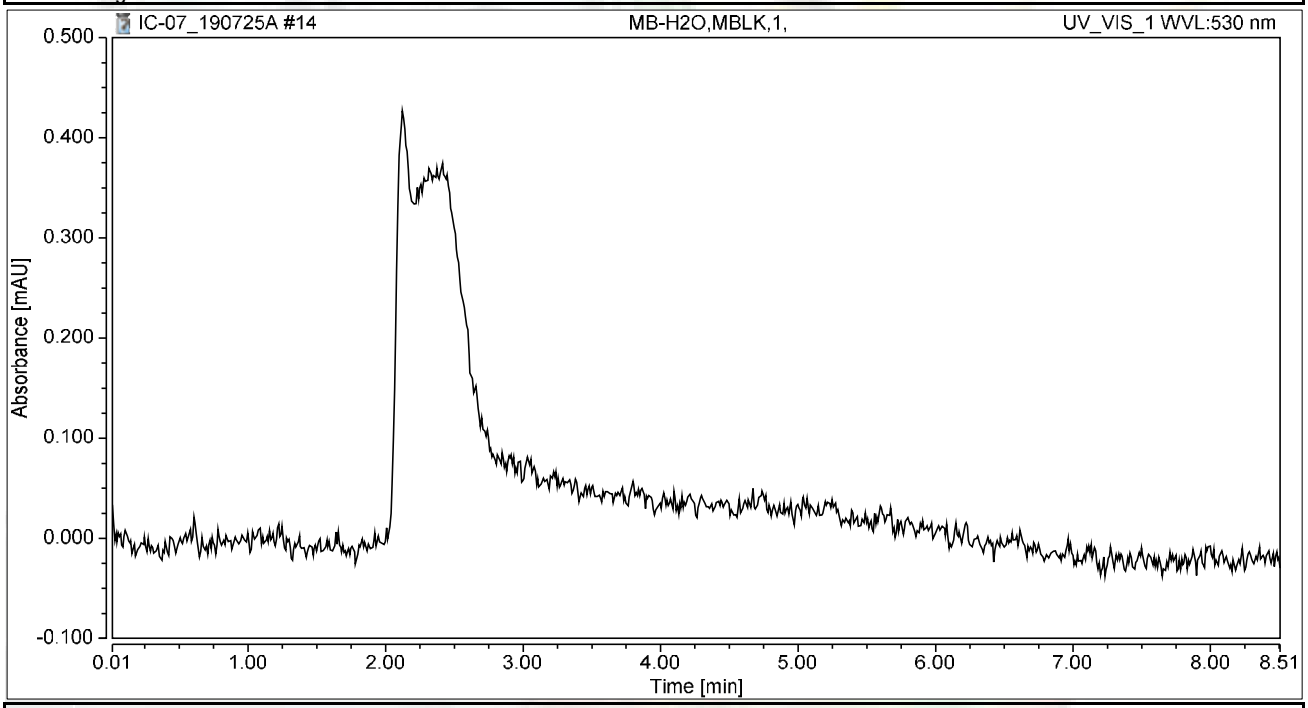
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 08:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

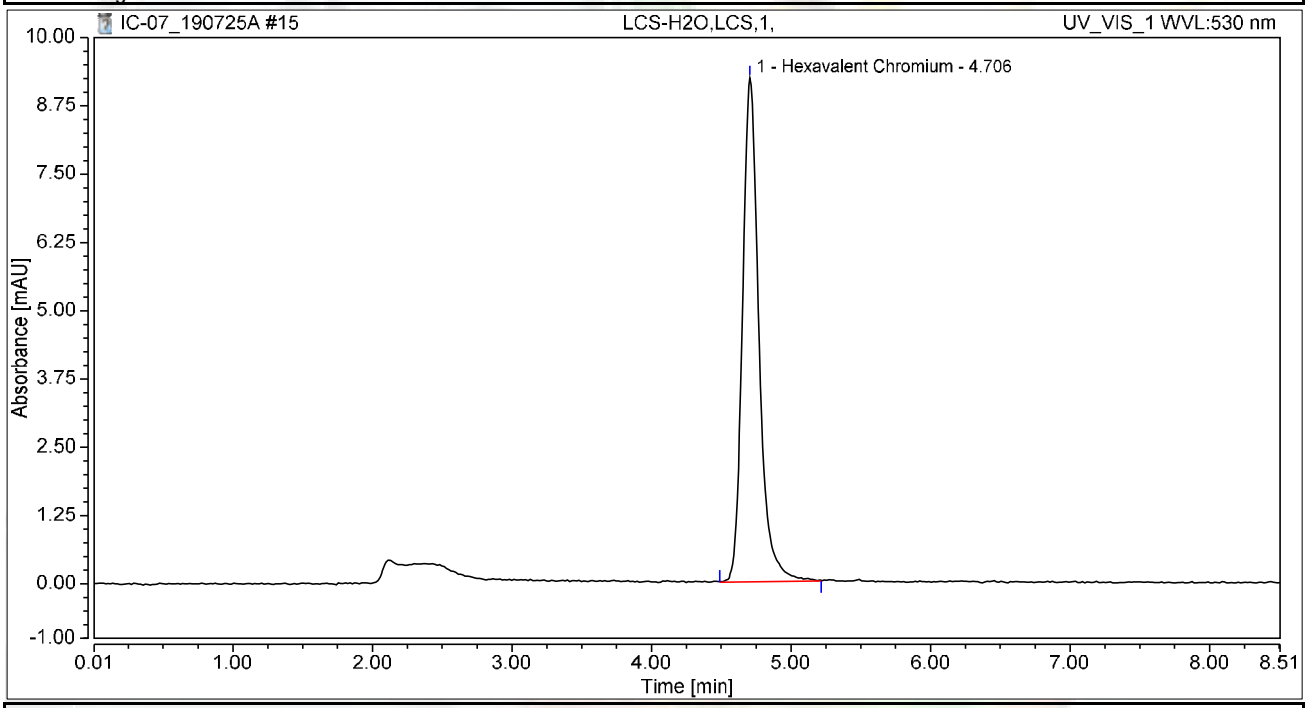
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 08:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

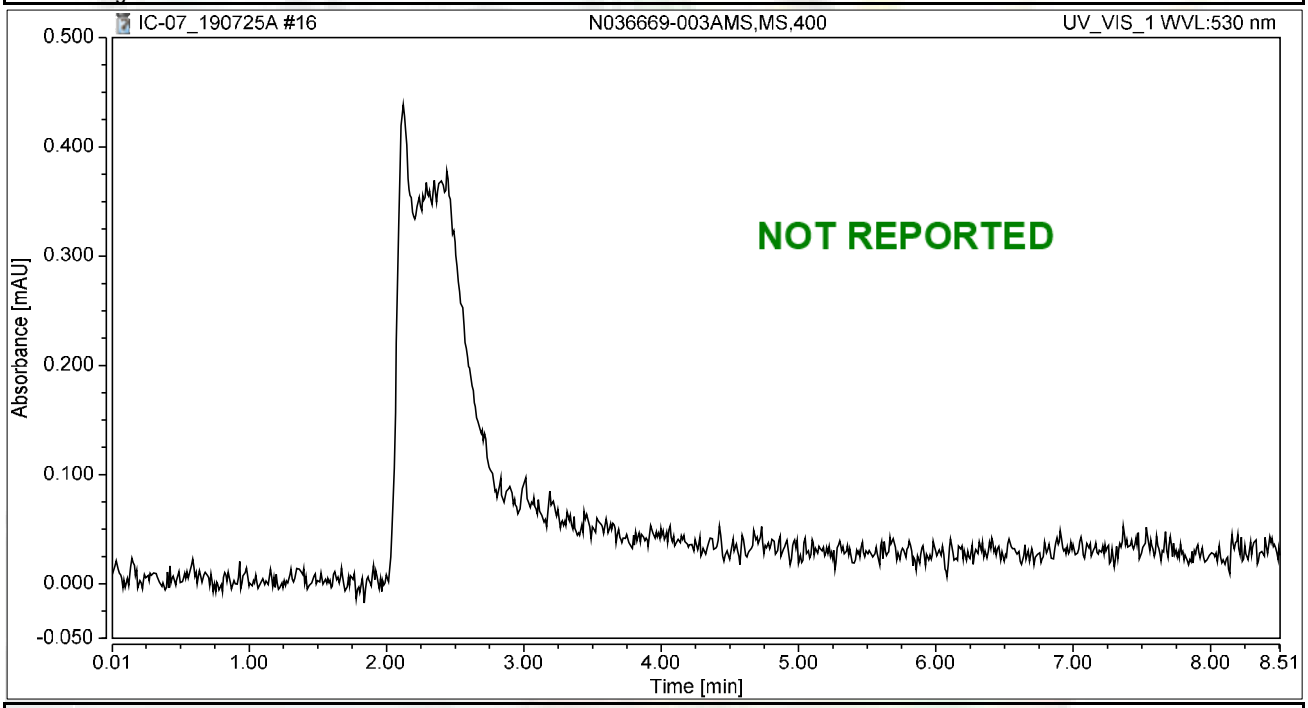
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.260	9.224	100.00	100.00	5.0893
Total:			**1.260**	**9.224**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003AMS,MS,400**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 08:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

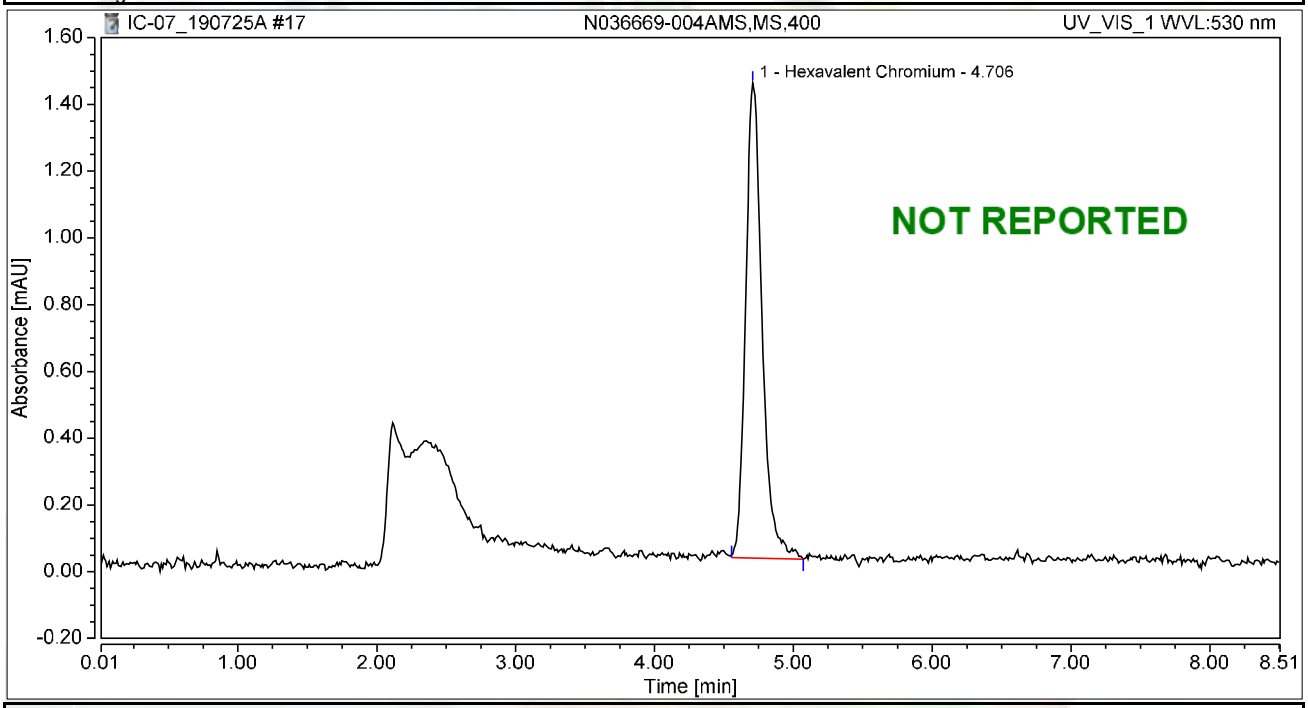
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-004AMS,MS,400**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 08:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

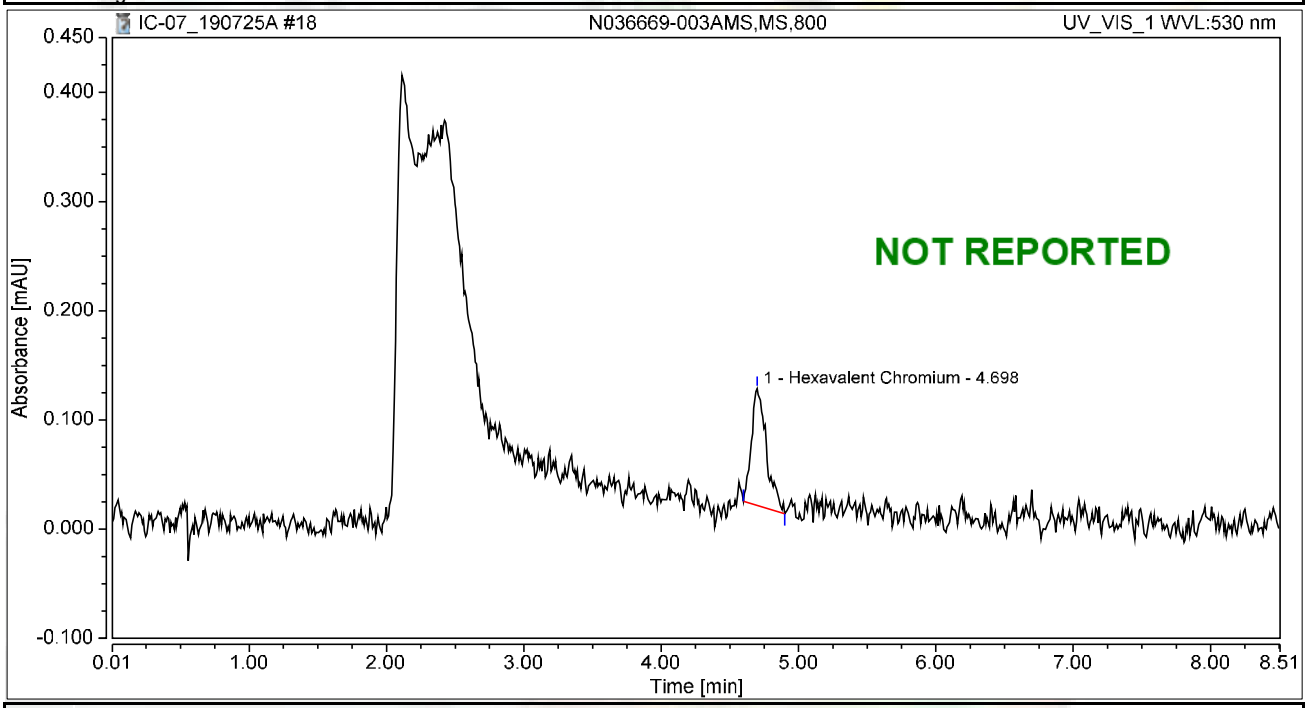
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.195	1.423	100.00	100.00	0.7896
Total:			**0.195**	**1.423**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003AMS,MS,800**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 09:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

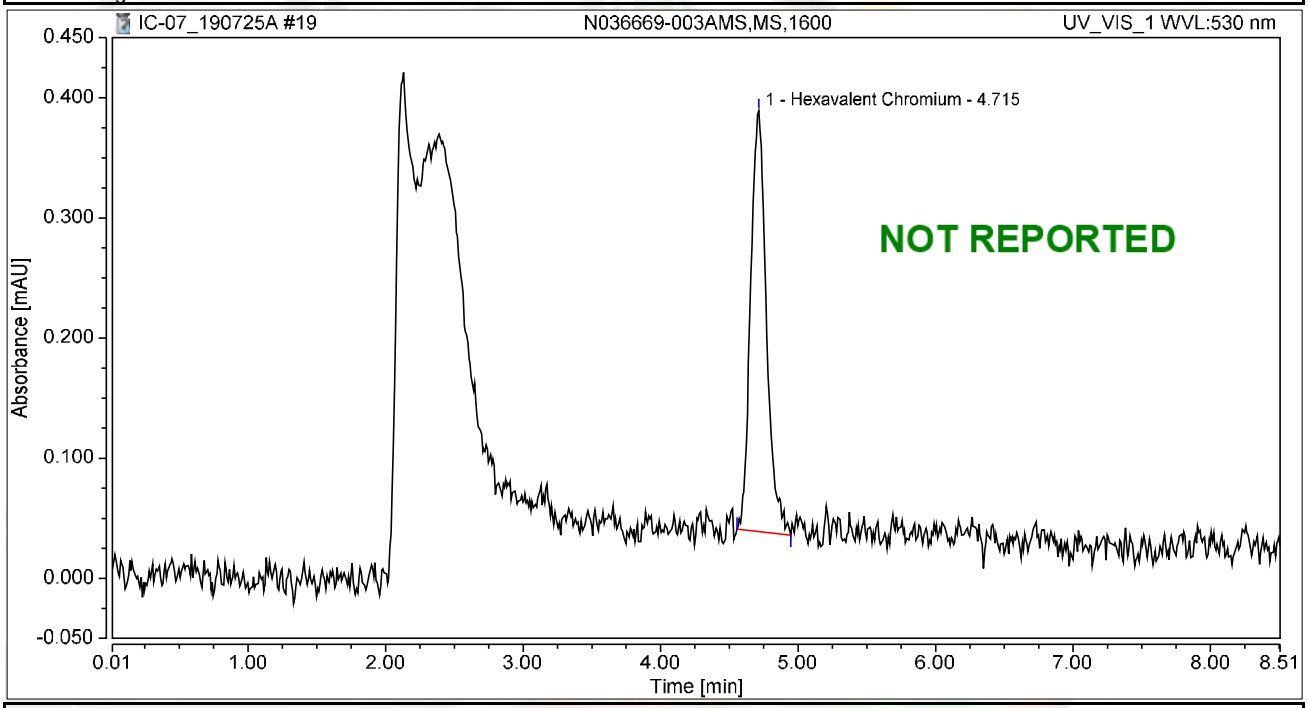
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.014	0.107	100.00	100.00	0.0547
Total:			**0.014**	**0.107**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003AMS,MS,1600**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

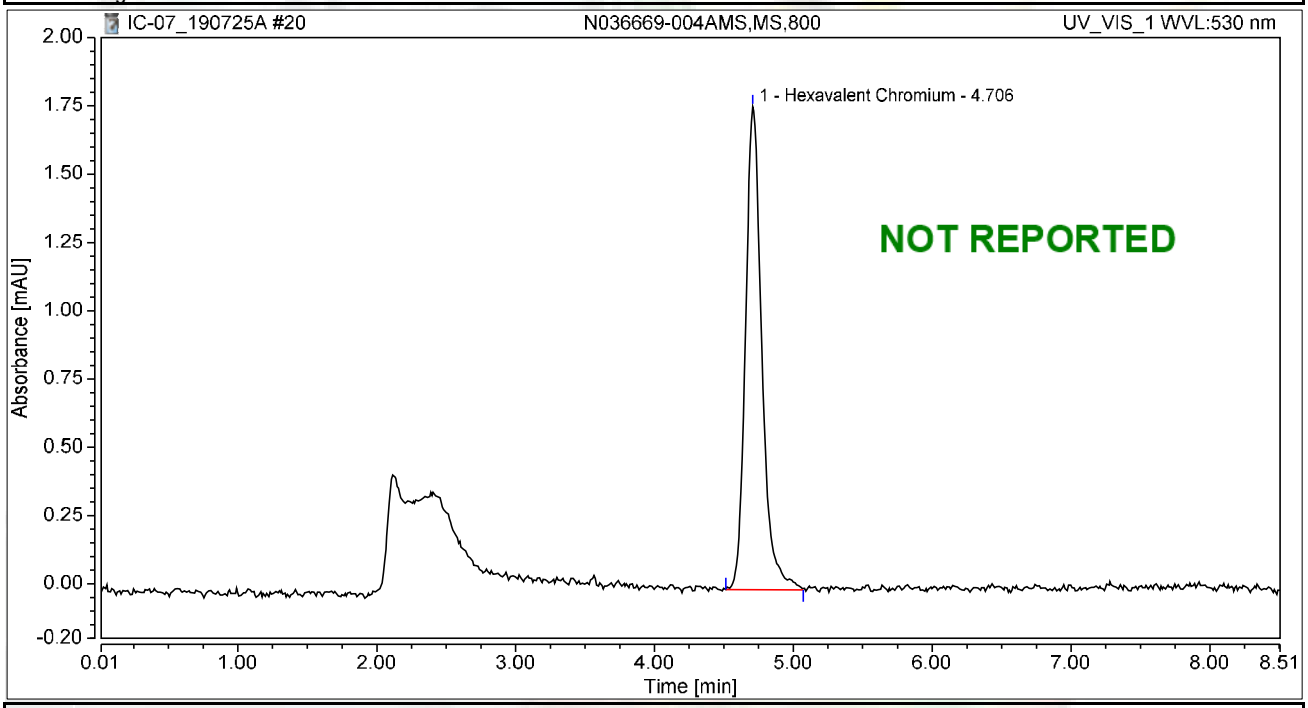
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.047	0.350	100.00	100.00	0.1886
Total:			**0.047**	**0.350**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-004AMS,MS,800**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 09:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

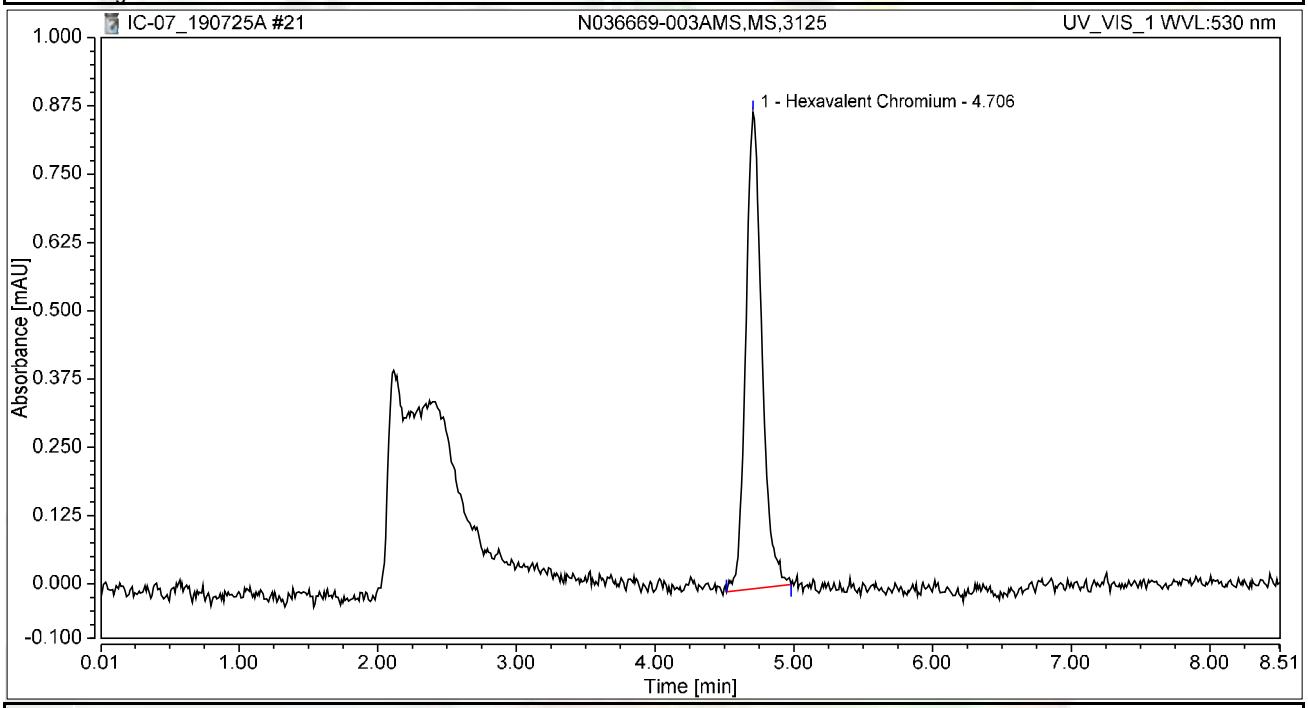
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.241	1.769	100.00	100.00	0.9736
Total:			**0.241**	**1.769**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003AMS,MS,3125**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 09:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

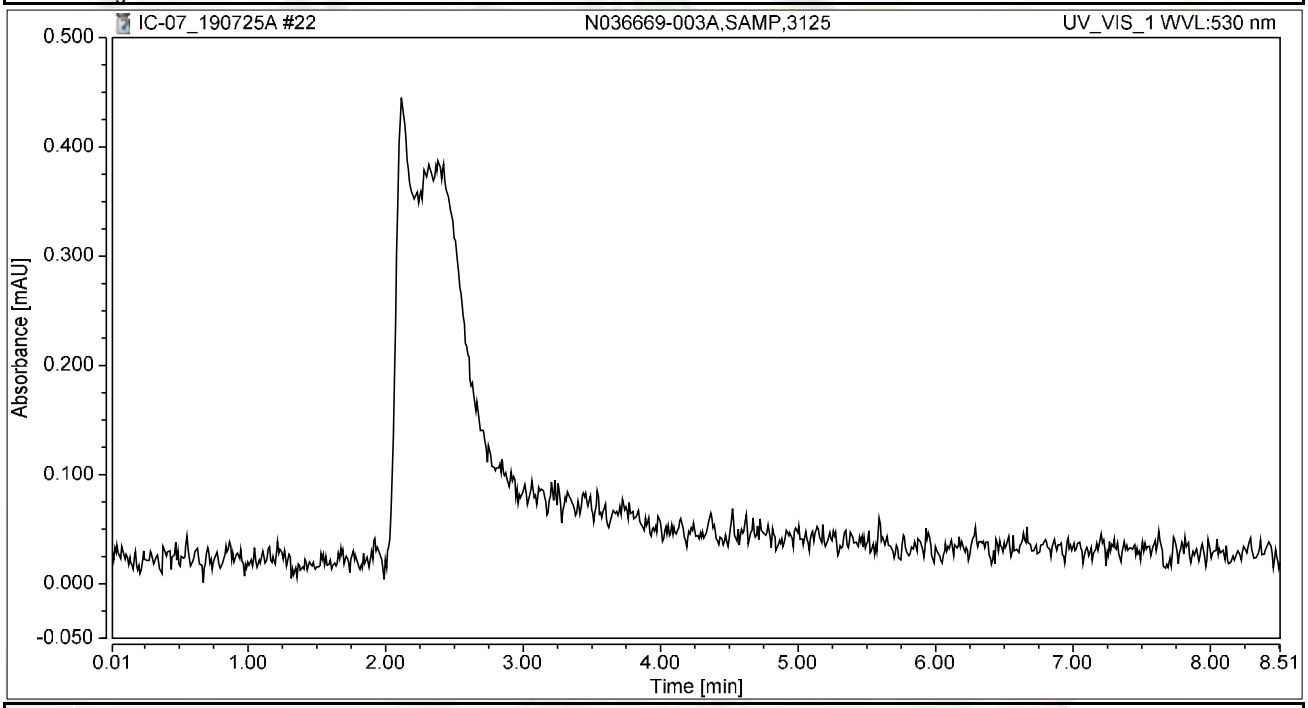
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.117	0.872	100.00	100.00	0.4743
Total:			**0.117**	**0.872**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003A,SAMP,3125**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 09:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

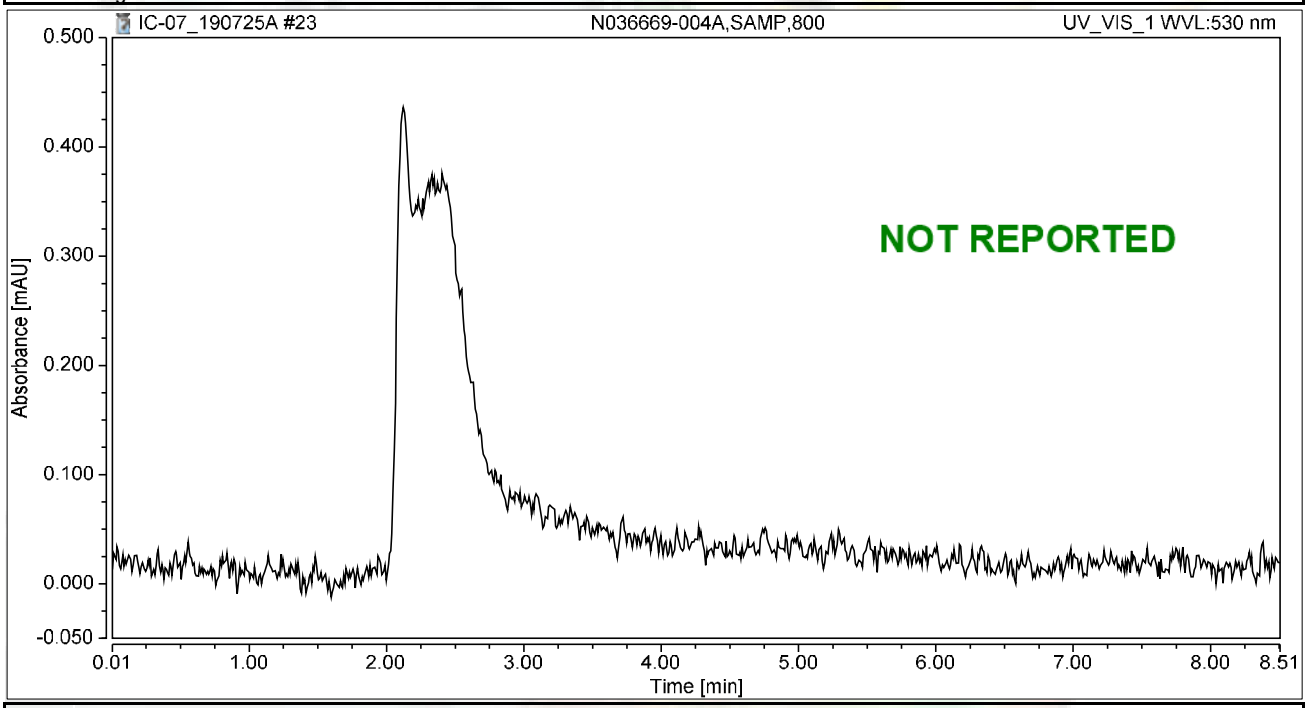
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-004A,SAMP,800**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 09:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

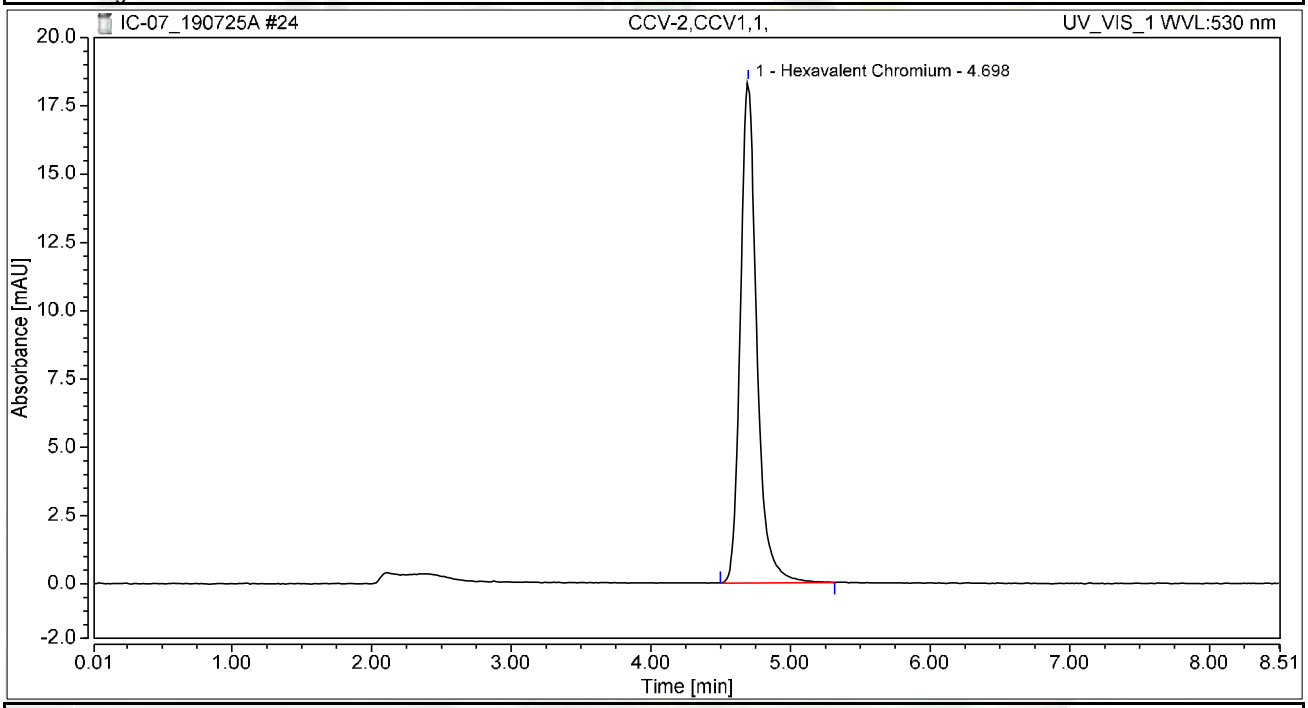
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Blank**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 10:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

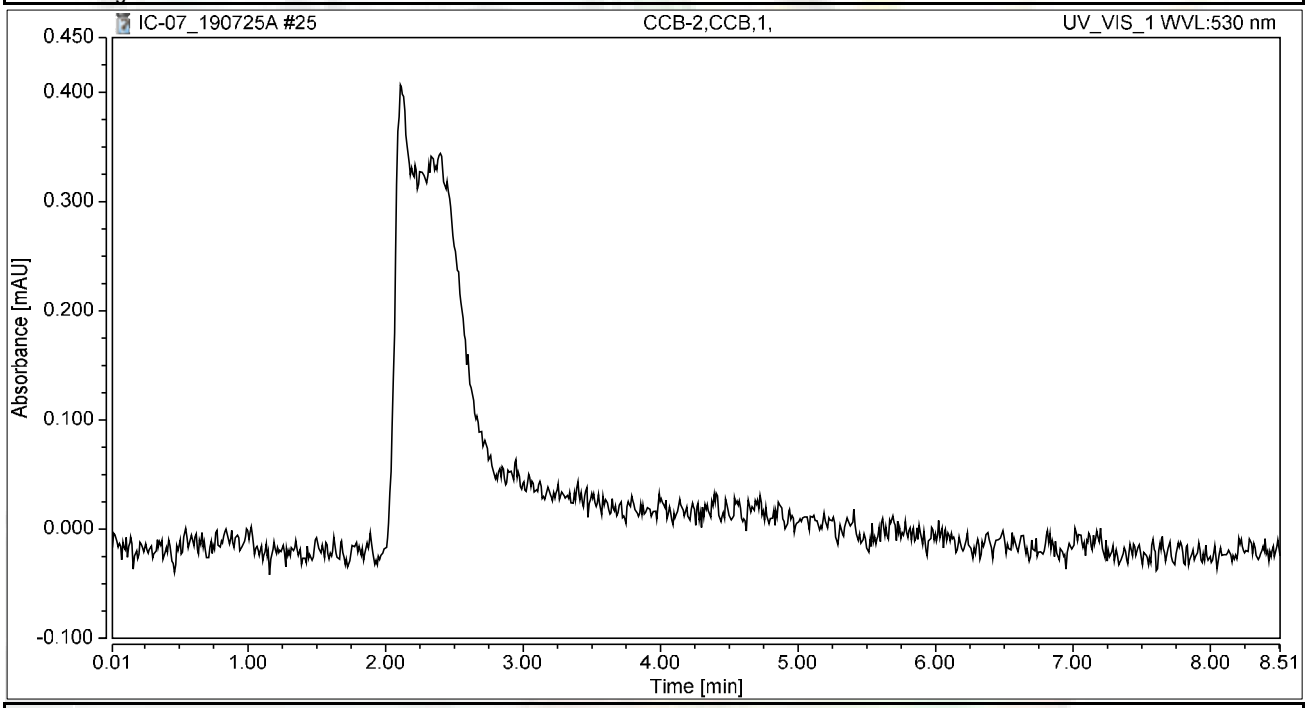
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.513	18.345	100.00	100.00	10.1523
Total:			**2.513**	**18.345**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 10:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

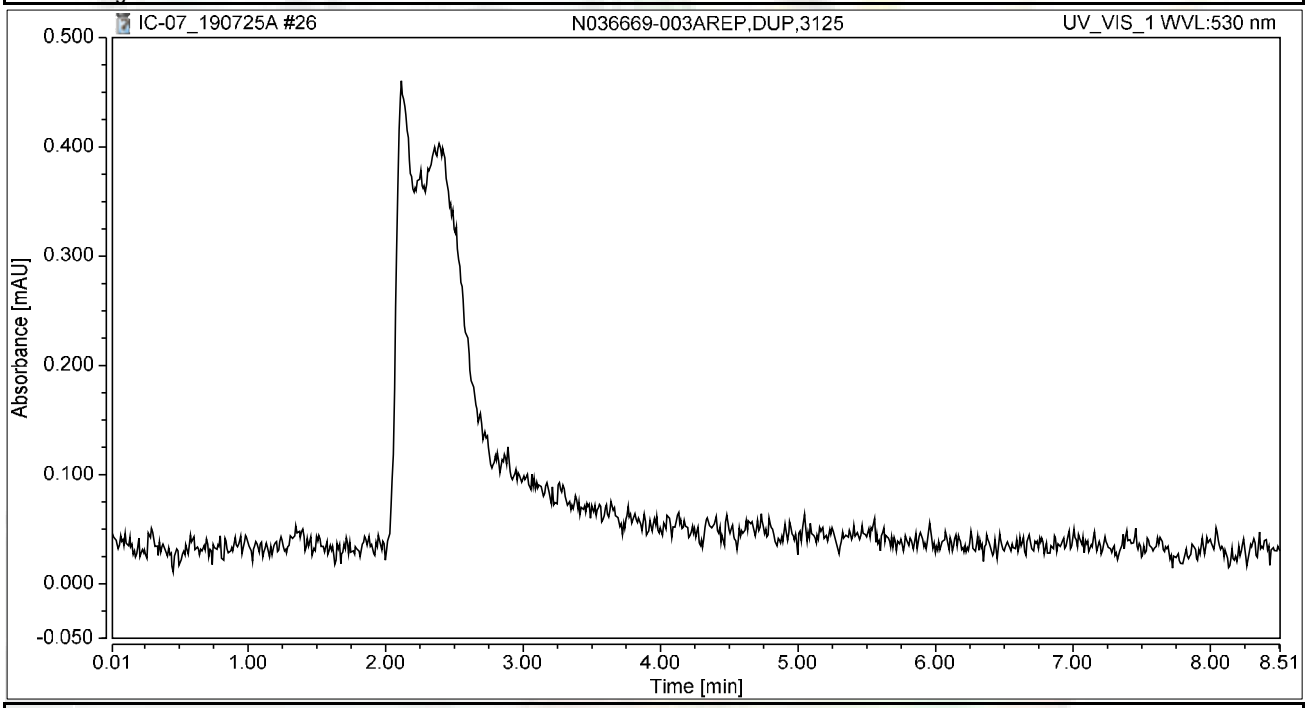
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003AREP,DUP,3125**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 10:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

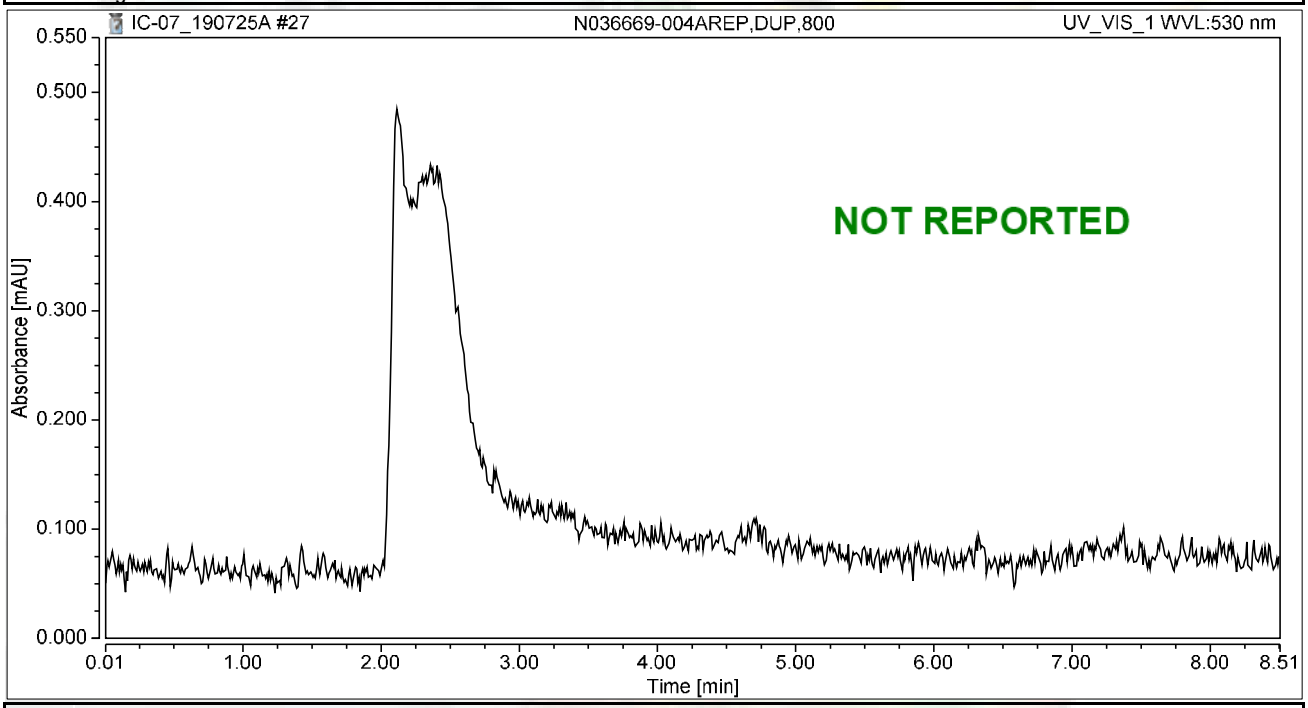
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-004AREP,DUP,800**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 10:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

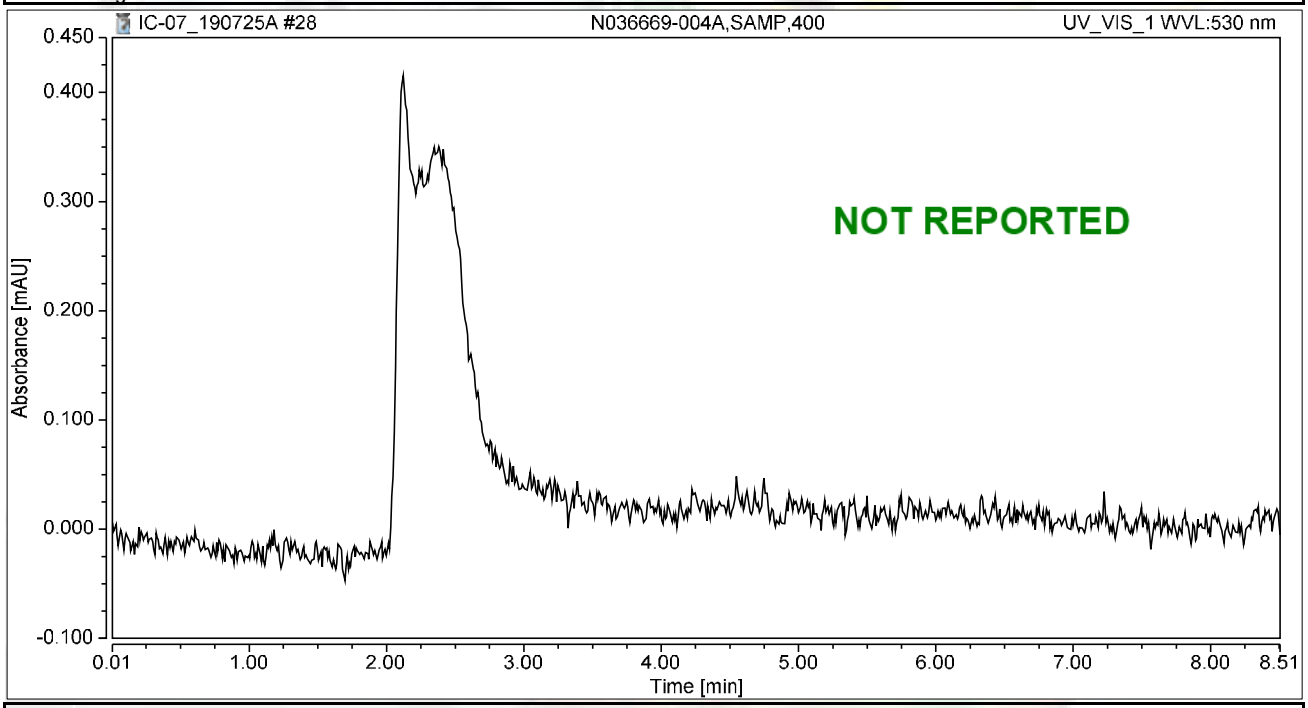
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-004A,SAMP,400**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 10:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

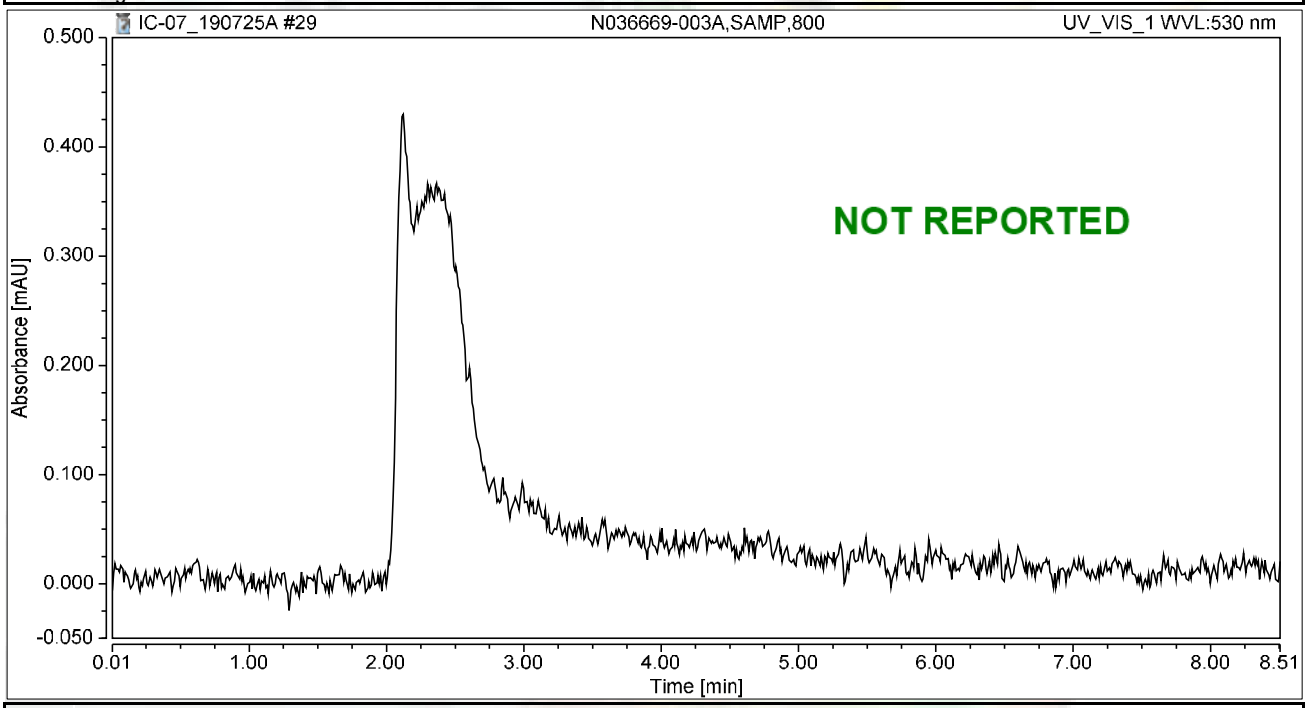
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003A,SAMP,800**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 10:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

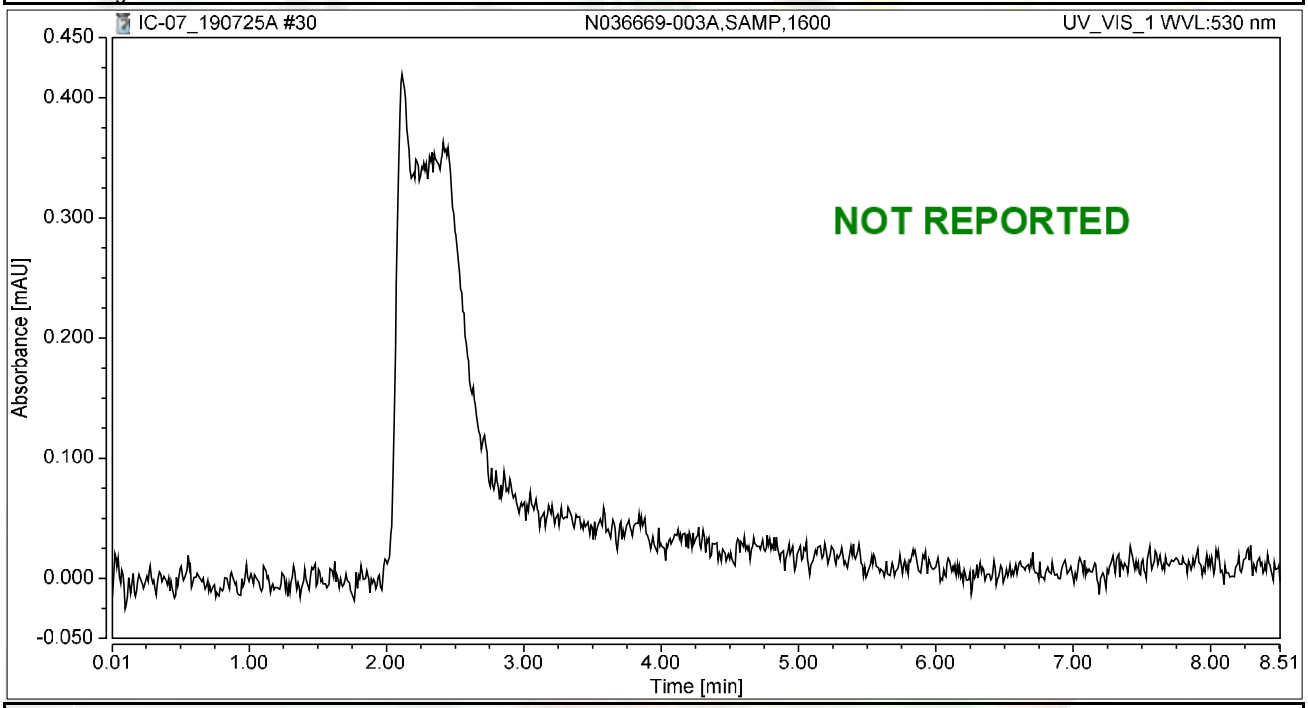
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003A,SAMP,1600**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

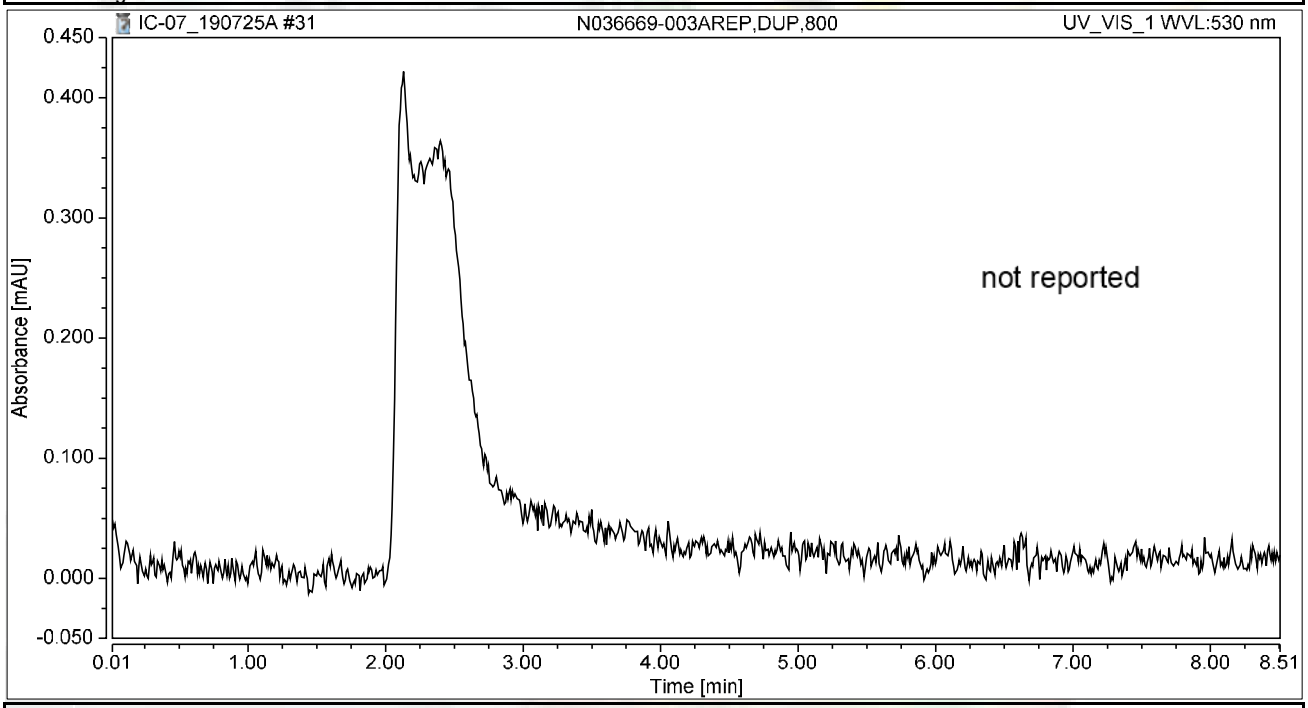
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003AREP,DUP,800**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 11:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

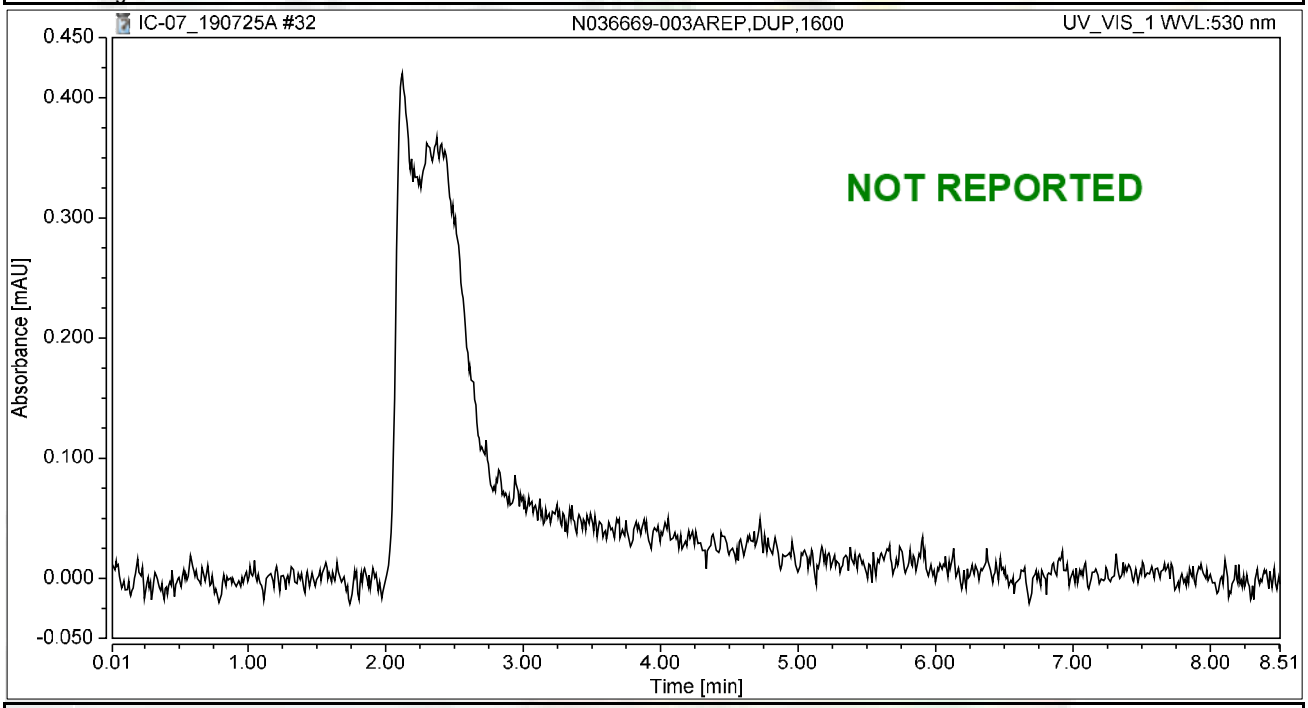
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003AREP,DUP,1600**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 11:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

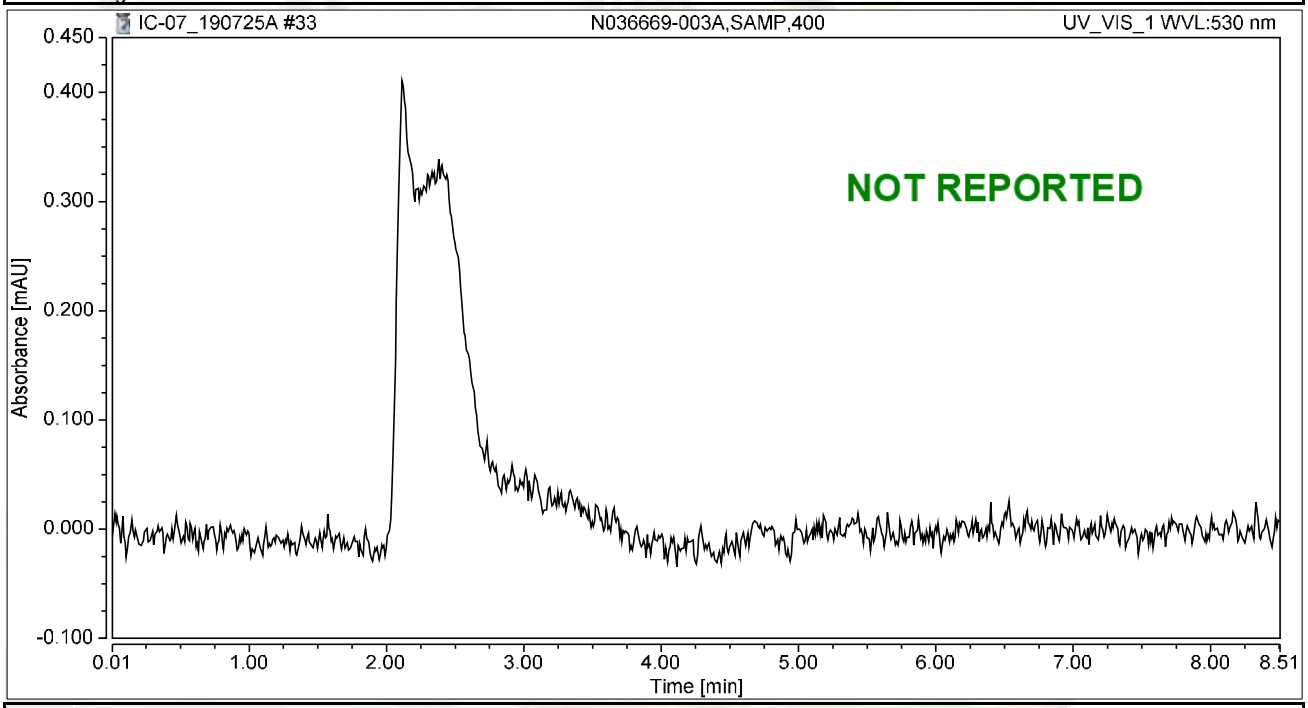
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036669-003A,SAMP,400**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

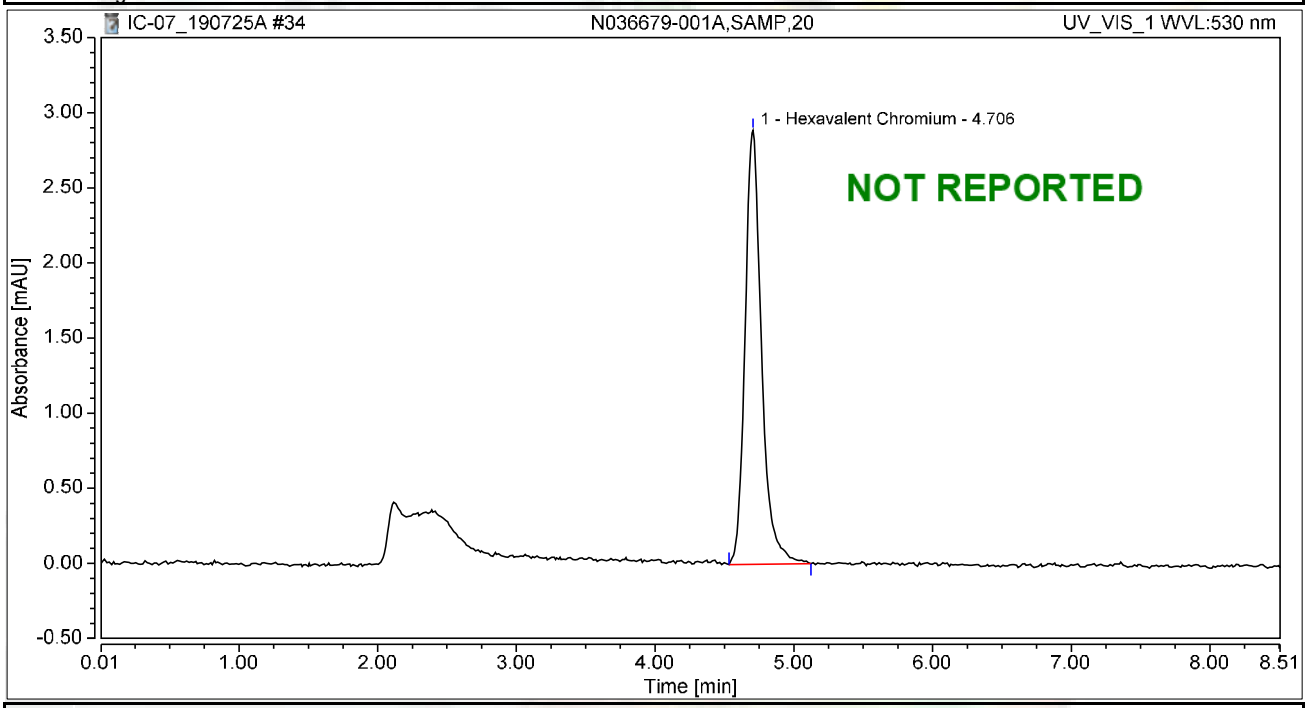
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-001A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 11:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

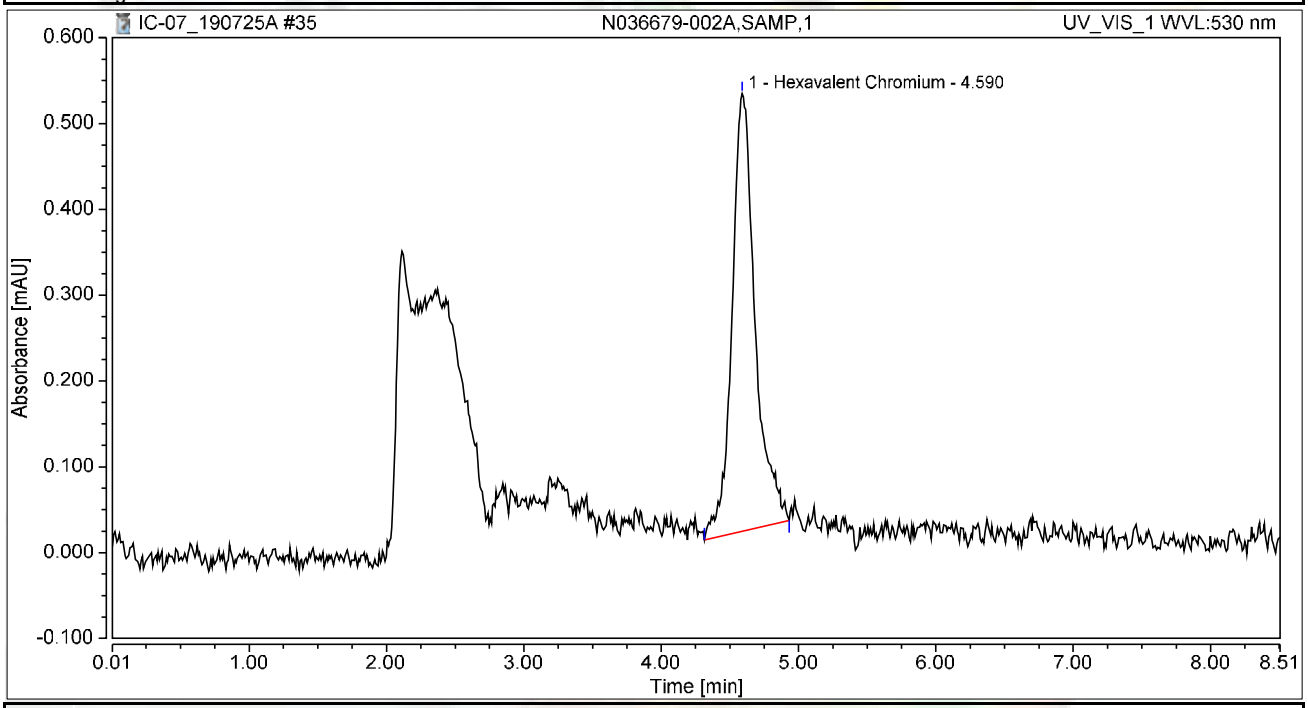
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.398	2.888	100.00	100.00	1.6067
Total:			**0.398**	**2.888**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 11:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

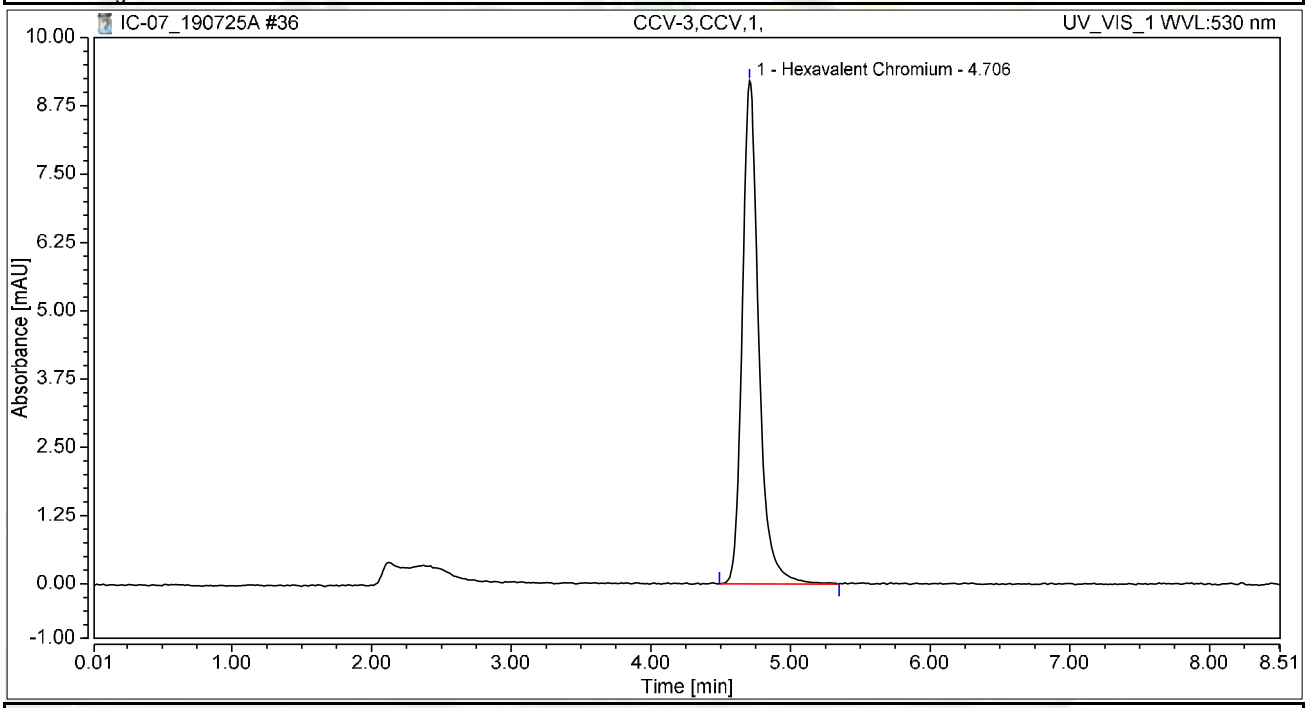
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.590	0.099	0.510	100.00	100.00	0.4009
Total:			**0.099**	**0.510**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 12:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

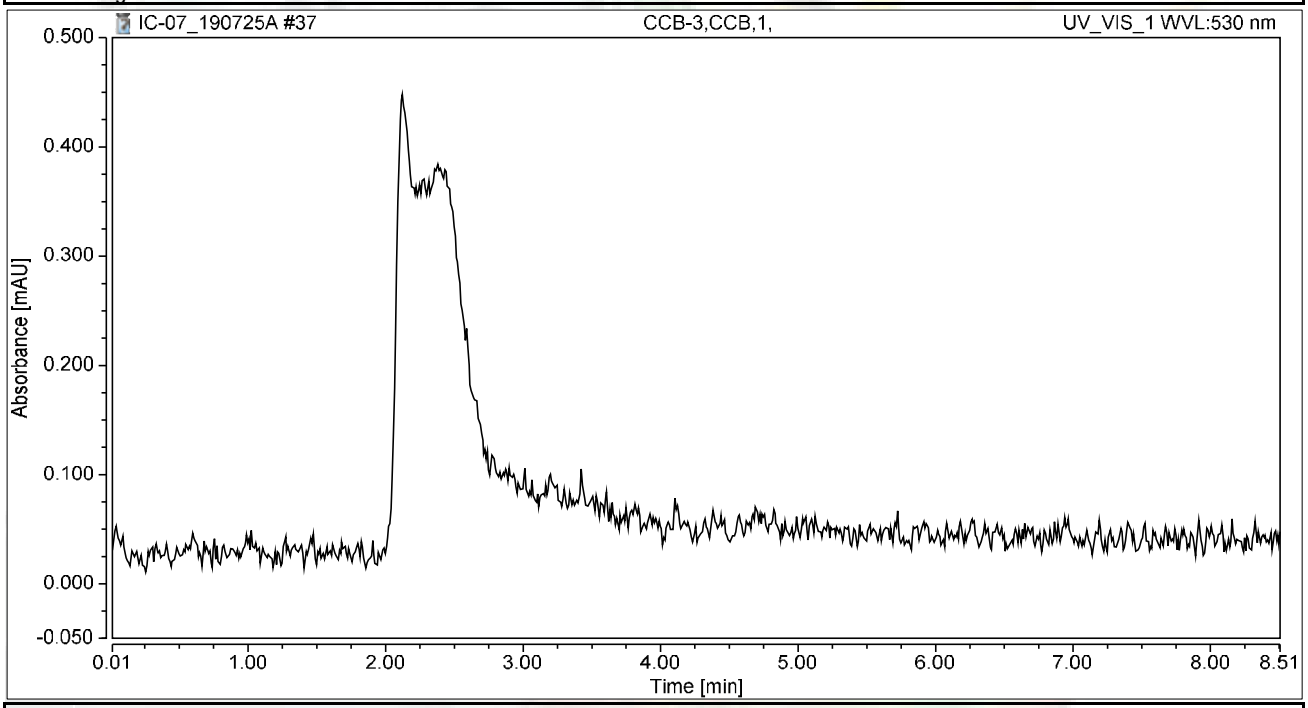
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.266	9.214	100.00	100.00	5.1144
Total:			**1.266**	**9.214**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 12:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

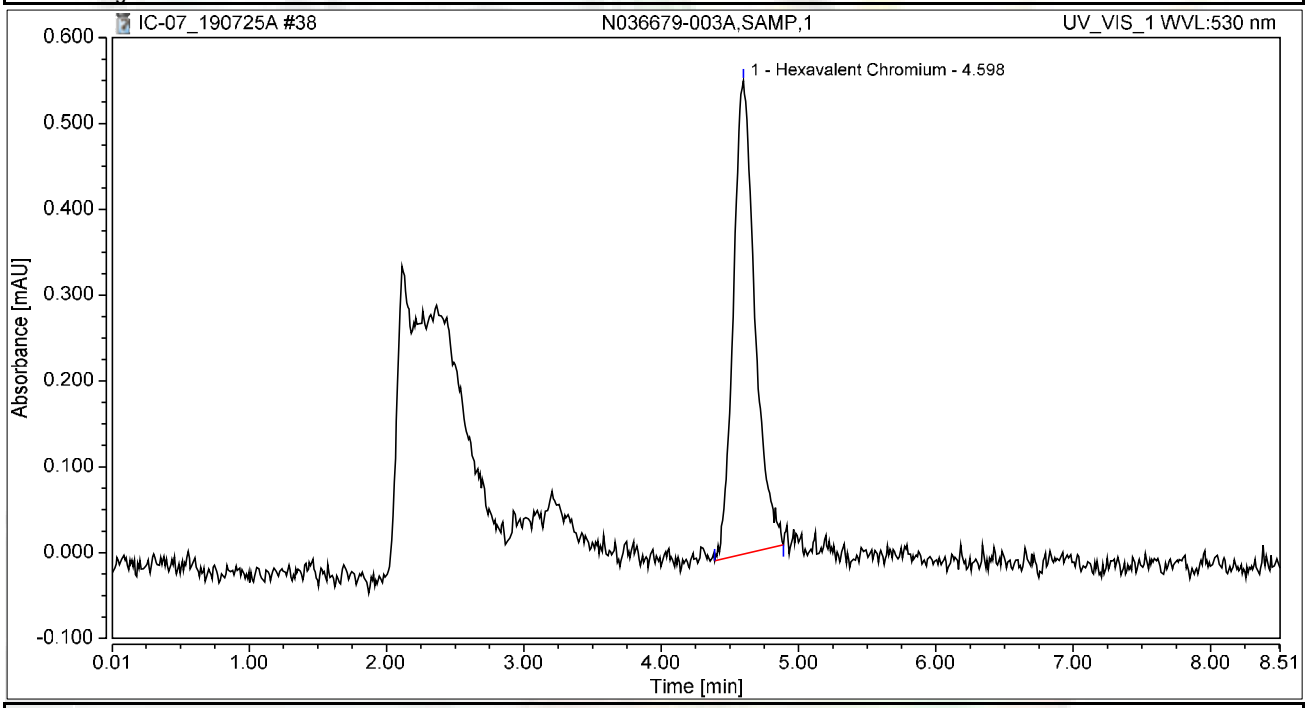
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 12:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

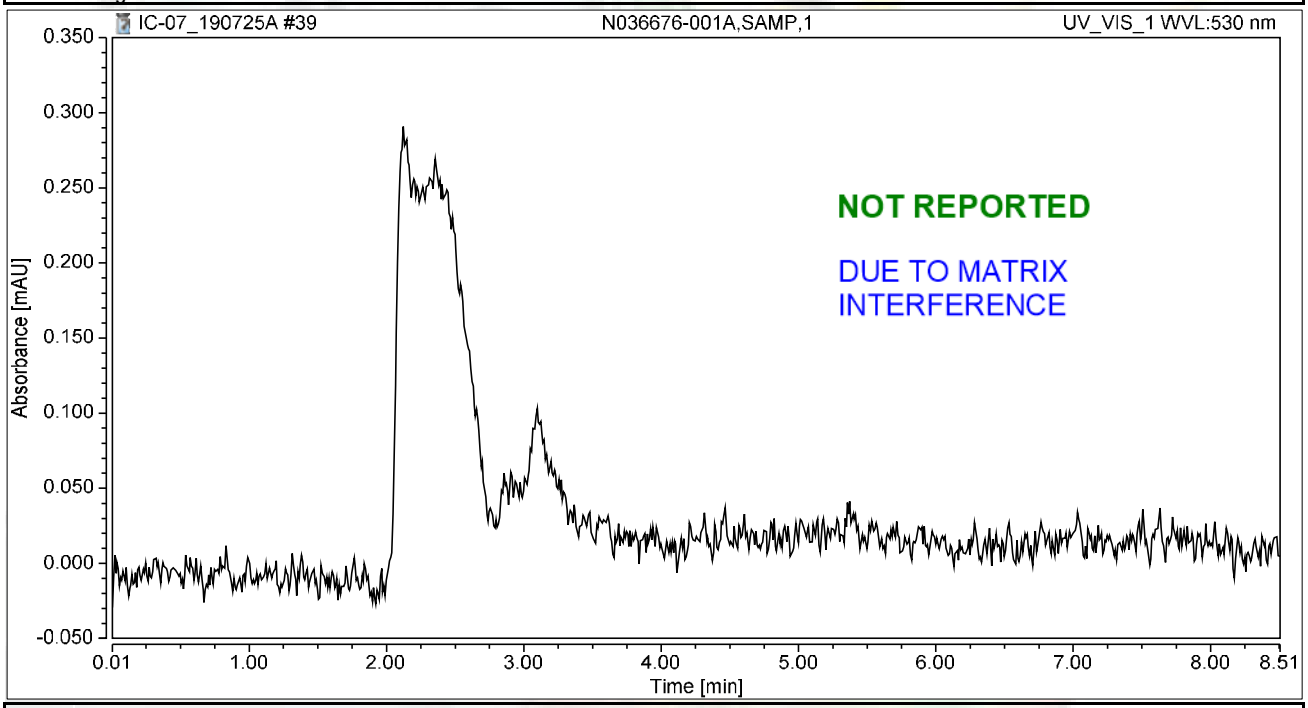
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.101	0.551	100.00	100.00	0.4065
Total:			**0.101**	**0.551**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036676-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 12:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

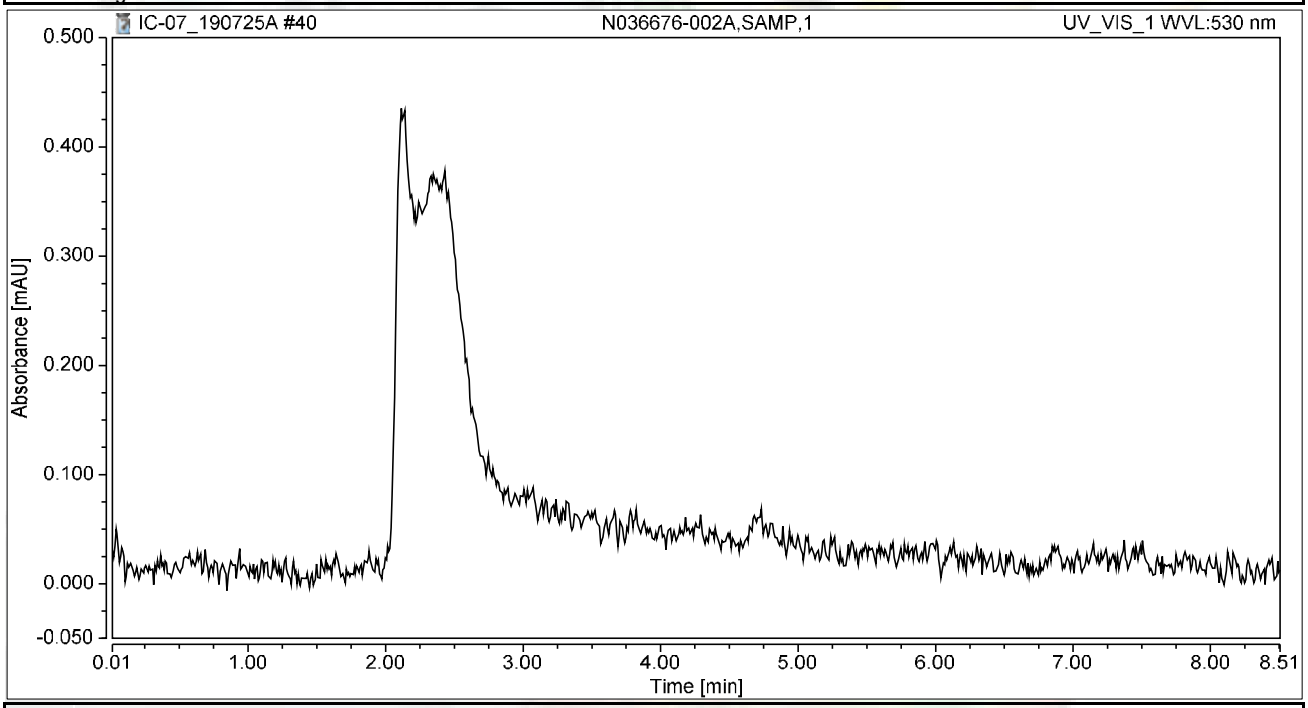
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036676-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 12:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

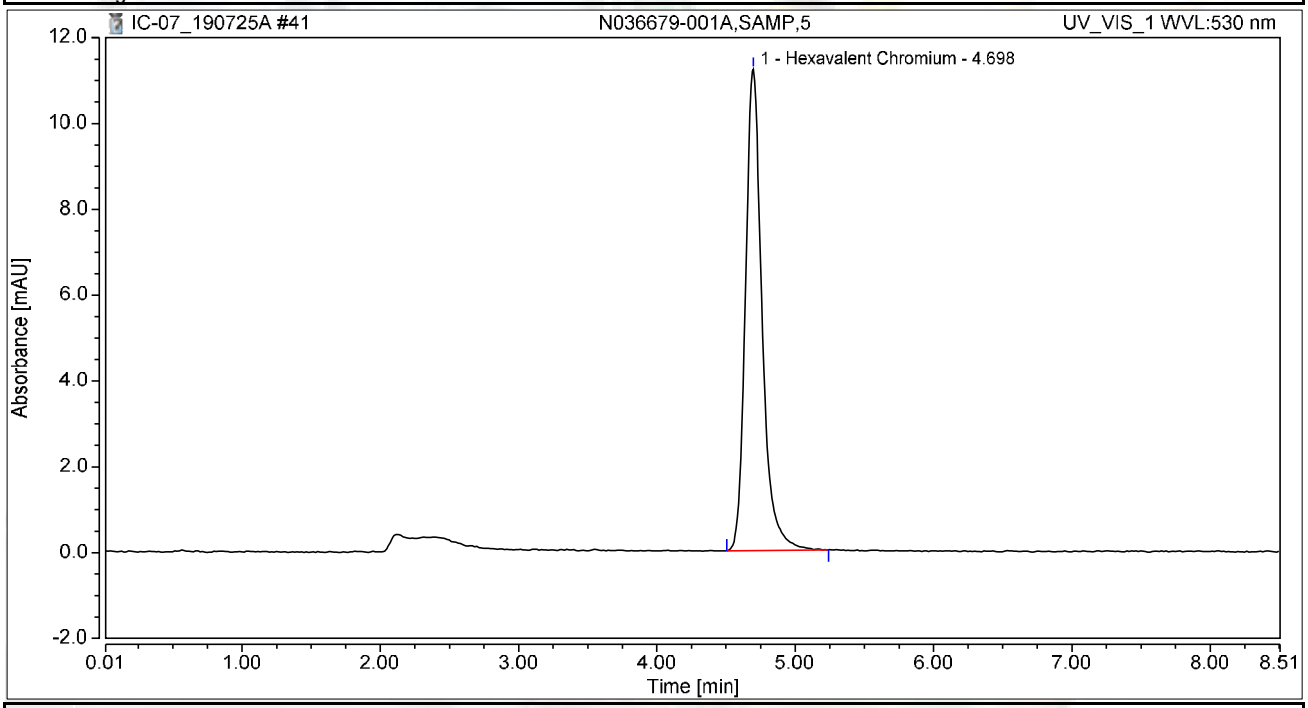
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 12:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

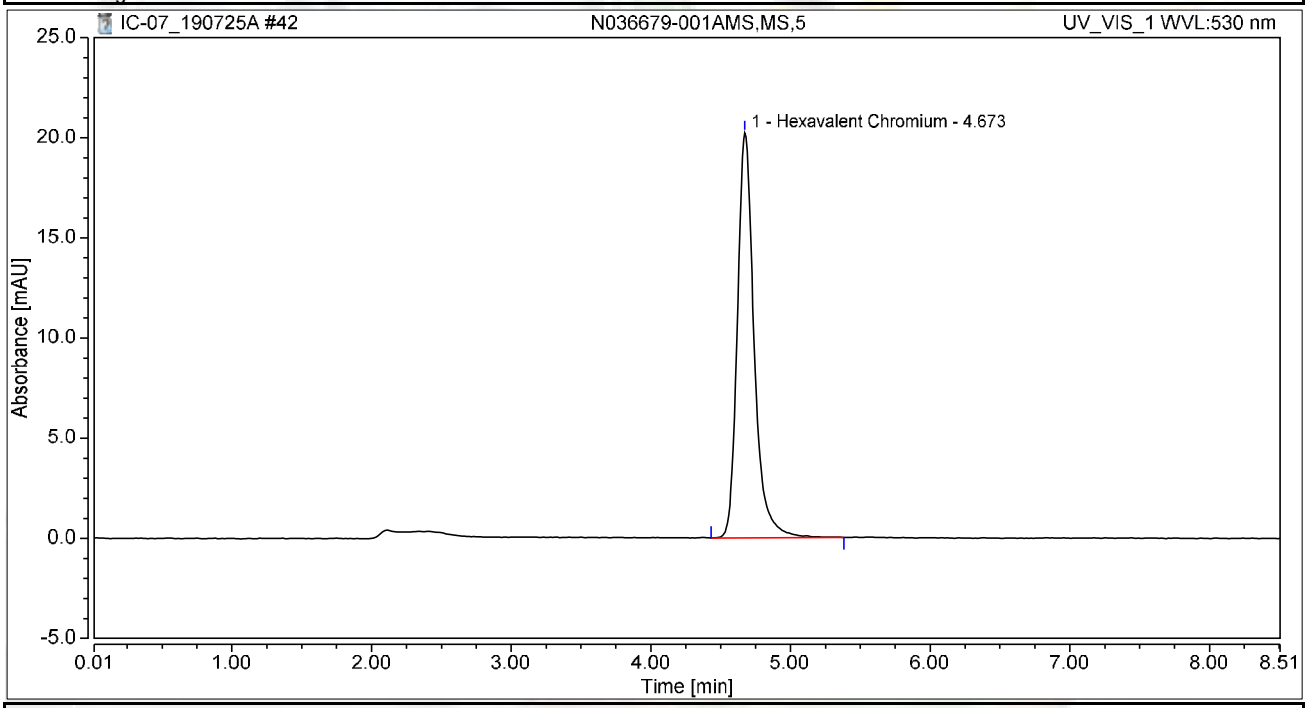
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.557	11.212	100.00	100.00	6.2897
Total:			**1.557**	**11.212**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-001AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 12:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

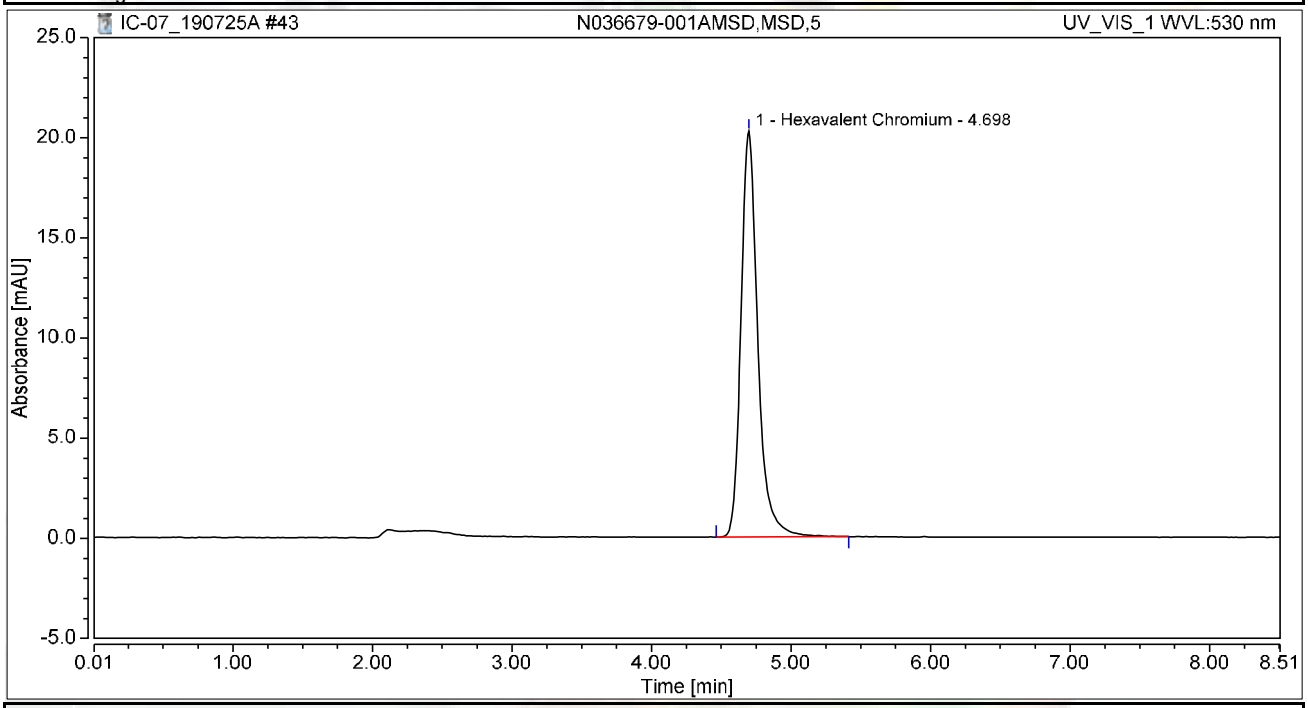
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	2.826	20.233	100.00	100.00	11.4155
Total:			**2.826**	**20.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-001AMSD,MSD,5**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 13:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

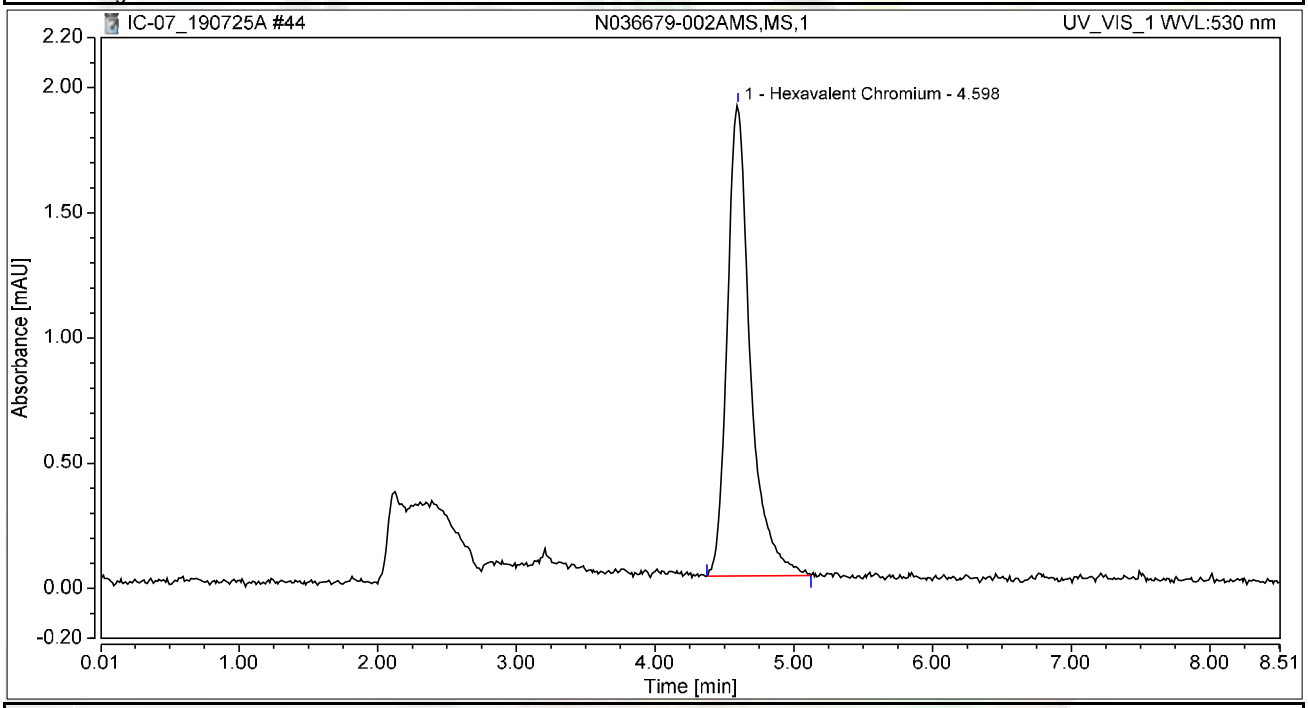
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.830	20.274	100.00	100.00	11.4330
Total:			**2.830**	**20.274**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 13:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

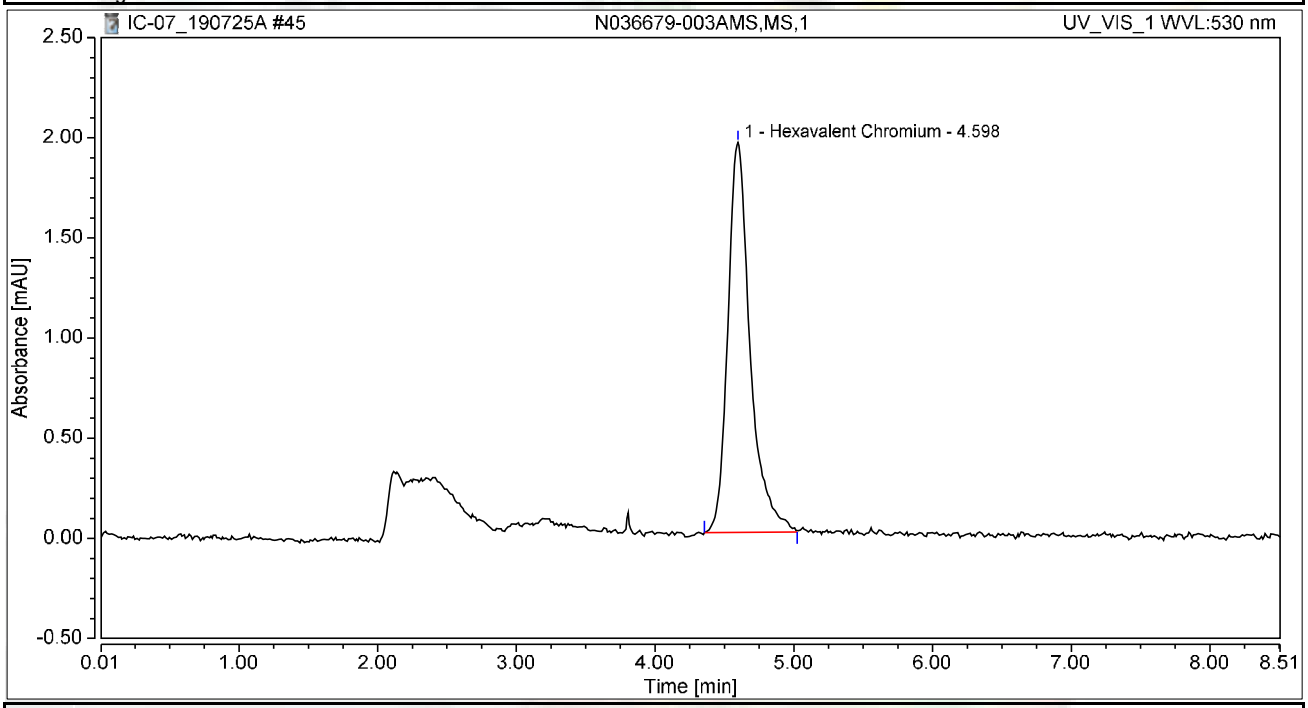
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.363	1.881	100.00	100.00	1.4657
Total:			**0.363**	**1.881**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036679-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 13:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

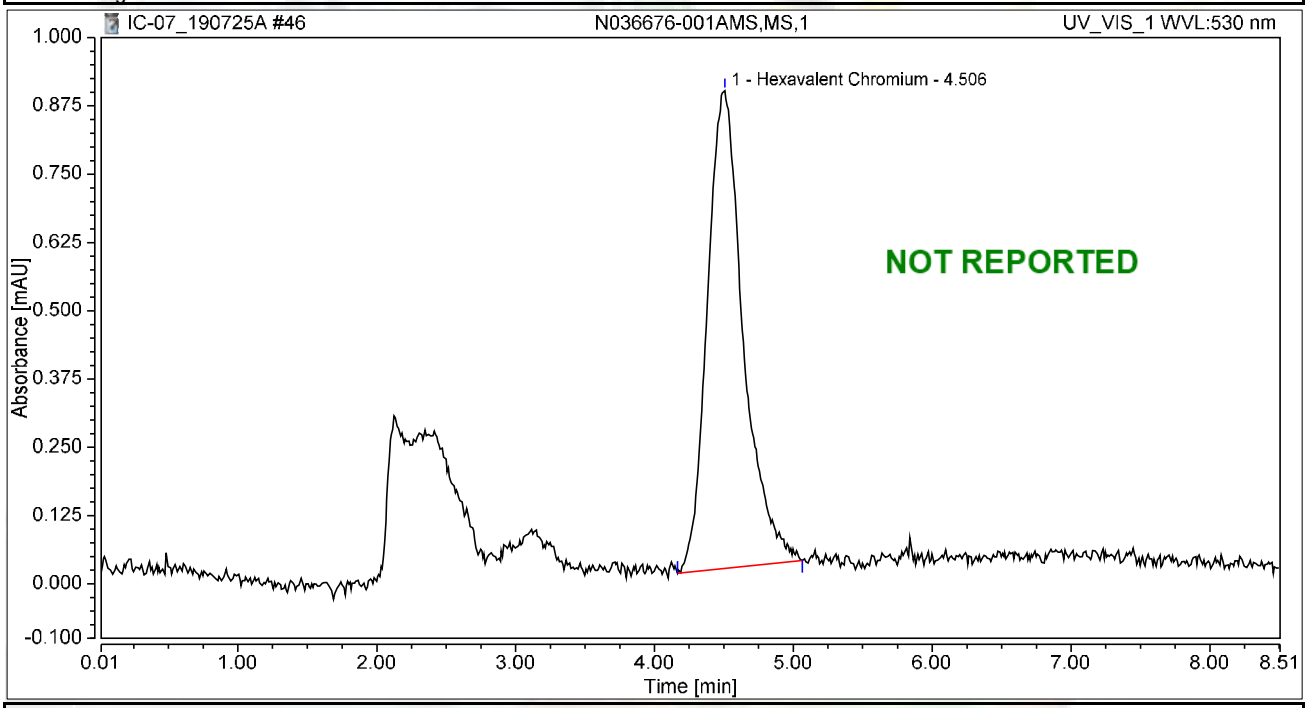
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.363	1.946	100.00	100.00	1.4670
Total:			**0.363**	**1.946**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036676-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 13:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

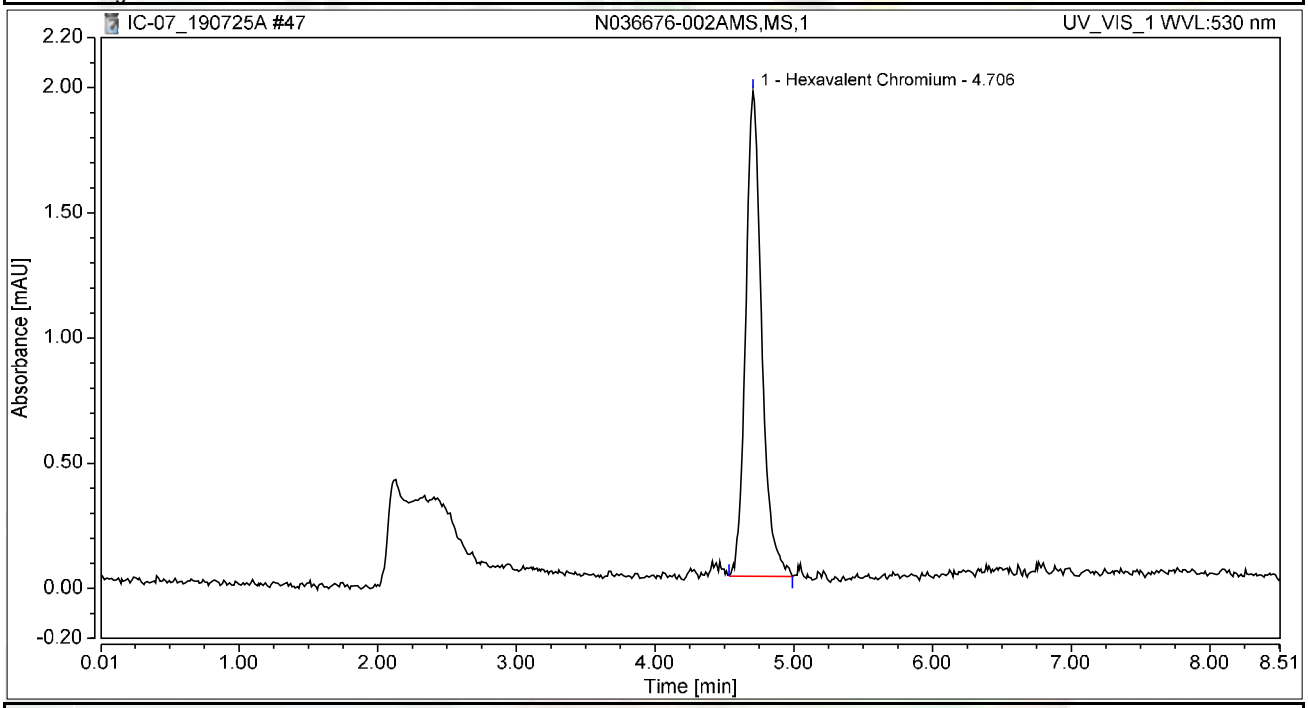
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.263	0.875	100.00	100.00	1.0609
Total:			**0.263**	**0.875**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036676-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 13:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

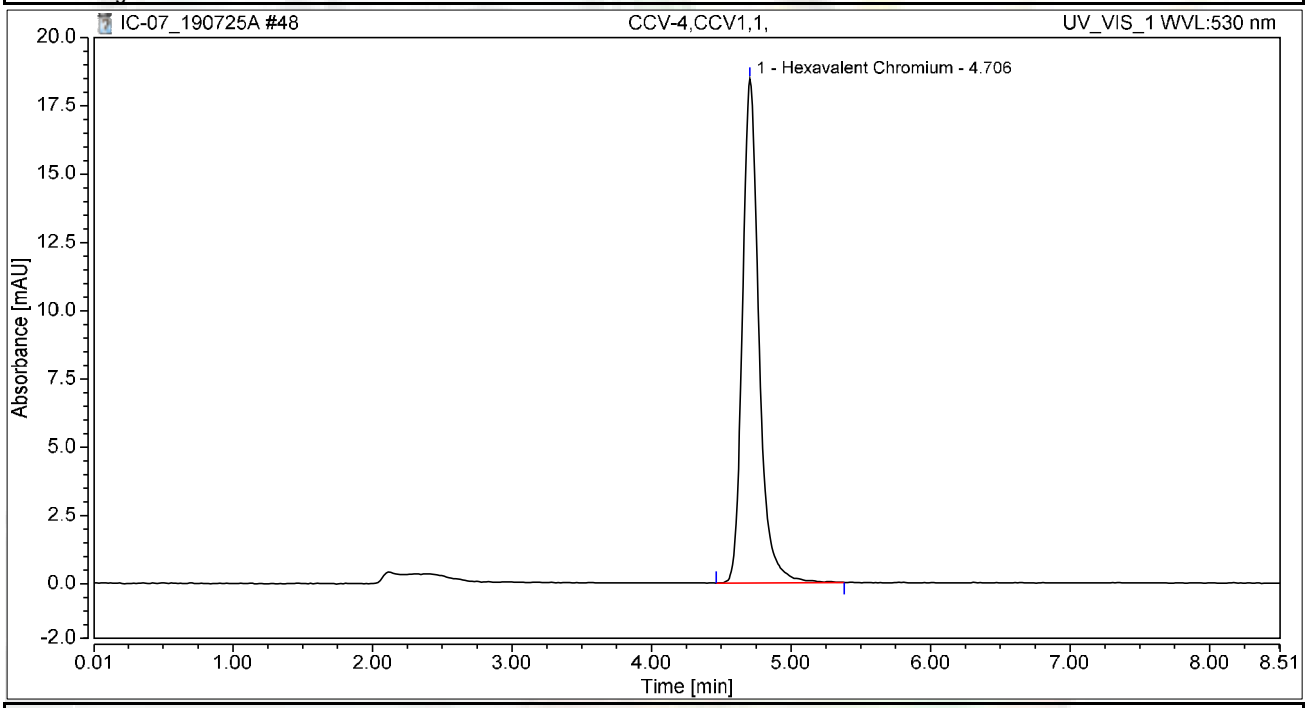
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.260	1.937	100.00	100.00	1.0487
Total:			**0.260**	**1.937**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 13:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

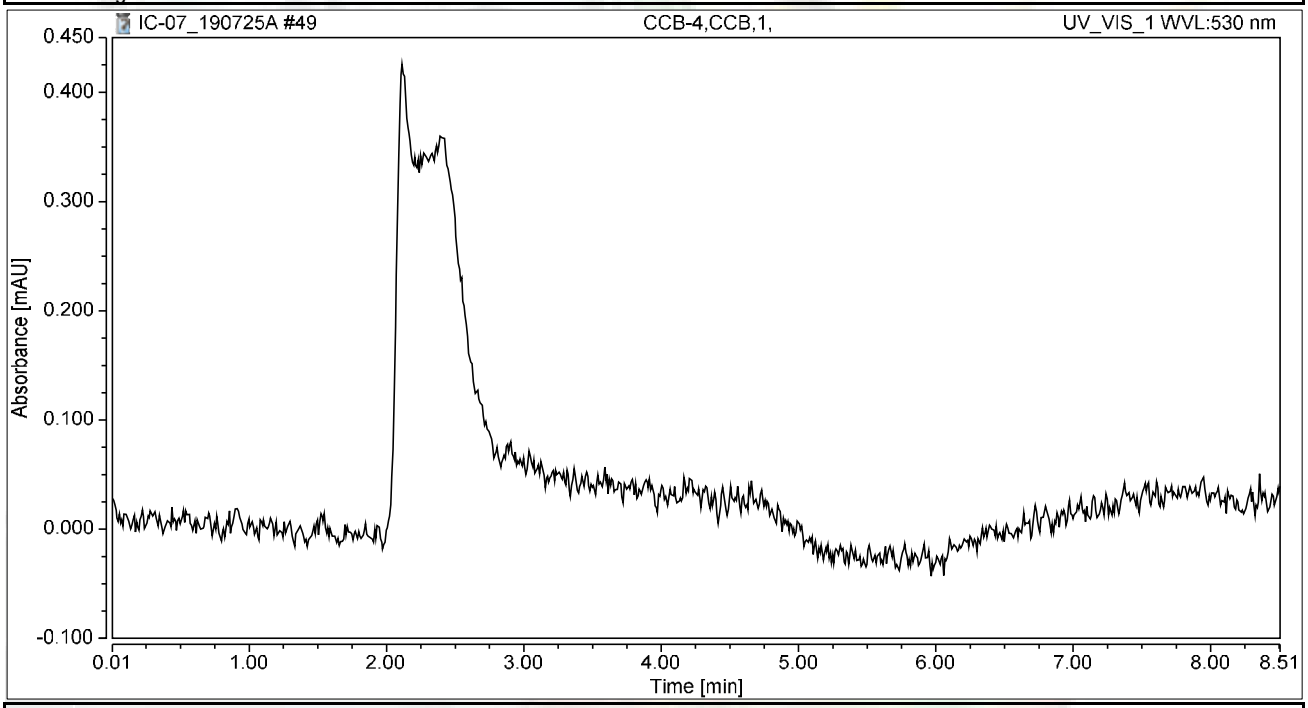
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.530	18.449	100.00	100.00	10.2212
Total:			**2.530**	**18.449**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 14:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

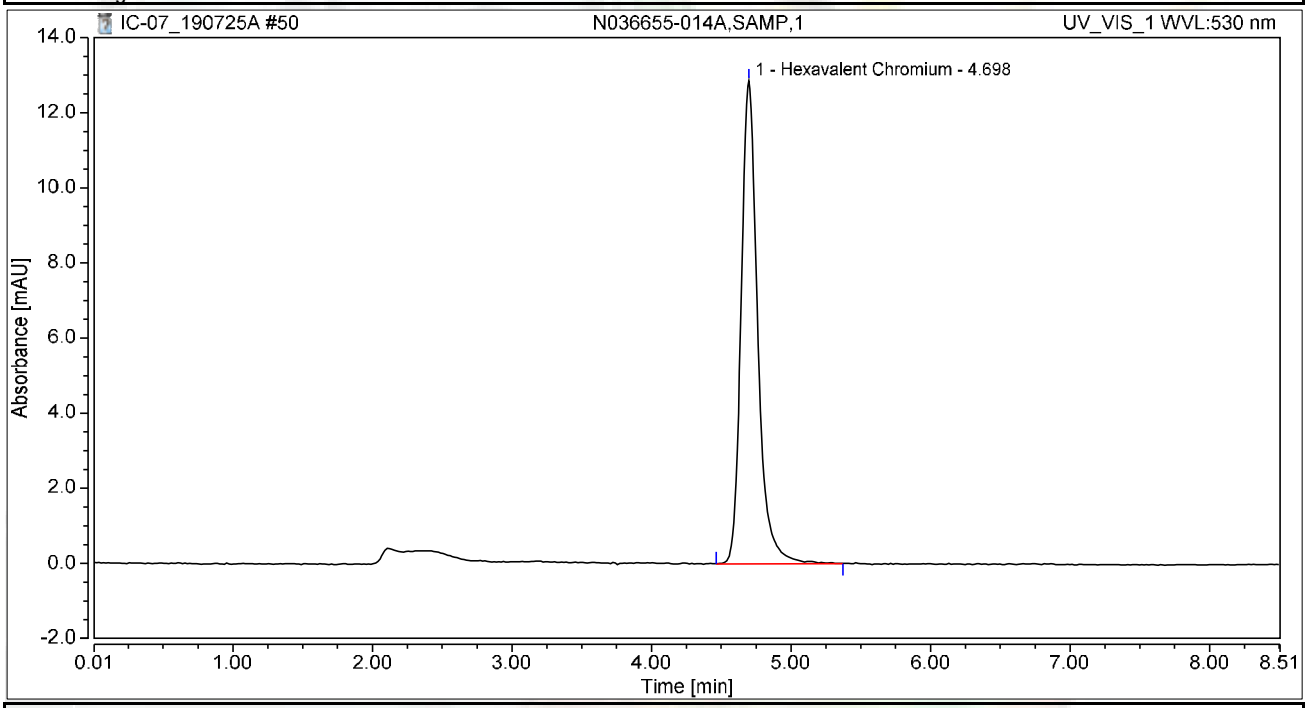
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 14:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

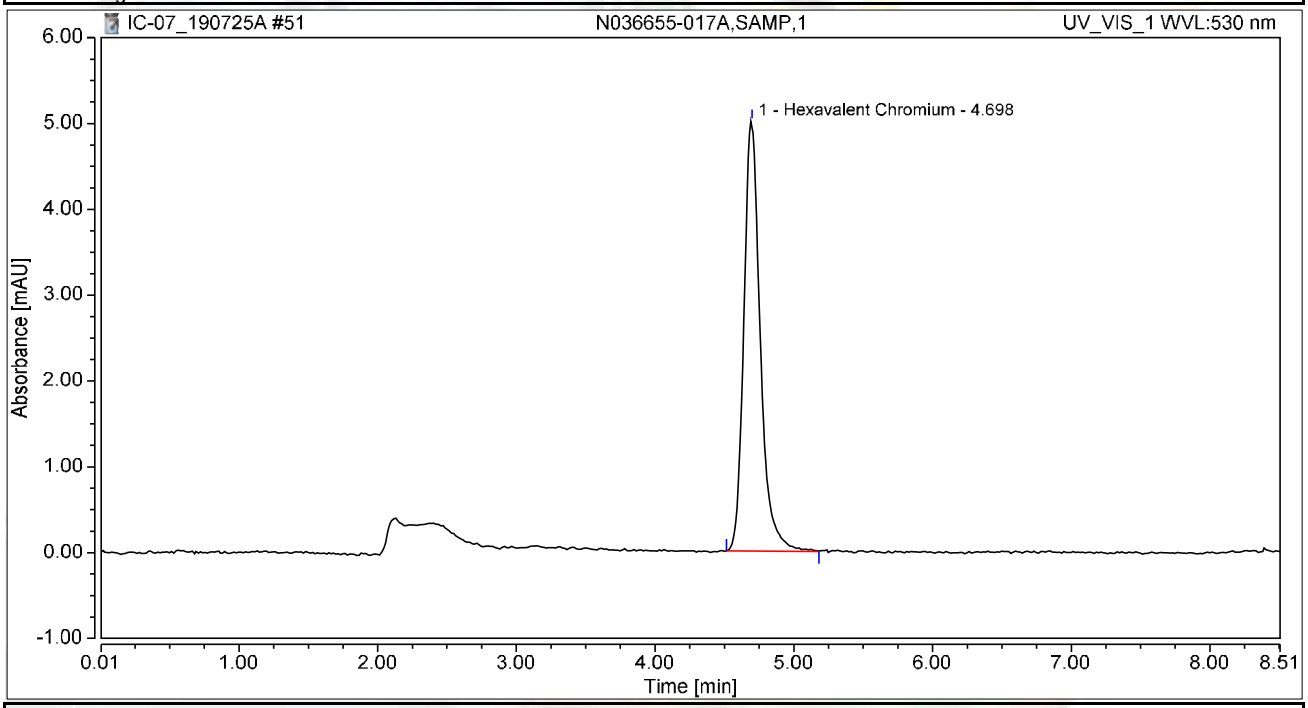
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.766	12.863	100.00	100.00	7.1342
Total:			**1.766**	**12.863**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-017A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 14:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

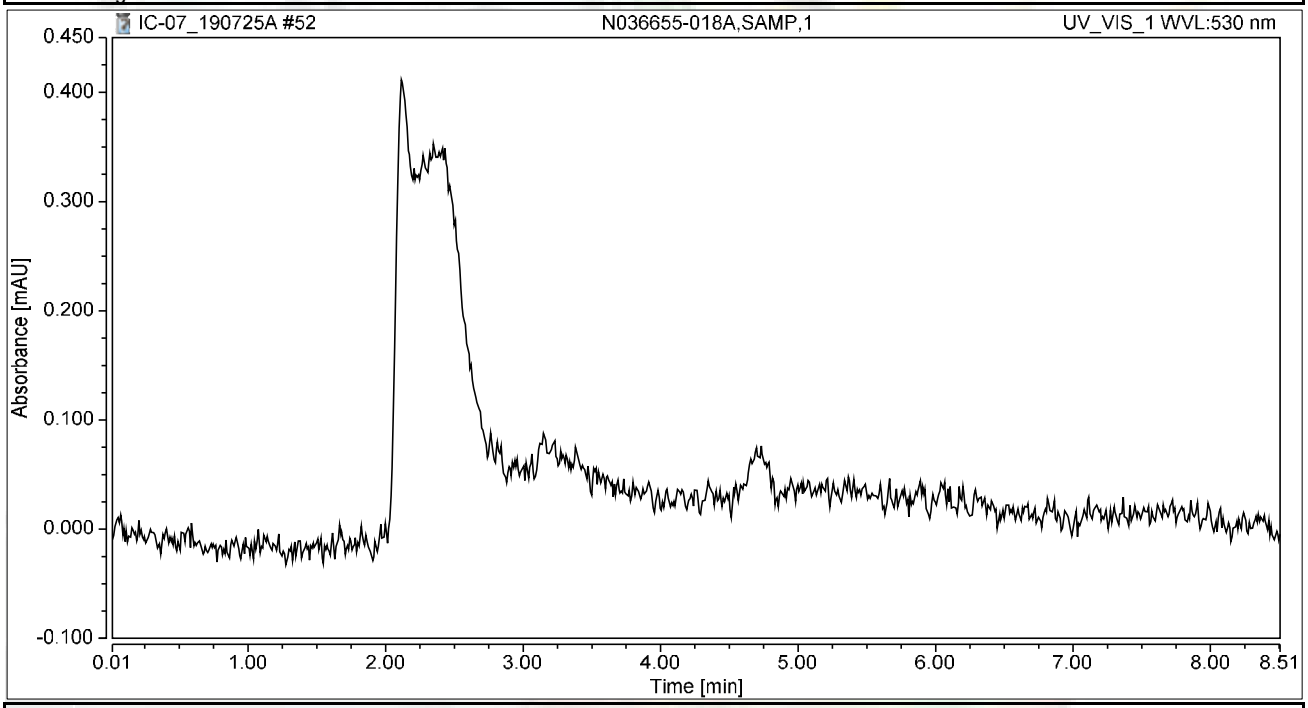
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.691	5.009	100.00	100.00	2.7900
Total:			**0.691**	**5.009**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-018A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 14:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

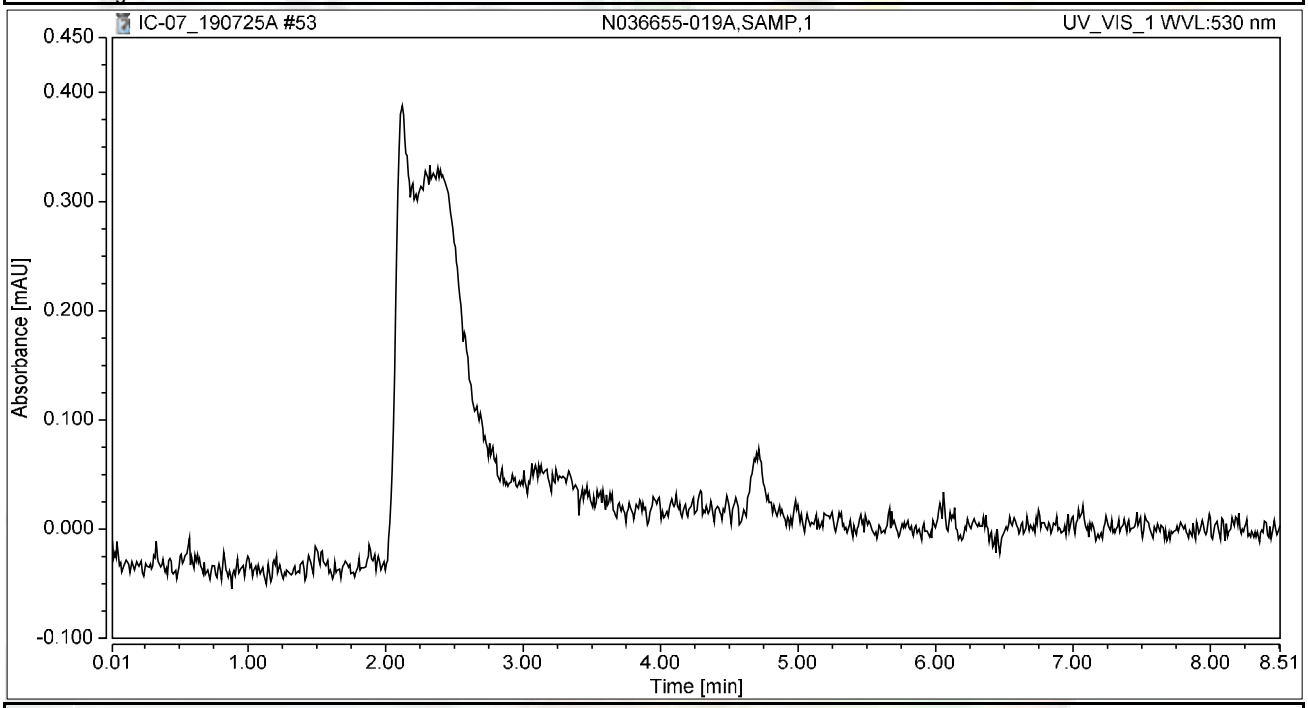
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-019A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 14:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

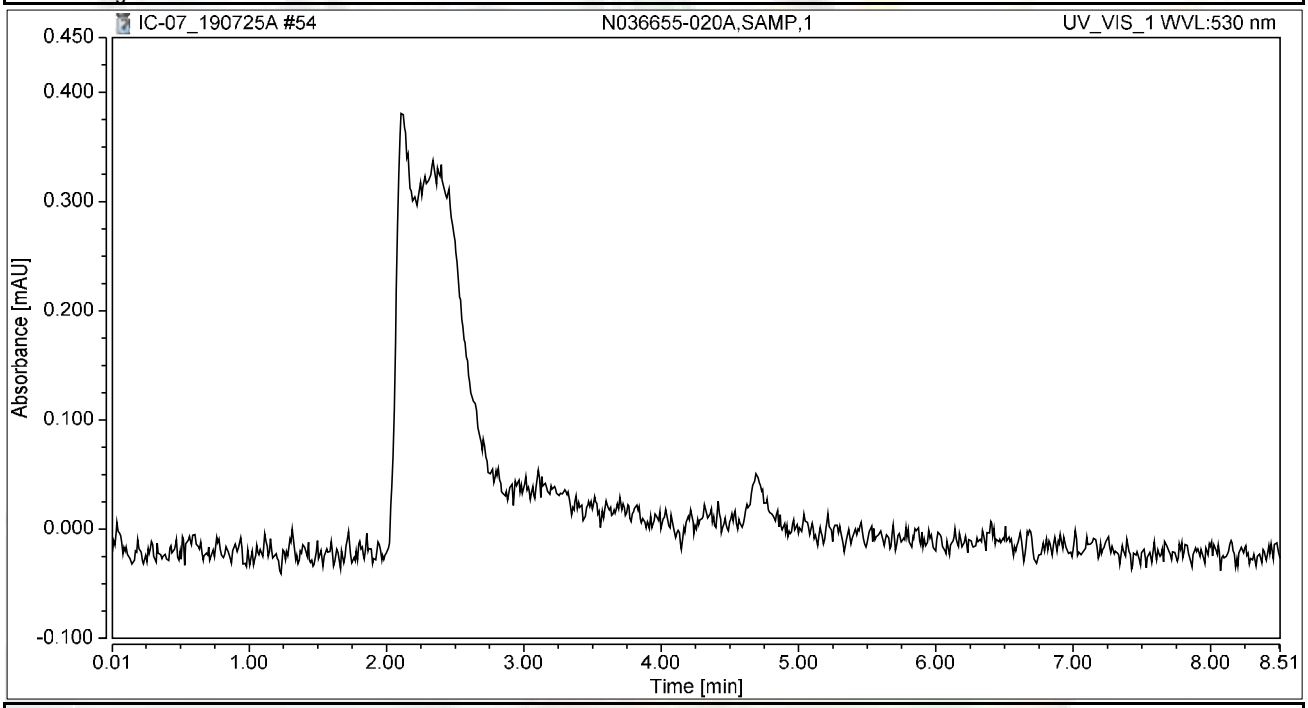
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-020A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 14:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

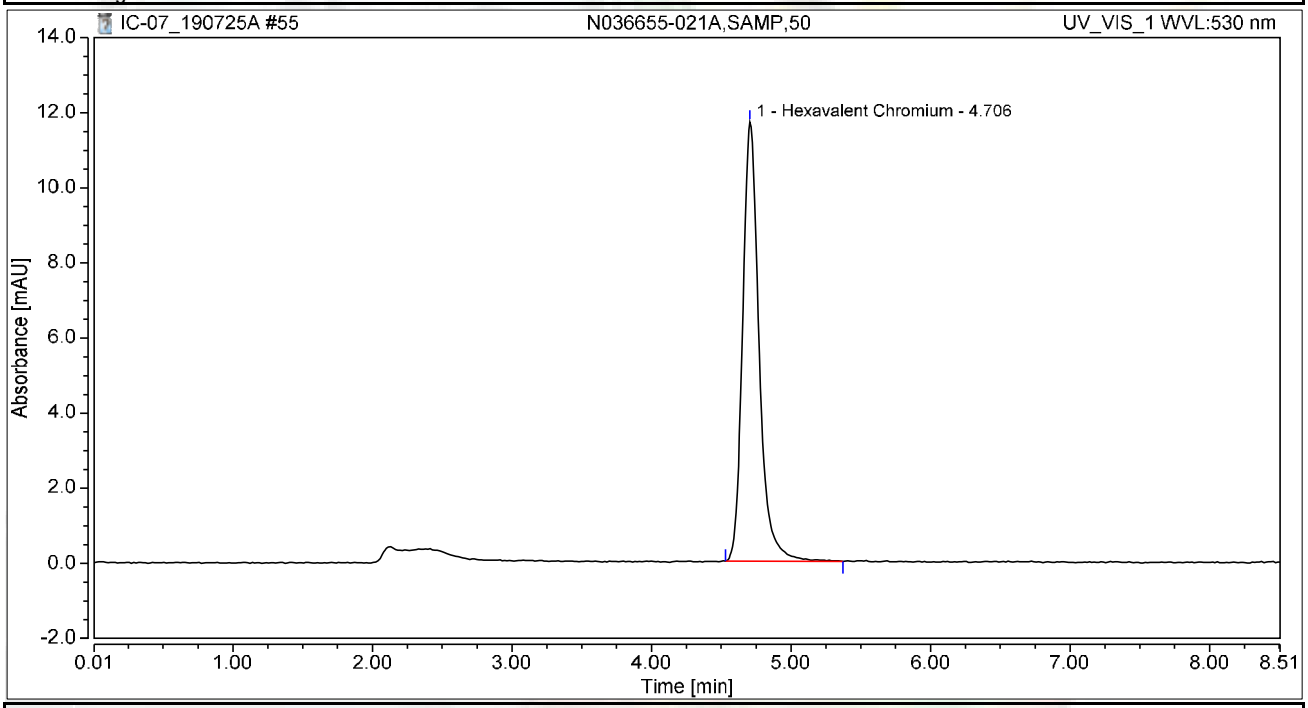
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-021A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 15:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

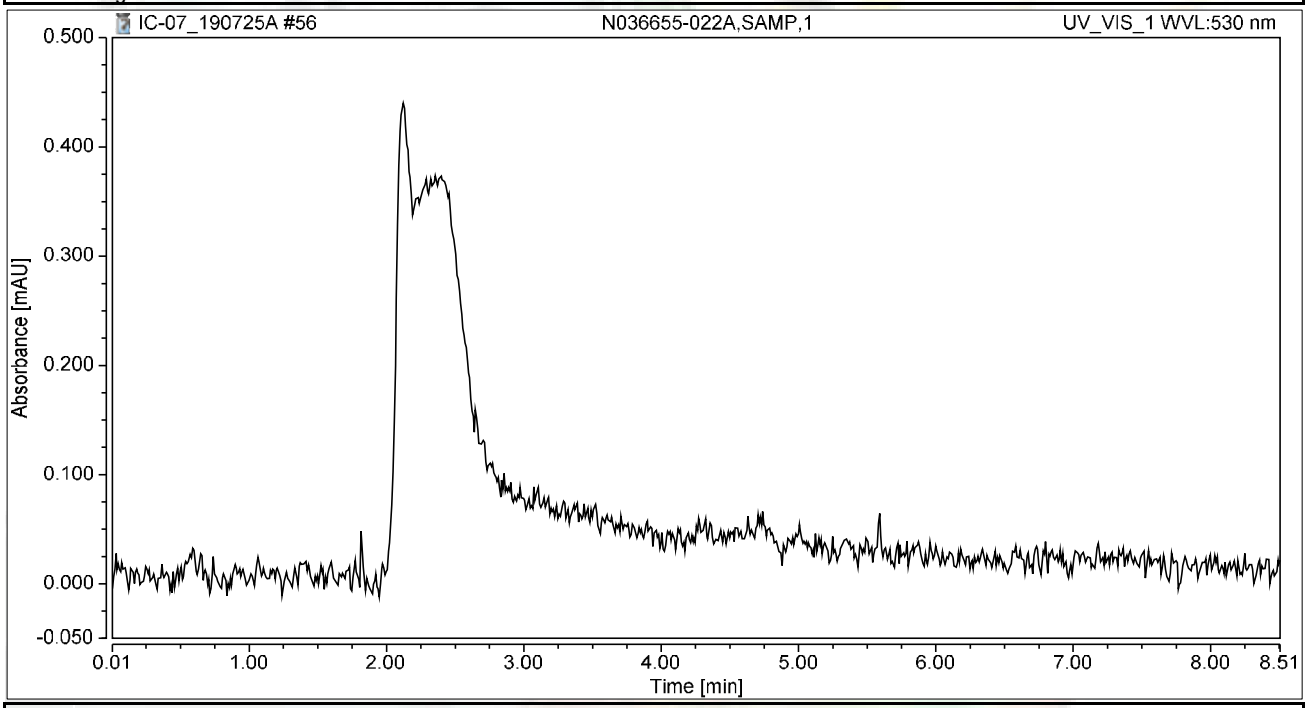
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.598	11.692	100.00	100.00	6.4563
Total:			**1.598**	**11.692**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-022A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 15:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

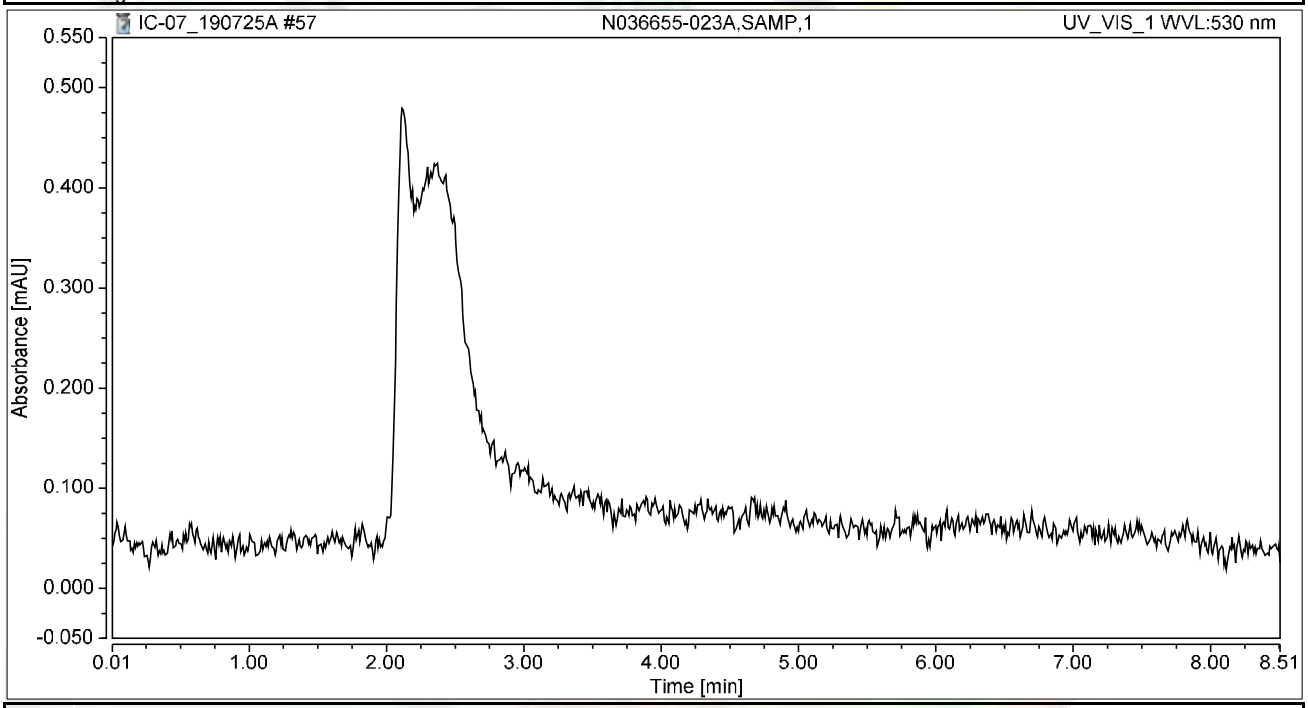
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-023A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 15:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

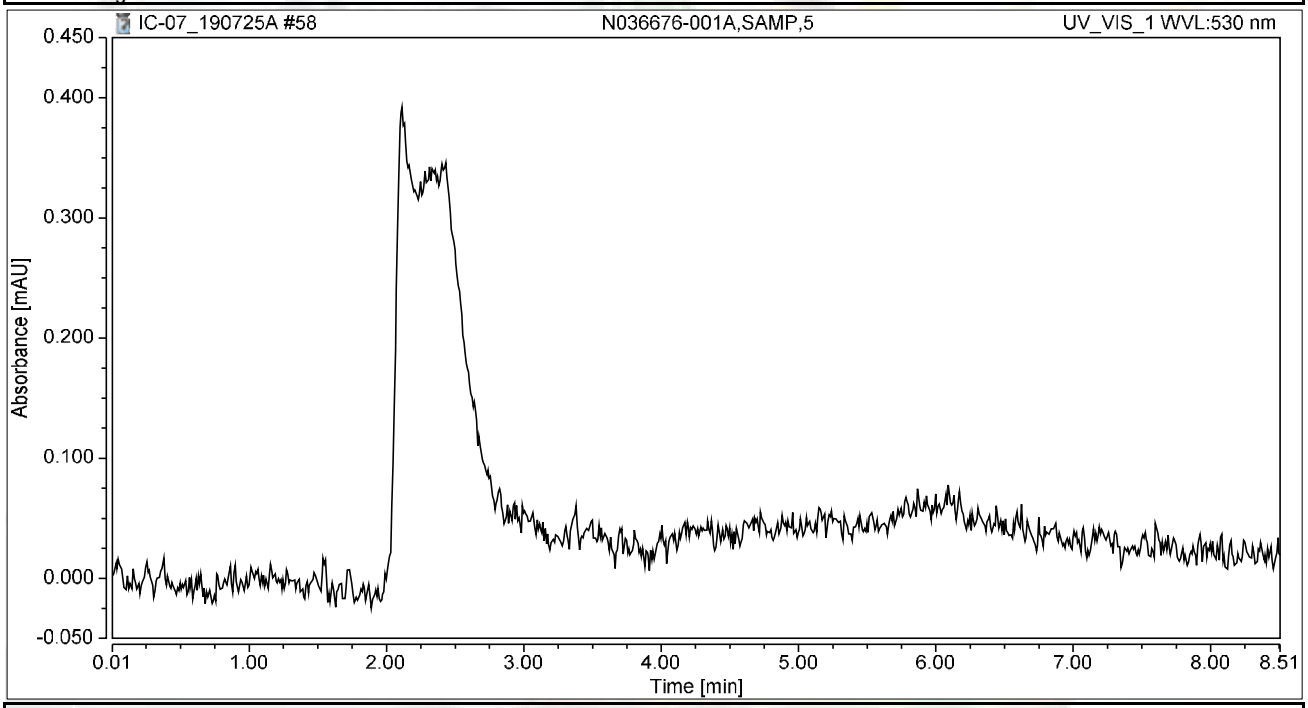
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036676-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 15:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

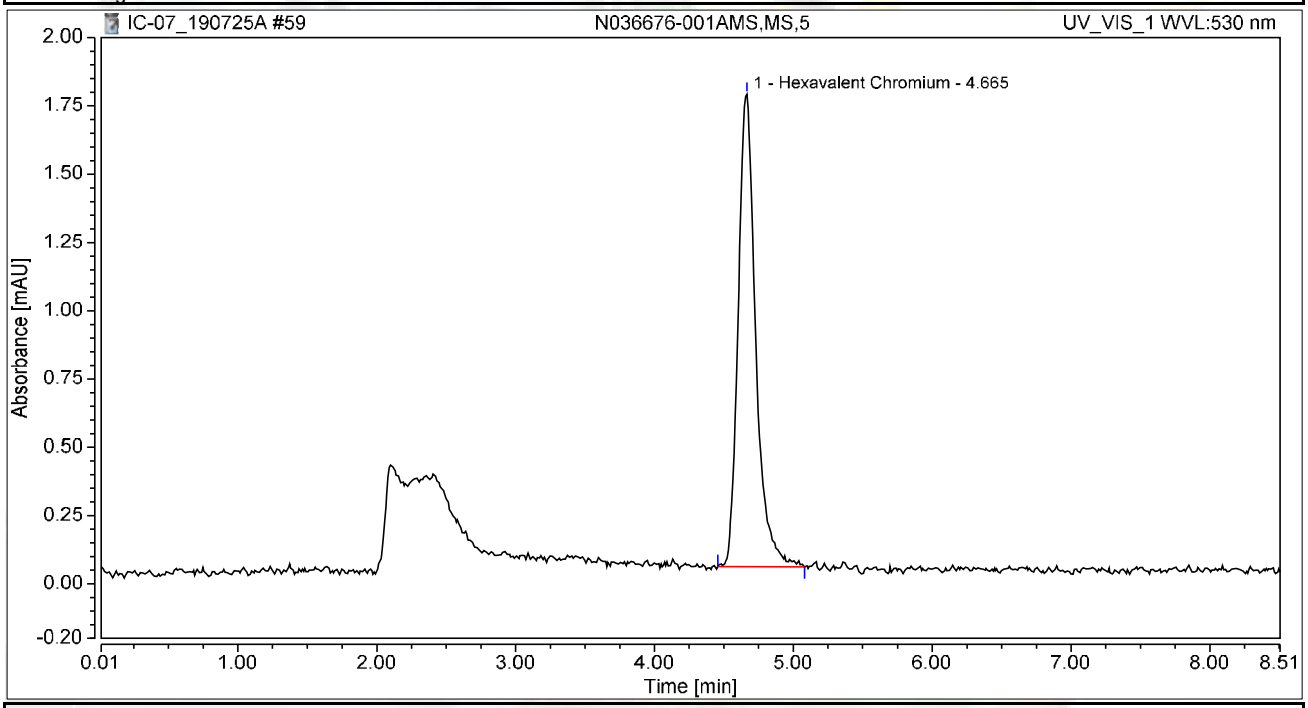
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036676-001AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 15:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

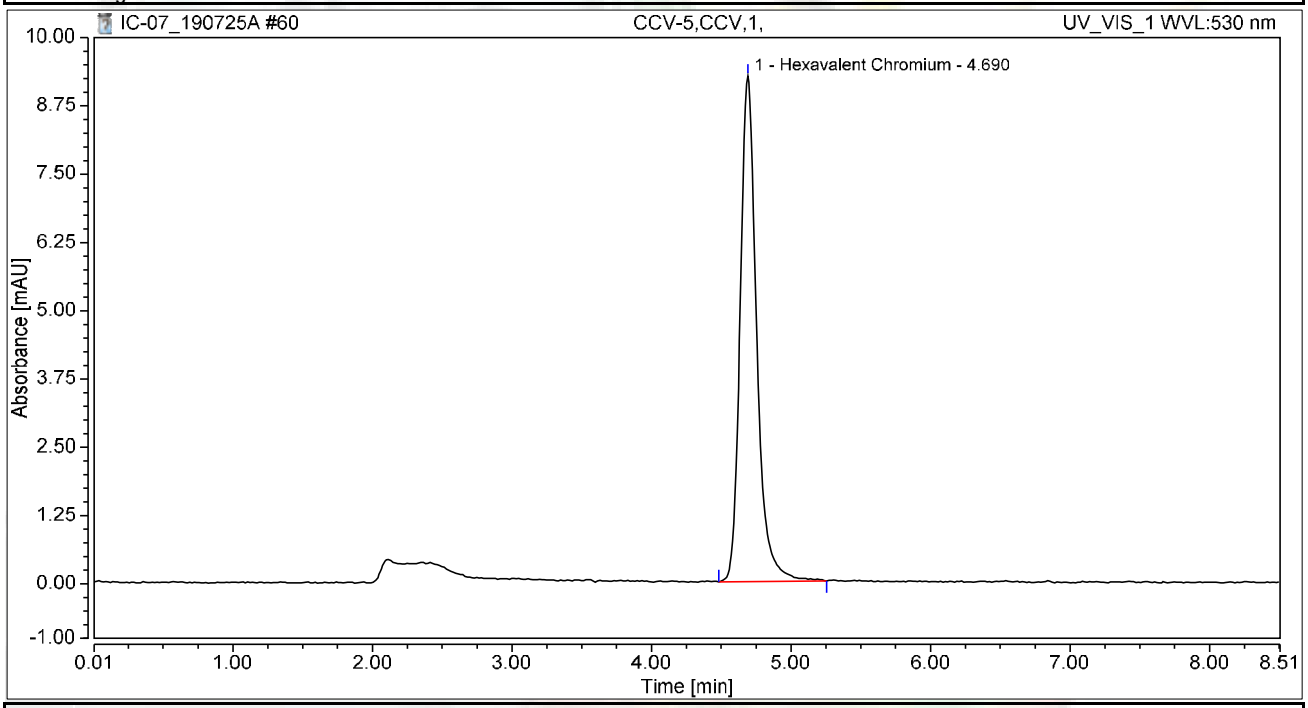
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.253	1.730	100.00	100.00	1.0225
Total:			**0.253**	**1.730**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 15:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

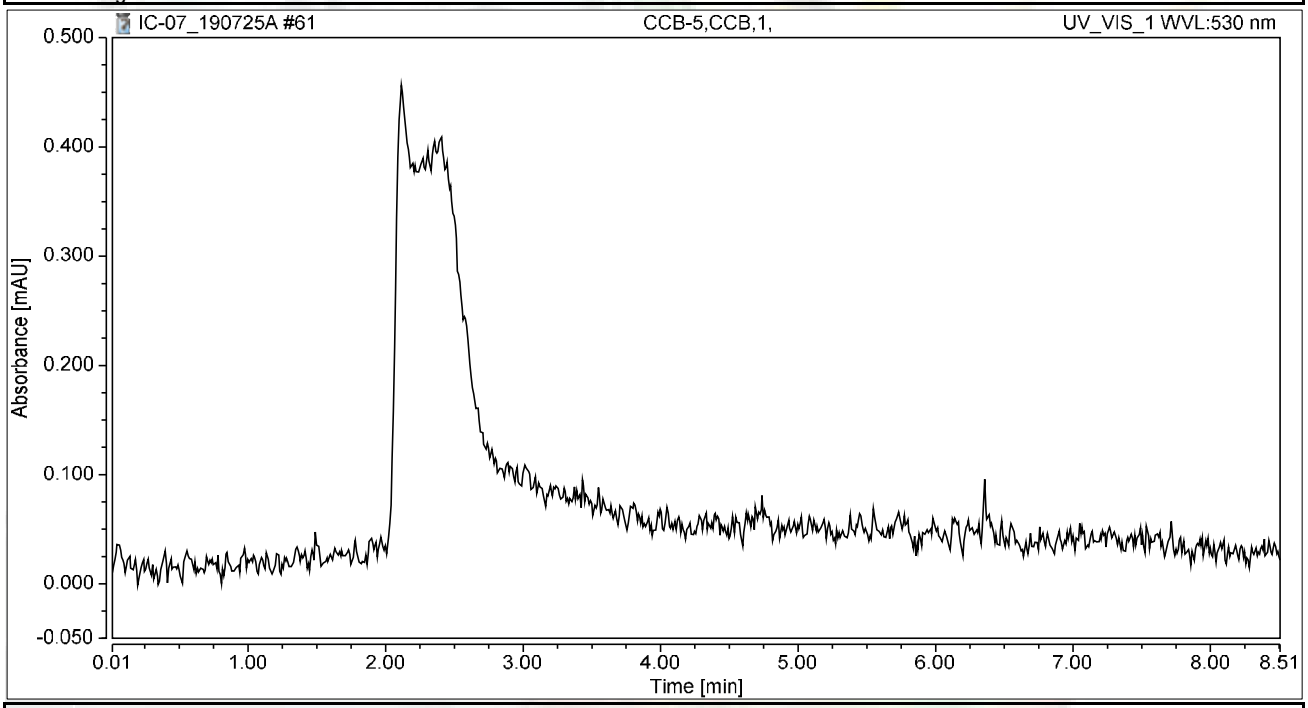
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.268	9.259	100.00	100.00	5.1240
Total:			**1.268**	**9.259**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 15:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

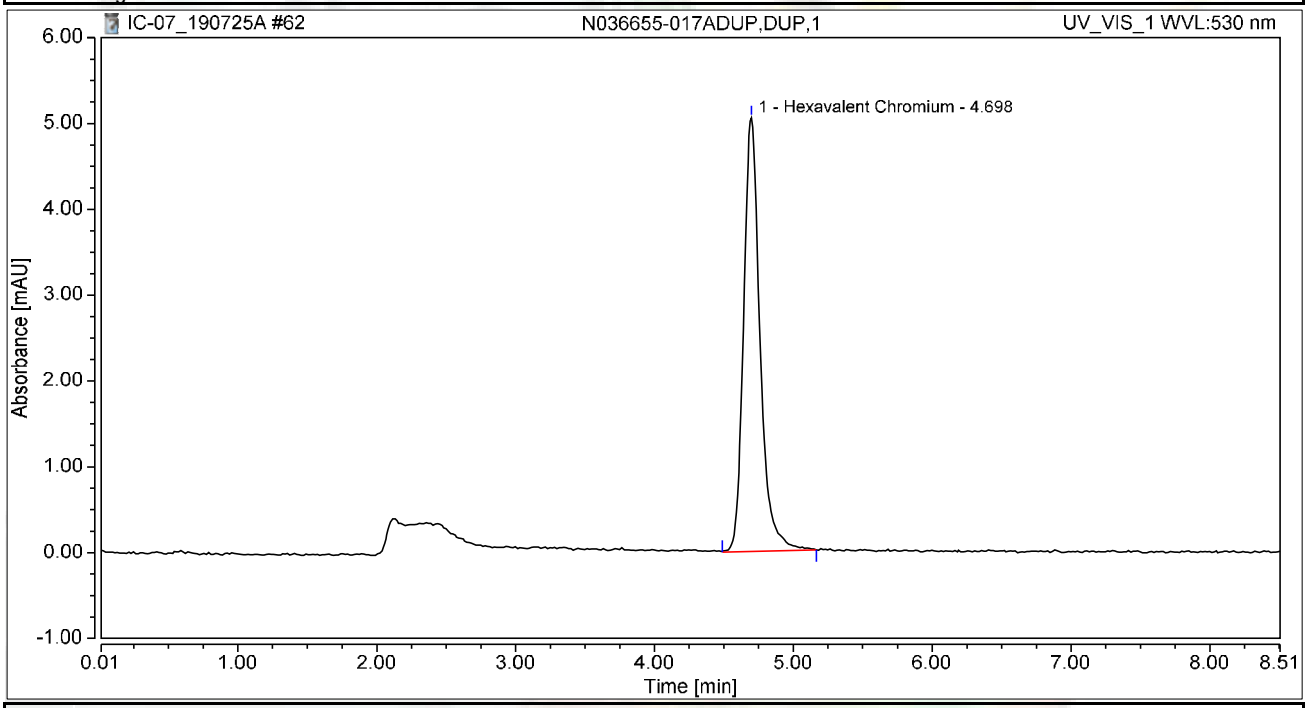
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036655-017ADUP,DUP,1**	*Run Time (min):*	**8.49**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 16:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

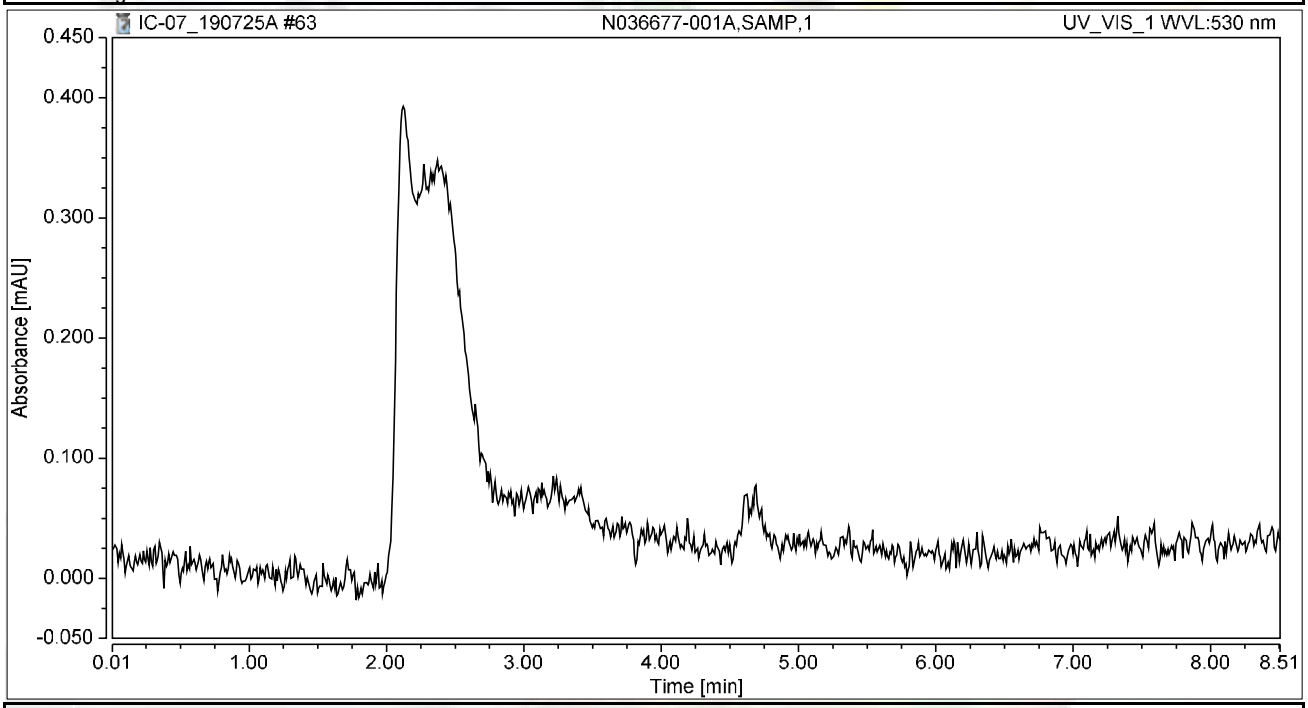
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.694	5.053	100.00	100.00	2.8045
Total:			**0.694**	**5.053**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036677-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 16:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

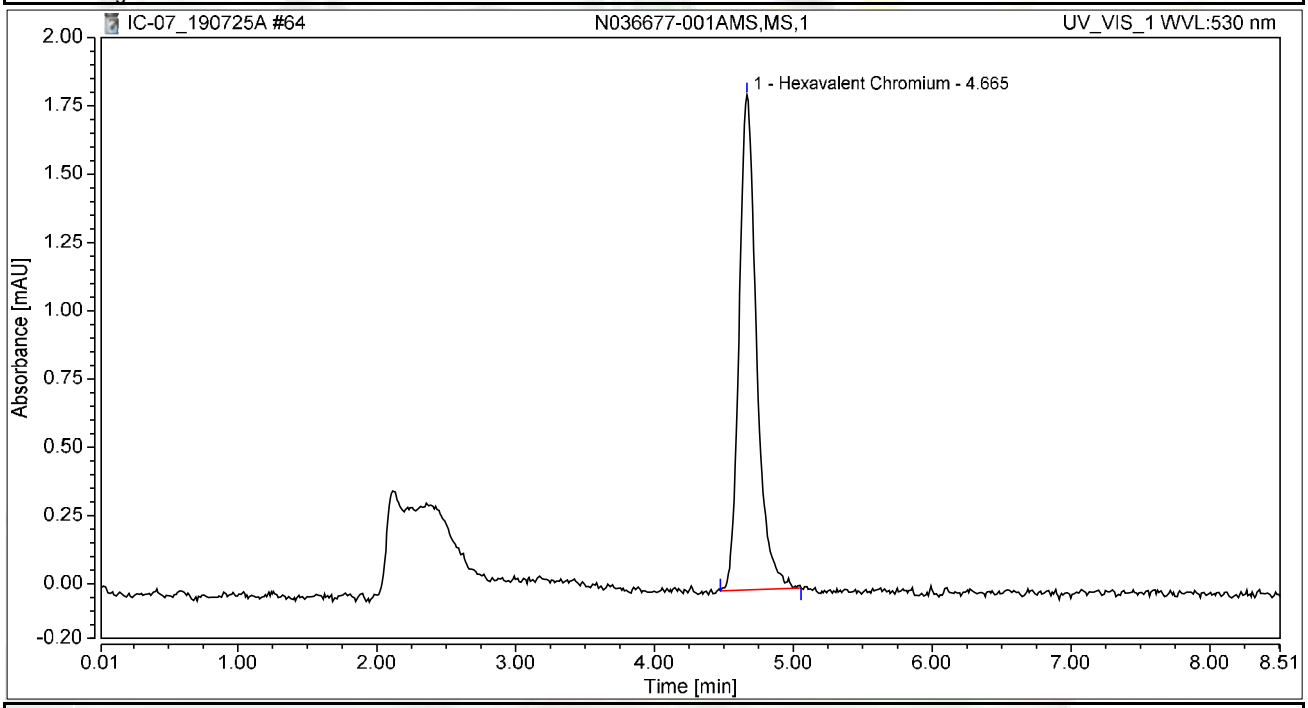
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036677-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 16:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

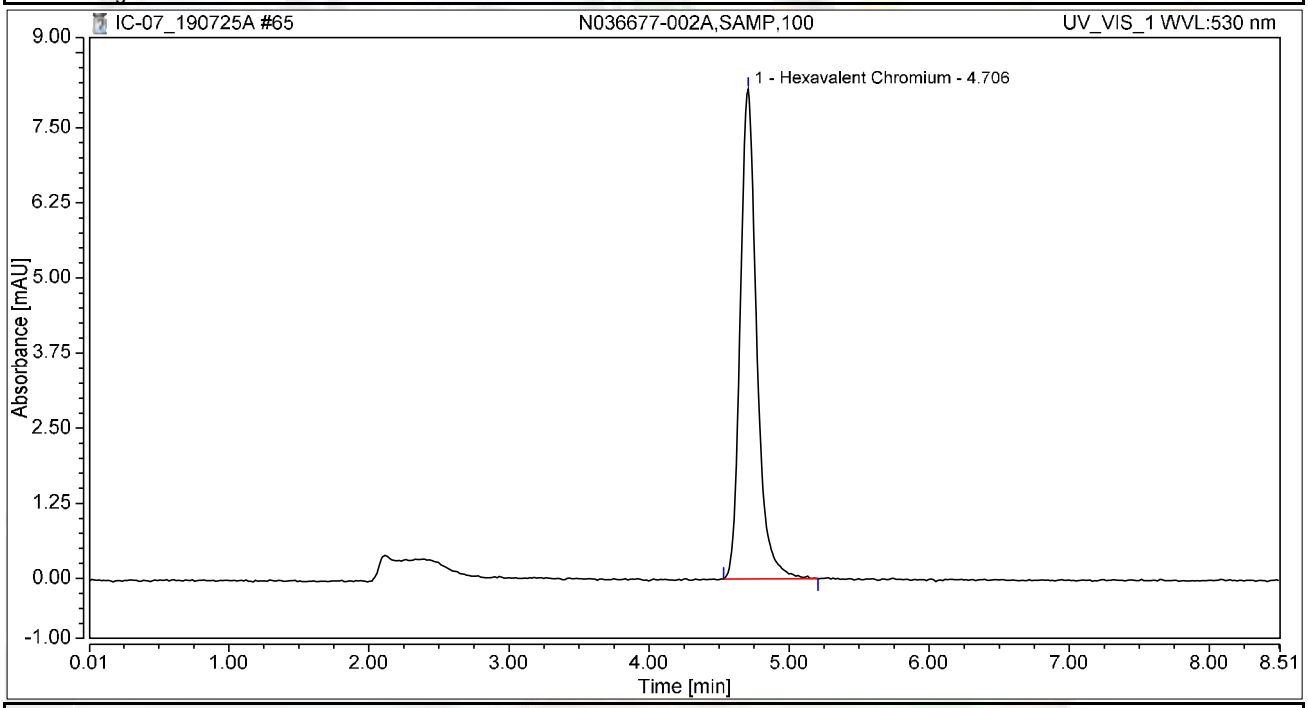
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.264	1.813	100.00	100.00	1.0661
Total:			**0.264**	**1.813**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036677-002A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 16:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

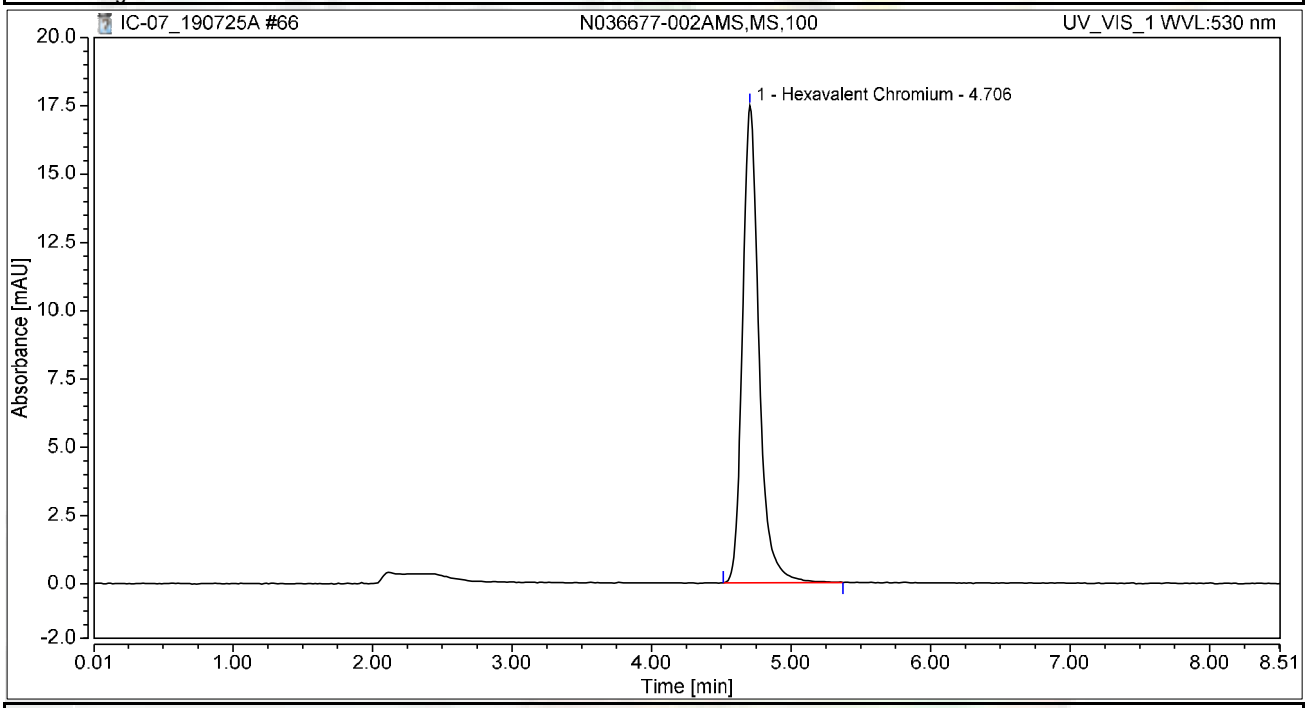
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.112	8.153	100.00	100.00	4.4924
Total:			**1.112**	**8.153**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036677-002AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**47**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 16:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

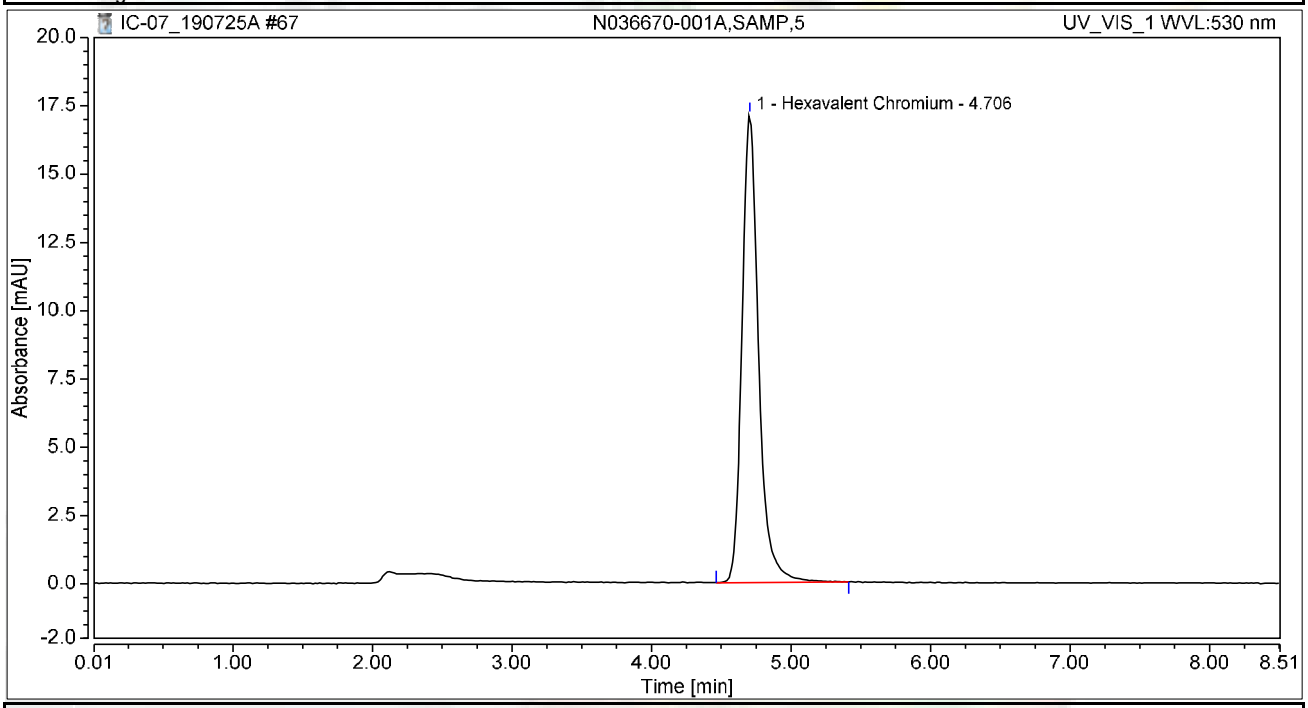
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.392	17.474	100.00	100.00	9.6632
Total:			**2.392**	**17.474**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036670-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**48**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 16:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

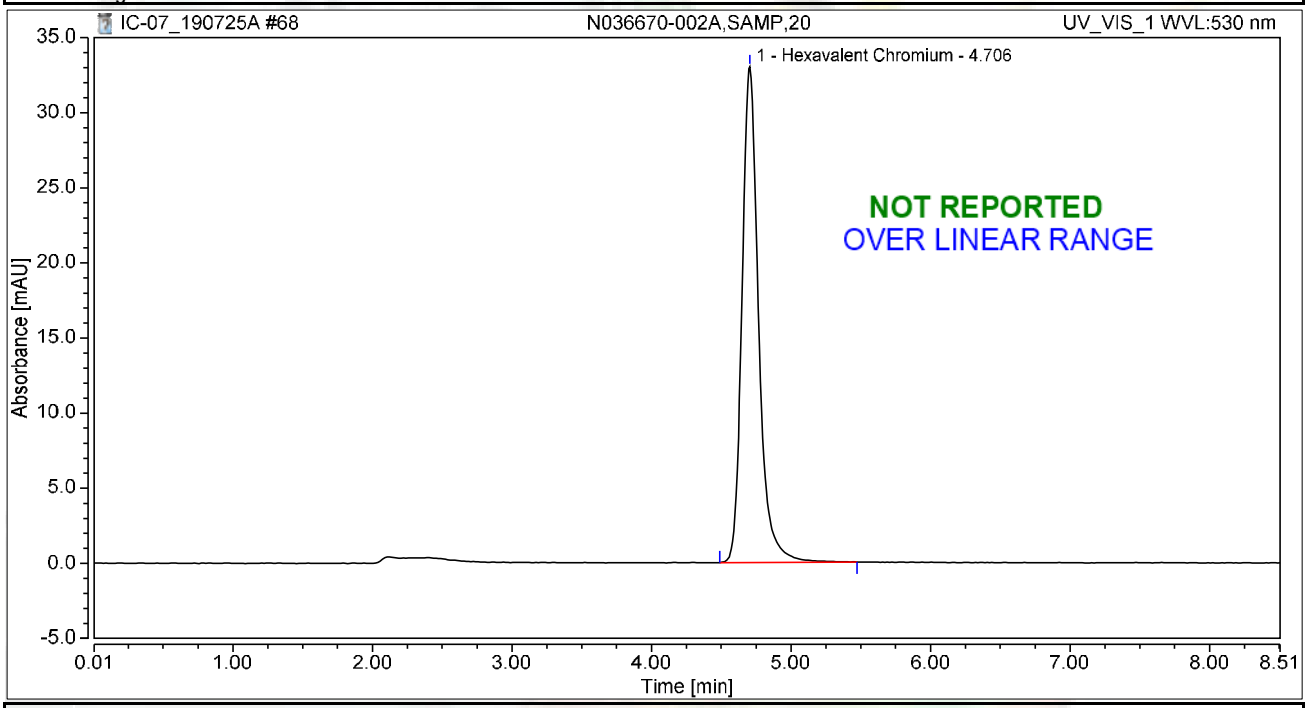
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.366	17.129	100.00	100.00	9.5576
Total:			**2.366**	**17.129**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036670-002A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**49**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 17:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

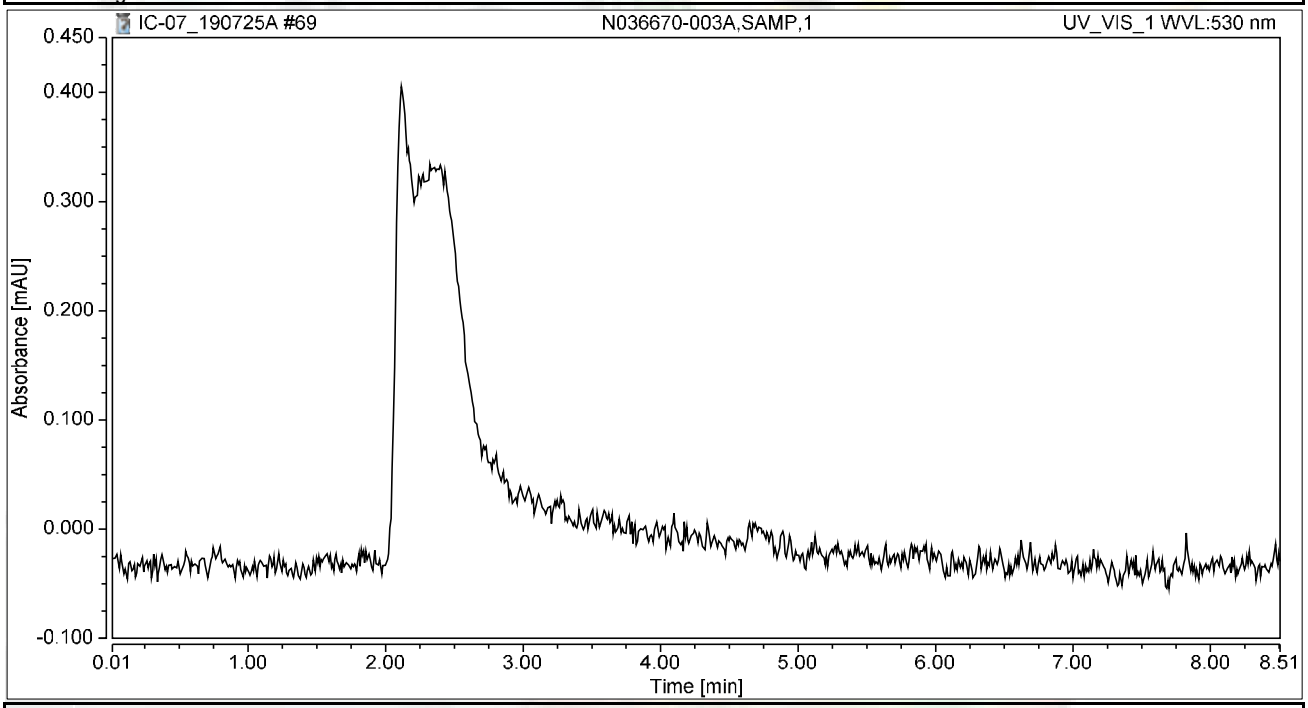
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	4.542	33.018	100.00	100.00	18.3502
Total:			**4.542**	**33.018**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036670-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**50**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 17:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

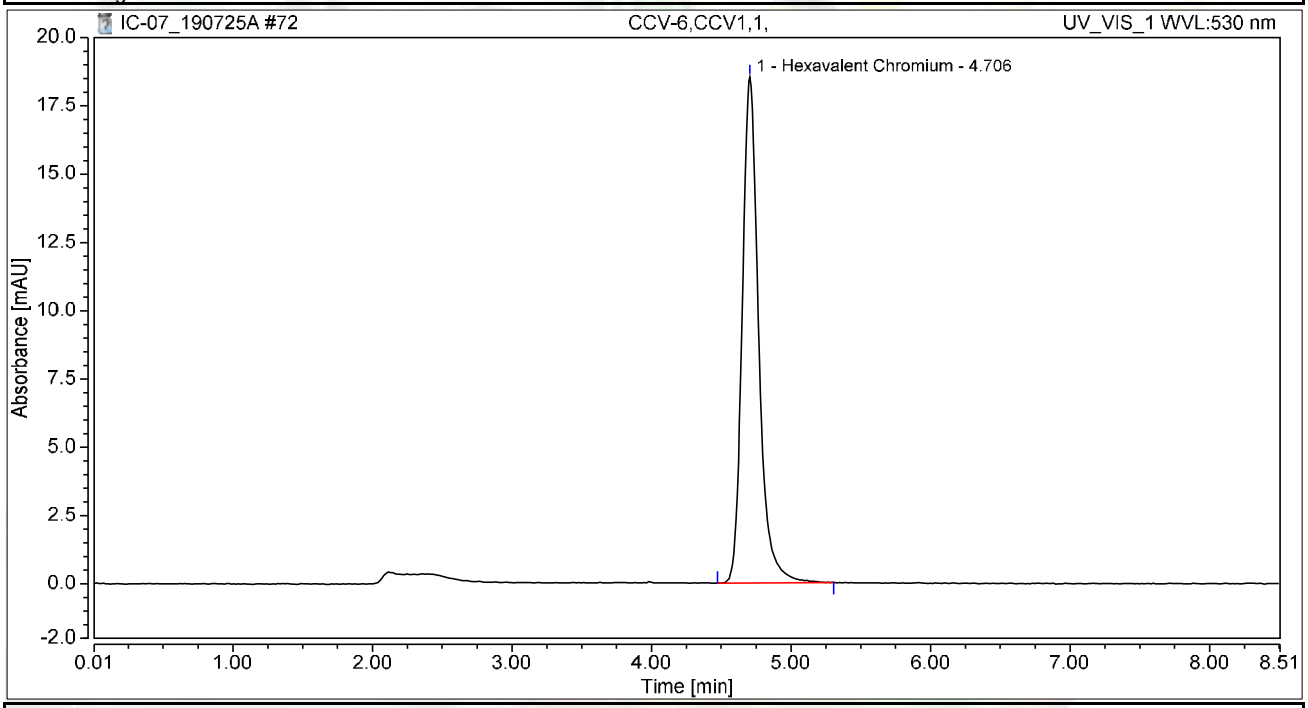
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 17:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

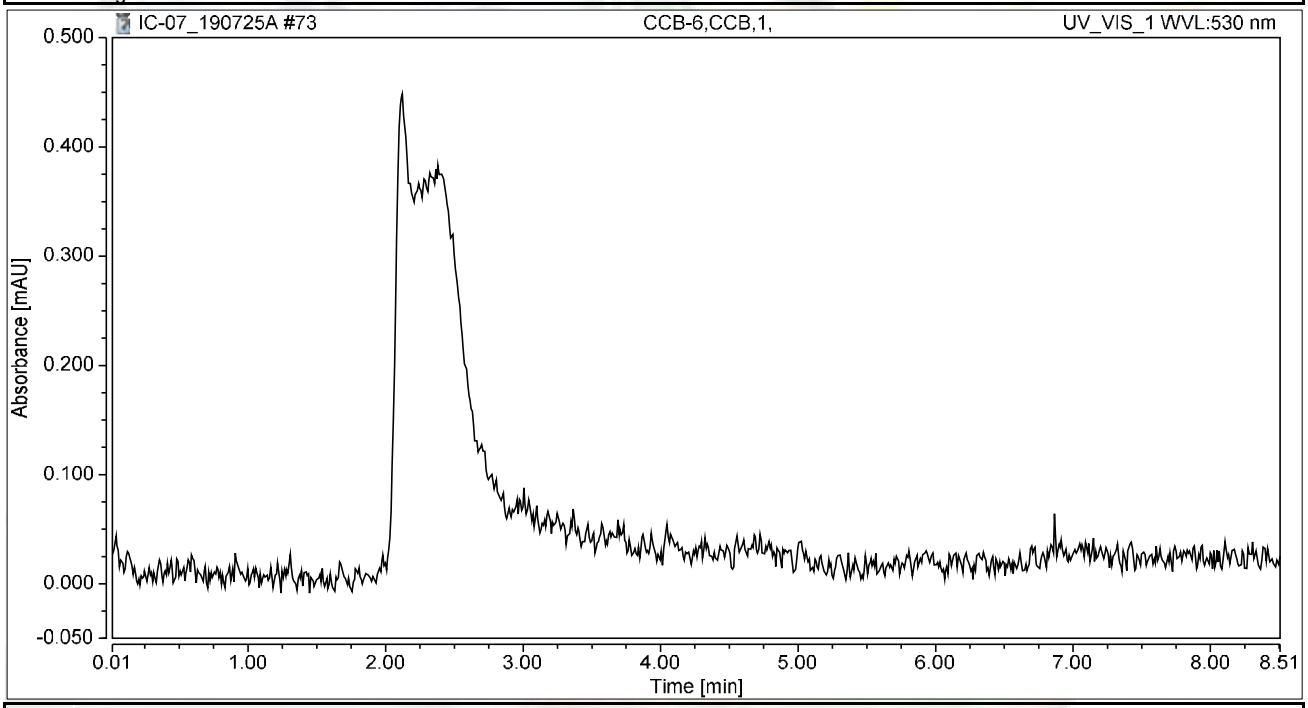
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.530	18.542	100.00	100.00	10.2219
Total:			**2.530**	**18.542**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190702_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Jul/19 17:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320 B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R135416 **Analyst:** LSR

ASSET #: N036677 **Date Analyzed:** 26-Jul

Method: EPA 2320

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 7/30/2019

2nd Level Reviewer NS 8/23/2019 Date:

SAMPLE CALCULATION

Sample ID: **N036677-001C @ pH 7.70**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.70 mL)

= **0.02137 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (11.50) (0.02137 N) (1) * 1000

= 245.7550 mg**/L**

Reporting results in two significant figures,

= 250 as CaCO3

Julia Ramit 7/30/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02137 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (11.50 mL) (0.02137) (1) * 1000

= 245.7550 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 245.7550 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **250 mg/L**

Silvia Ramit 7/30/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.63	50	0.00	0.050	MBLK
LCS-1	8.74	50	0.10	4.50	LCS
N036677-001C	7.70	50	0.00	11.50	SAMP
N036677-002C	7.49	50	0.00	7.30	SAMP
N036678-001A	7.46	50	0.00	5.60	SAMP
N036678-002A	7.54	50	0.00	2.50	SAMP
N036678-003A	7.86	50	0.00	2.70	SAMP
N036703-001A	7.68	50	0.00	1.80	SAMP
N036703-002A	7.68	50	0.00	1.75	SAMP
N036703-003A	7.65	50	0.00	3.90	SAMP
N036703-004A	7.63	50	0.00	3.85	SAMP
N036703-002ADUP	7.68	50	0.00	1.70	DUP
N036703-003AMS	8.13	50	0.00	8.30	MS
N036703-003AMSD	8.14	50	0.00	8.30	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.700**	ml
N H2SO4	**0.02137**	Normal
Date Analyzed:	**7/26/19**	
Time:	**9:50 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190719C**	

Julia Ramit 7/30/2019

Date Analyzed:	7/26/19		Reagents:					Standardization:					P = 0
Time Started:	9:50 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.7	mL		P = 1/2 T
				Sulfuric Acid:		R190719C							P > 1/2 T
									N H2SO4	0.02137	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.63				0.02137	0.00	0.05	0.05	1	0.00	1.07	
LCS-1	50	8.74				0.02137	0.10	4.40	4.50	1	2.14	96.15	
N036677-001C	50	7.7				0.02137	0.00	11.50	11.50	1	0.00	245.73	
N036677-002C	50	7.49				0.02137	0.00	7.30	7.30	1	0.00	155.98	
N036678-001A	50	7.46				0.02137	0.00	5.60	5.60	1	0.00	119.66	
N036678-002A	50	7.54				0.02137	0.00	2.50	2.50	1	0.00	53.42	
N036678-003A	50	7.86				0.02137	0.00	2.70	2.70	1	0.00	57.69	
N036703-001A	50	7.68				0.02137	0.00	1.80	1.80	1	0.00	38.46	
N036703-002A	50	7.68				0.02137	0.00	1.75	1.75	1	0.00	37.39	
N036703-003A	50	7.65				0.02137	0.00	3.90	3.90	1	0.00	83.33	
N036703-004A	50	7.63				0.02137	0.00	3.85	3.85	1	0.00	82.26	
N036703-002ADU	50	7.68				0.02137	0.00	1.70	1.70	1	0.00	36.32	
N036703-003AMS	50	8.13				0.02137	0.00	8.30	8.30	1	0.00	177.35	
N036703-003AMS	50	8.14				0.02137	0.00	8.30	8.30	1	0.00	177.35	

Julia Ramit 7/30/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	7/26/19
Time:	9:50 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.07	1.07	1.07		P = 0
LCS-1	0.00	4.27	91.88	96.15	96.15		P < 1/2 T
N036677-001C	0.00	0.00	245.73	245.73	245.73		P = 0
N036677-002C	0.00	0.00	155.98	155.98	155.98		P = 0
N036678-001A	0.00	0.00	119.66	119.66	119.66		P = 0
N036678-002A	0.00	0.00	53.42	53.42	53.42		P = 0
N036678-003A	0.00	0.00	57.69	57.69	57.69		P = 0
N036703-001A	0.00	0.00	38.46	38.46	38.46		P = 0
N036703-002A	0.00	0.00	37.39	37.39	37.39		P = 0
N036703-003A	0.00	0.00	83.33	83.33	83.33		P = 0
N036703-004A	0.00	0.00	82.26	82.26	82.26		P = 0
N036703-002ADUP	0.00	0.00	36.32	36.32	36.32		P = 0
N036703-003AMS	0.00	0.00	177.35	177.35	177.35		P = 0
N036703-003AMSD	0.00	0.00	177.35	177.35	177.35		P = 0

Julia Ramit 7/30/2019

Alkalinity Preparation and Runlog

Matrix: H_2O

Date Extracted: 7/26/19
Time Extracted: 1500
Extracted By:

Date Analyzed: 7/26/19
Time Analyzed: 950
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV161205A
Hydrochloric Acid:
Sulfuric Acid: R190719C
Sodium Bicarbonate: CINV180510A

pH meter Calibration:
SLOPE: 98.7%
pH 7 - 7.00 CINV 190422A
4 - 4.02 B
10 - 10.02 CINV 190430A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARD12 ATION											
	#1	50mL	10.57	1WST190721A	5mL	0.05N	-	-	11.70	50/50	$N_{H_2SO_4} = \frac{(2.65g/L)(5mL)}{(53)(V\ titrant)}$	= 0.021367521
	#2		10.59				-	-	11.70			
1)	MBLK	50mL	5.63	-	-	-	0.02137	0	0.05	50/50		
2)	LCS		8.74	1WST190721B	1mL	0.05N		0.10	4.50			
3)	N036677-1C		7.70	-	-	-		0	11.50			
4)	2C		7.49	-	-			0	7.30			
5)	N036678-1A		7.46	-	-	-		0	5.60			
6)	2A		7.54	-	-	-		0	2.50			
7)	3A		7.86	-	-	-		0	2.70			
8)	N036703-1A		7.68	-	-	-		0	1.80			
9)	2A		7.68	-	-	-		0	1.75			
10)	3A		7.65	-	-			0	3.90			
11)	4A		7.63	-	-	-		0	3.85			
12)	LSR N036703 N036678-2A LSR		7.68	-	-	-		0	1.70			
13)	3A MS		8.13	1WST190721B	1mL	0.05N		0	8.30			
14)	3A MSD		8.14					0	8.30			
15)												
16)												
17)												
18)				$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50,000)}{V_{sx}}$								
19)												
20)											Julia Ramit 7/30/2019	
	MS			$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50,000)}{V_{sx}}$								
	MSD											
	LCS											

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R135572
ASSET #: N036643 / N036652 / N036678 N036703 / N036677
Method:

[X] EPA 300.0
[ ] EPA 7199

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 8/2/2019

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?			X			
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: rba 8/20/2019 Date: _____

2nd Level Reviewer: 8/23/2019 Date: _____

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R135626
ASSET #: N036641 / N036652 / N036678 / N036677
Method:

[X] EPA 300.0
[ ] EPA 7199

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 8/5/2019

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?			X			
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba 8/20/2019 Date: —

2nd Level Reviewer 8/21/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N036677-001C** concentration in mg/L is calculated as follows:

Chloride, mg/L = 8.125 * 100

= 812.5

Reporting result in two significant values,

Chloride, mg/L = 810

NS 8/25/2019

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 91
Created: 7/30/2019 9:02:45 AM by IC-05
Last Update: 7/31/2019 2:40:32 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
7	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
8	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
9	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
10	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
11	N036607-016C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
12	N036607-017C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
13	N036563-013C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
14	N036563-014C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
15	N036607-010C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
16	N036607-011C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
17	N036607-012C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
18	N036607-014C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
19	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
20	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
21	N036607-015C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
22	N036409-003B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
23	N036409-004B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
24	N036607-016C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
25	N036607-017C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
26	N036563-013C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
27	N036563-014C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
28	N036607-012CMS,MS,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
29	N036607-012CMSD,MSD,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
30	N036608-008C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
31	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
32	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
33	N036608-008CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
34	N036607-010CDUP,DUP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
35	N036608-004C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
36	N036608-009C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
37	N036608-010C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
38	N036608-011C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
39	N036608-012C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
40	N036608-013C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
41	N036625-004C,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished

rba 8/6/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 91
Created: 7/30/2019 9:02:45 AM by IC-05
Last Update: 7/31/2019 2:40:32 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	7/30/2019 9:04:32 AM	BLANK
2	Std - 1	7/30/2019 9:20:00 AM	STD-LOW
3	Std - 2	7/30/2019 9:35:16 AM	STD
4	Std - 3	7/30/2019 9:50:04 AM	STD
5	Std - 4	7/30/2019 10:04:52 AM	STD
6	Std - 5	7/30/2019 10:19:39 AM	STD-HIGH
7	ICV,ICV,1	7/30/2019 10:37:23 AM	ICV
8	ICB,ICB,1	7/30/2019 10:52:11 AM	ICB
9	MB-H2O,MBLK,1	7/30/2019 11:06:59 AM	METHOD BLANK
10	LCS-H2O,LCS,1	7/30/2019 11:21:47 AM	LCS
11	N036607-016C,SAMP,2	7/30/2019 11:42:05 AM	SAMP,5>10mL
12	N036607-017C,SAMP,2	7/30/2019 11:56:53 AM	SAMP,5>10mL
13	N036563-013C,SAMP,2	7/30/2019 12:11:42 PM	SAMP,5>10mL
14	N036563-014C,SAMP,2	7/30/2019 12:26:30 PM	SAMP,5>10mL
15	N036607-010C,SAMP,10	7/30/2019 12:41:18 PM	SAMP,1>10mL
16	N036607-011C,SAMP,10	7/30/2019 12:56:06 PM	SAMP,1>10mL
17	N036607-012C,SAMP,10	7/30/2019 1:10:55 PM	SAMP,1>10mL
18	N036607-014C,SAMP,5	7/30/2019 1:25:44 PM	SAMP,2>10mL
19	CCV-1,CCV,1	7/30/2019 1:40:31 PM	CCV
20	CCB-1,CCB,1	7/30/2019 1:55:20 PM	CCB
21	N036607-015C,SAMP,5	7/30/2019 2:10:09 PM	SAMP,2>10mL
22	N036409-003B,SAMP,100	7/30/2019 2:34:55 PM	SAMP,0.1>10mL
23	N036409-004B,SAMP,100	7/30/2019 2:49:42 PM	SAMP,0.1>10mL
24	N036607-016C,SAMP,5	7/30/2019 3:14:13 PM	SAMP,2>10mL
25	N036607-017C,SAMP,5	7/30/2019 3:29:01 PM	SAMP,2>10mL
26	N036563-013C,SAMP,5	7/30/2019 3:43:49 PM	SAMP,2>10mL
27	N036563-014C,SAMP,5	7/30/2019 3:58:38 PM	SAMP,2>10mL
28	N036607-012CMS,MS,10	7/30/2019 4:13:26 PM	MS,1>10mL
29	N036607-012CMSD,MSD,10	7/30/2019 4:28:15 PM	MSD,1>10mL
30	N036608-008C,SAMP,5	7/30/2019 4:43:03 PM	SAMP,2>10mL
31	CCV-2,CCV,1	7/30/2019 4:57:51 PM	CCV
32	CCB-2,CCB,1	7/30/2019 5:12:39 PM	CCB
33	N036608-008CMS,MS,5	7/30/2019 5:27:27 PM	MS,2>10mL
34	N036607-010CDUP,DUP,10	7/30/2019 5:42:15 PM	SAMP,1>10mL
35	N036608-004C,SAMP,10	7/30/2019 5:57:03 PM	SAMP,1>10mL
36	N036608-009C,SAMP,5	7/30/2019 6:11:51 PM	SAMP,2>10mL
37	N036608-010C,SAMP,10	7/30/2019 6:26:39 PM	SAMP,1>10mL
38	N036608-011C,SAMP,10	7/30/2019 6:41:27 PM	SAMP,1>10mL
39	N036608-012C,SAMP,10	7/30/2019 6:56:15 PM	SAMP,1>10mL
40	N036608-013C,SAMP,5	7/30/2019 7:11:03 PM	SAMP,2>10mL
41	N036625-004C,SAMP,20	7/30/2019 7:25:51 PM	SAMP,0.5>10mL

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 91
Created: 7/30/2019 9:02:45 AM by IC-05
Last Update: 7/31/2019 2:40:32 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N036625-005C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
43	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
44	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
45	N036625-006C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
46	N036625-007C,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
47	N036607-016CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
48	N036607-017CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
49	N036563-013CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
50	N036563-014CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
51	N036607-016CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
52	N036607-017CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
53	N036563-013CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
54	N036563-014CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
55	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
56	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
57	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
58	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
59	N036641-009C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
60	N036641-009CMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
61	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
62	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
63	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
64	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
65	N036641-009C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
66	N036641-009CMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
67	N036641-009CMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
68	N036641-005C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
69	N036641-005CMS,MS,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
70	N036625-014C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
71	N036625-014CDUP,DUP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
72	N036625-003C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
73	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
74	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
75	N036625-008C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
76	N036625-009C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
77	N036625-012C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
78	N036625-013C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
79	N036625-015C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
80	N036641-006C,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
81	N036641-007C,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
82	N036641-008C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 91
Created: 7/30/2019 9:02:45 AM by IC-05
Last Update: 7/31/2019 2:40:32 AM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N036625-005C,SAMP,5	7/30/2019 7:40:39 PM	SAMP,2>10mL
43	CCV-3,CCV,1	7/30/2019 7:55:28 PM	CCV
44	CCB-3,CCB,1	7/30/2019 8:10:16 PM	CCB
45	N036625-006C,SAMP,10	7/30/2019 8:25:04 PM	SAMP,1>10mL
46	N036625-007C,SAMP,20	7/30/2019 8:39:51 PM	SAMP,0.5>10mL
47	N036607-016CMS,MS,2	7/30/2019 8:54:39 PM	MS,5>10mL
48	N036607-017CMS,MS,2	7/30/2019 9:09:27 PM	MS,5>10mL
49	N036563-013CMS,MS,2	7/30/2019 9:24:15 PM	MS,5>10mL
50	N036563-014CMS,MS,2	7/30/2019 9:39:04 PM	MS,5>10mL
51	N036607-016CMS,MS,5	7/30/2019 9:53:51 PM	MS,2>10mL
52	N036607-017CMS,MS,5	7/30/2019 10:08:39 PM	MS,2>10mL
53	N036563-013CMS,MS,5	7/30/2019 10:23:28 PM	MS,2>10mL
54	N036563-014CMS,MS,5	7/30/2019 10:38:16 PM	MS,2>10mL
55	CCV-4,CCV,1	7/30/2019 10:53:04 PM	CCV
56	CCB-4,CCB,1	7/30/2019 11:07:52 PM	CCB
57	LCS-2,LCS,1	7/30/2019 11:22:40 PM	LCS
58	MB-2,MBLK,1	7/30/2019 11:37:28 PM	METHOD BLANK
59	N036641-009C,SAMP,50	7/30/2019 11:52:15 PM	SAMP,0.2>10mL
60	N036641-009CMS,MS,50	7/31/2019 12:07:04 AM	MS,0.2>10mL
61	CCV-5,CCV,1	7/31/2019 2:02:09 AM	MS,0.2>10mL
62	CCB-5,CCB,1	7/31/2019 2:16:57 AM	MS,0.2>10mL
63	LCS-2,LCS,1	7/31/2019 2:31:45 AM	MS,0.2>10mL
64	MB-2,MBLK,1	7/31/2019 2:46:33 AM	MS,0.2>10mL
65	N036641-009C,SAMP,50	7/31/2019 3:01:22 AM	MS,0.2>10mL
66	N036641-009CMS,MS,50	7/31/2019 3:16:09 AM	MS,0.2>10mL
67	N036641-009CMSD,MSD,50	7/31/2019 3:30:58 AM	MSD,0.2>10mL
68	N036641-005C,SAMP,10	7/31/2019 3:45:46 AM	SAMP,1>10mL
69	N036641-005CMS,MS,10	7/31/2019 4:00:34 AM	MS,1>10mL
70	N036625-014C,SAMP,10	7/31/2019 4:15:22 AM	SAMP,1>10mL
71	N036625-014CDUP,DUP,10	7/31/2019 4:30:11 AM	DUP,1>10mL
72	N036625-003C,SAMP,5	7/31/2019 4:44:58 AM	SAMP,2>10mL
73	CCV-6,CCV,1	7/31/2019 4:59:47 AM	CCV
74	CCB-6,CCB,1	7/31/2019 5:14:35 AM	CCB
75	N036625-008C,SAMP,10	7/31/2019 5:29:23 AM	SAMP,1>10mL
76	N036625-009C,SAMP,10	7/31/2019 5:44:11 AM	SAMP,1>10mL
77	N036625-012C,SAMP,5	7/31/2019 5:58:59 AM	SAMP,2>10mL
78	N036625-013C,SAMP,10	7/31/2019 6:13:48 AM	SAMP,1>10mL
79	N036625-015C,SAMP,5	7/31/2019 6:28:36 AM	SAMP,2>10mL
80	N036641-006C,SAMP,20	7/31/2019 6:43:25 AM	SAMP,0.5>10mL
81	N036641-007C,SAMP,20	7/31/2019 6:58:13 AM	SAMP,0.5>10mL
82	N036641-008C,SAMP,50	7/31/2019 7:13:00 AM	SAMP,0.2>10mL

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 91
Created: 7/30/2019 9:02:45 AM by IC-05
Last Update: 7/31/2019 2:40:32 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
83	N036641-011C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
84	CCV-7,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
85	CCB-7,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
86	N036641-020C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
87	N036641-021C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
88	N036641-022C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
89	N036641-023C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
90	CCV-8,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
91	CCB-8,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 91
Created: 7/30/2019 9:02:45 AM by IC-05
Last Update: 7/31/2019 2:40:32 AM by IC-05

No.	Name	Inj. Date/Time	Comment
83	N036641-011C,SAMP,10	7/31/2019 7:27:48 AM	SAMP,1>10mL
84	CCV-7,CCV,1	7/31/2019 7:42:36 AM	CCV
85	CCB-7,CCB,1	7/31/2019 7:57:24 AM	CCB
86	N036641-020C,SAMP,5	7/31/2019 8:12:12 AM	SAMP,2>10mL
87	N036641-021C,SAMP,10	7/31/2019 8:27:00 AM	SAMP,1>10mL
88	N036641-022C,SAMP,5	7/31/2019 8:41:48 AM	SAMP,2>10mL
89	N036641-023C,SAMP,5	7/31/2019 8:56:36 AM	SAMP,2>10mL
90	CCV-8,CCV,1	7/31/2019 9:11:24 AM	CCV
91	CCB-8,CCB,1	7/31/2019 9:26:12 AM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 62
Created: 8/2/2019 8:21:52 AM by IC-05
Last Update: 8/2/2019 6:28:18 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190730	Finished
7	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
8	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
9	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
12	N036643-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
13	N036643-002A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
14	N036643-003A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
15	N036643-004A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
16	N036652-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
17	N036652-002A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
18	N036652-003A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
19	N036652-004A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
20	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
21	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
22	N036652-005A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
23	N036652-006A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
24	N036652-007A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
25	N036678-001A,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
26	N036678-002A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
27	N036678-003A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
28	N036703-001A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
29	N036703-002A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
30	N036703-003A,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
31	N036703-004A,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
32	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
33	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
34	N036643-001AMS,MS,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
35	N036643-001AMSD,MSD,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
36	N036652-001AMS,MS,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
37	N036703-003ADUP,DUP,200	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
38	N036677-001C,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
39	N036677-002C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
40	N036677-001C,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
41	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 62
Created: 8/2/2019 8:21:52 AM by IC-05
Last Update: 8/2/2019 6:28:18 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	7/30/2019 9:04:32 AM	BLANK
2	Std - 1	7/30/2019 9:20:00 AM	STD-LOW
3	Std - 2	7/30/2019 9:35:16 AM	STD
4	Std - 3	7/30/2019 9:50:04 AM	STD
5	Std - 4	7/30/2019 10:04:52 AM	STD
6	Std - 5	7/30/2019 10:19:39 AM	STD-HIGH
7	BLANK	8/2/2019 8:22:32 AM	BLANK
8	CCV-1,CCV,1	8/2/2019 8:37:20 AM	CCV
9	CCB-1,CCB,1	8/2/2019 8:52:08 AM	CCB
10	MB-H2O,MBLK,1	8/2/2019 9:06:57 AM	METHOD BLANK
11	LCS-H2O,LCS,1	8/2/2019 9:21:45 AM	LCS
12	N036643-001A,SAMP,100	8/2/2019 9:51:58 AM	SAMP,0.1>10mL
13	N036643-002A,SAMP,500	8/2/2019 10:06:46 AM	SAMP,0.02>10mL
14	N036643-003A,SAMP,1000	8/2/2019 10:21:34 AM	SAMP,0.01>10mL
15	N036643-004A,SAMP,1000	8/2/2019 10:36:22 AM	SAMP,0.01>10mL
16	N036652-001A,SAMP,100	8/2/2019 11:22:05 AM	SAMP,0.05>10mL
17	N036652-002A,SAMP,1000	8/2/2019 11:36:52 AM	SAMP,0.01>10mL
18	N036652-003A,SAMP,1000	8/2/2019 11:51:40 AM	SAMP,0.01>10mL
19	N036652-004A,SAMP,500	8/2/2019 12:06:29 PM	SAMP,0.02>10mL
20	CCV-2,CCV,1	8/2/2019 12:21:17 PM	CCV
21	CCB-2,CCB,1	8/2/2019 12:36:05 PM	CCB
22	N036652-005A,SAMP,500	8/2/2019 12:50:53 PM	SAMP,0.02>10mL
23	N036652-006A,SAMP,500	8/2/2019 1:05:41 PM	SAMP,0.02>10mL
24	N036652-007A,SAMP,1000	8/2/2019 1:20:29 PM	SAMP,0.01>10mL
25	N036678-001A,SAMP,200	8/2/2019 1:35:17 PM	SAMP,0.05>10mL
26	N036678-002A,SAMP,500	8/2/2019 1:50:05 PM	SAMP,0.02>10mL
27	N036678-003A,SAMP,1000	8/2/2019 2:04:53 PM	SAMP,0.01>10mL
28	N036703-001A,SAMP,1000	8/2/2019 2:19:41 PM	SAMP,0.01>10mL
29	N036703-002A,SAMP,1000	8/2/2019 2:34:29 PM	SAMP,0.01>10mL
30	N036703-003A,SAMP,200	8/2/2019 2:49:17 PM	SAMP,0.05>10mL
31	N036703-004A,SAMP,200	8/2/2019 3:04:05 PM	SAMP,0.05>10mL
32	CCV-3,CCV,1	8/2/2019 3:18:52 PM	CCV
33	CCB-3,CCB,1	8/2/2019 3:33:41 PM	CCB
34	N036643-001AMS,MS,100	8/2/2019 3:48:29 PM	MS,0.1>10mL
35	N036643-001AMSD,MSD,100	8/2/2019 4:03:17 PM	MSD,0.1>10mL
36	N036652-001AMS,MS,100	8/2/2019 4:18:05 PM	MS,0.1>10mL
37	N036703-003ADUP,DUP,200	8/2/2019 4:32:53 PM	DUP,0.05>10mL
38	N036677-001C,SAMP,100	8/2/2019 5:00:01 PM	SAMP,0.1>10mL
39	N036677-002C,SAMP,500	8/2/2019 5:14:49 PM	SAMP,0.02>10mL
40	N036677-001C,SAMP,100	8/2/2019 5:34:28 PM	SAMP,0.1>10mL
41	LCS-2,LCS,1	8/2/2019 5:49:16 PM	LCS

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 62
Created: 8/2/2019 8:21:52 AM by IC-05
Last Update: 8/2/2019 6:28:18 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
43	N036669-004C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
44	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
45	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
46	N036669-013A,SAMP,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
47	N036698-003B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
48	N036669-001B,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
49	N036669-003C,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
50	N036669-002B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
51	N036698-001B,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
52	N036698-002B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
53	N036669-004CMS,MS,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
54	N036669-004CMSD,MSD,10	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
55	N036698-003BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
56	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
57	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
58	N036698-004B,SAMP,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
59	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
60	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
61	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished
62	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190730	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 62
Created: 8/2/2019 8:21:52 AM by IC-05
Last Update: 8/2/2019 6:28:18 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	MB-2,MBLK,1	8/2/2019 6:04:04 PM	METHOD BLANK
43	N036669-004C,SAMP,10	8/2/2019 6:22:47 PM	SAMP,1>10mL
44	CCV-4,CCV,1	8/2/2019 6:37:35 PM	CCV
45	CCB-4,CCB,1	8/2/2019 6:52:23 PM	CCB
46	N036669-013A,SAMP,1	8/2/2019 7:07:11 PM	SAMP,10mL
47	N036698-003B,SAMP,5	8/2/2019 7:21:59 PM	SAMP,2>10mL
48	N036669-001B,SAMP,10	8/2/2019 7:36:48 PM	SAMP,10mL
49	N036669-003C,SAMP,100	8/2/2019 7:51:36 PM	SAMP,2>10mL
50	N036669-002B,SAMP,20	8/2/2019 8:06:24 PM	SAMP,0.5>10mL
51	N036698-001B,SAMP,10	8/2/2019 8:21:12 PM	SAMP,2>10mL
52	N036698-002B,SAMP,100	8/2/2019 8:36:00 PM	SAMP,2>10mL
53	N036669-004CMS,MS,10	8/2/2019 8:50:48 PM	MS,2>10mL
54	N036669-004CMSD,MSD,10	8/2/2019 9:05:36 PM	MSD,2>10mL
55	N036698-003BDUP,DUP,5	8/2/2019 9:20:24 PM	DUP,2>10mL
56	CCV-5,CCV,1	8/2/2019 9:35:12 PM	CCV
57	CCB-5,CCB,1	8/2/2019 9:50:00 PM	CCB
58	N036698-004B,SAMP,1	8/2/2019 10:04:49 PM	SAMP,10mL
59	CCV-6,CCV,1	8/2/2019 10:19:37 PM	CCV
60	CCB-6,CCB,1	8/2/2019 10:34:24 PM	CCB
61	BLANK	8/2/2019 10:49:12 PM	BLANK
62	BLANK	8/2/2019 11:04:01 PM	BLANK

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 85
Created: 8/4/2019 11:19:11 AM by IC-05
Last Update: 8/5/2019 11:21:59 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
7	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
8	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
9	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
10	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
11	N036547-004A,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
12	N036700-011C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
13	N036700-011CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
14	N036700-011CMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
15	N036700-016C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
16	N036700-016CMS,MS,10	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
17	N036700-013C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
18	N036700-013CDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
19	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
20	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
21	N036700-005C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
22	N036700-006C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
23	N036700-015C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
24	N036700-017C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
25	N036700-014C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
26	N036700-014C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
27	N036700-009C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
28	N036700-010C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
29	N036700-010C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
30	N036700-009C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
31	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
32	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
33	N036700-007C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
34	N036700-007C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
35	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
36	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
37	N036700-007C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
38	N036700-007C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
39	N036563-013C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
40	N036563-013CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
41	N036563-013C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 85
Created: 8/4/2019 11:19:11 AM by IC-05
Last Update: 8/5/2019 11:21:59 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	8/4/2019 11:21:24 AM	IBLANK
2	Std - 1	8/4/2019 12:00:38 PM	STD-LOW
3	Std - 2	8/4/2019 12:15:26 PM	STD
4	Std - 3	8/4/2019 12:30:14 PM	STD
5	Std - 4	8/4/2019 12:45:01 PM	STD
6	Std - 5	8/4/2019 12:59:50 PM	STD-HIGH
7	ICV,ICV,1	8/4/2019 1:14:38 PM	ICV
8	ICB,ICB,1	8/4/2019 1:29:25 PM	ICB
9	MB-H2O,MBLK,1	8/4/2019 1:44:14 PM	METHOD BLANK
10	LCS-H2O,LCS,1	8/4/2019 1:59:02 PM	LCS
11	N036547-004A,SAMP,10	8/4/2019 2:13:50 PM	SAMP,1>10mL
12	N036700-011C,SAMP,5	8/4/2019 2:28:38 PM	SAMP,2>10mL
13	N036700-011CMS,MS,5	8/4/2019 2:43:26 PM	MS,2>10mL
14	N036700-011CMSD,MSD,5	8/4/2019 2:58:15 PM	MSD,2>10mL
15	N036700-016C,SAMP,10	8/4/2019 3:13:03 PM	SAMP,1>10mL
16	N036700-016CMS,MS,10	8/4/2019 3:27:51 PM	MS,1>10mL
17	N036700-013C,SAMP,5	8/4/2019 3:42:39 PM	SAMP,2>10mL
18	N036700-013CDUP,DUP,5	8/4/2019 3:57:27 PM	DUP,2>10mL
19	CCV-1,CCV,1	8/4/2019 4:12:16 PM	CCV
20	CCB-1,CCB,1	8/4/2019 4:27:04 PM	CCB
21	N036700-005C,SAMP,5	8/4/2019 4:41:52 PM	SAMP,2>10mL
22	N036700-006C,SAMP,5	8/4/2019 4:56:40 PM	SAMP,2>10mL
23	N036700-015C,SAMP,5	8/4/2019 5:11:28 PM	SAMP,2>10mL
24	N036700-017C,SAMP,2	8/4/2019 5:26:16 PM	SAMP,5>10mL
25	N036700-014C,SAMP,10	8/4/2019 5:41:04 PM	SAMP,1>10mL
26	N036700-014C,SAMP,10	8/4/2019 7:17:53 PM	SAMP,1>10mL
27	N036700-009C,SAMP,5	8/4/2019 7:32:41 PM	SAMP,2>10mL
28	N036700-010C,SAMP,2	8/4/2019 7:47:29 PM	SAMP,5>10mL
29	N036700-010C,SAMP,5	8/4/2019 8:02:17 PM	SAMP,2>10mL
30	N036700-009C,SAMP,2	8/4/2019 8:17:05 PM	SAMP,10mL
31	CCV-2,CCV,1	8/4/2019 8:31:53 PM	CCV
32	CCB-2,CCB,1	8/4/2019 8:46:41 PM	CCB
33	N036700-007C,SAMP,2	8/4/2019 9:01:29 PM	SAMP,5>10mL
34	N036700-007C,SAMP,5	8/4/2019 9:16:17 PM	SAMP,2>10mL
35	CCV-2,CCV,1	8/4/2019 10:10:22 PM	CCV
36	CCB-2,CCB,1	8/4/2019 10:25:10 PM	CCB
37	N036700-007C,SAMP,2	8/4/2019 10:39:57 PM	SAMP,5>10mL
38	N036700-007C,SAMP,5	8/4/2019 10:54:45 PM	SAMP,2>10mL
39	N036563-013C,SAMP,2	8/4/2019 11:09:33 PM	SAMP,5>10mL
40	N036563-013CMS,MS,2	8/4/2019 11:24:21 PM	MS,5>10mL
41	N036563-013C,SAMP,5	8/4/2019 11:39:09 PM	SAMP,2>10mL

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 85
Created: 8/4/2019 11:19:11 AM by IC-05
Last Update: 8/5/2019 11:21:59 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N036563-013CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
43	N036563-014C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
44	N036563-014CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
45	N036563-014C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
46	N036563-014CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
47	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
48	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
49	N036607-016C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
50	N036607-016CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
51	N036607-016C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
52	N036607-016CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
53	N036607-017C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
54	N036607-017CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
55	N036607-017C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
56	N036607-017CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
57	N036655-020C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
58	N036671-017C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
59	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
60	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
61	N036655-020C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
62	N036671-017C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
63	N036678-004B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
64	N036678-005B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
65	N036678-006B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
66	N036678-007B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
67	N036678-008B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
68	N036678-009B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
69	N036645-001A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
70	N036645-002A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
71	N036700-007C,SAMP,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
72	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
73	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
74	N036563-013CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
75	N036563-013CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
76	N036563-014CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
77	N036563-014CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
78	N036607-016CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
79	N036607-017CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
80	N036700-007CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
81	N036700-010CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
82	N036655-020CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 85
Created: 8/4/2019 11:19:11 AM by IC-05
Last Update: 8/5/2019 11:21:59 AM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N036563-013CMS,MS,5	8/4/2019 11:53:57 PM	MS,2>10mL
43	N036563-014C,SAMP,2	8/5/2019 12:08:45 AM	SAMP,5>10mL
44	N036563-014CMS,MS,2	8/5/2019 12:23:33 AM	MS,5>10mL
45	N036563-014C,SAMP,5	8/5/2019 12:38:21 AM	SAMP,2>10mL
46	N036563-014CMS,MS,5	8/5/2019 12:53:09 AM	MS,2>10mL
47	CCV-3,CCV,1	8/5/2019 1:07:57 AM	CCV
48	CCB-3,CCB,1	8/5/2019 1:22:45 AM	CCB
49	N036607-016C,SAMP,2	8/5/2019 1:37:33 AM	SAMP,5>10mL
50	N036607-016CMS,MS,2	8/5/2019 1:52:21 AM	MS,5>10mL
51	N036607-016C,SAMP,5	8/5/2019 2:07:09 AM	SAMP,2>10mL
52	N036607-016CMS,MS,5	8/5/2019 2:21:58 AM	MS,2>10mL
53	N036607-017C,SAMP,2	8/5/2019 2:36:47 AM	SAMP,5>10mL
54	N036607-017CMS,MS,2	8/5/2019 2:51:35 AM	MS,5>10mL
55	N036607-017C,SAMP,5	8/5/2019 3:06:24 AM	SAMP,2>10mL
56	N036607-017CMS,MS,5	8/5/2019 3:21:12 AM	MS,2>10mL
57	N036655-020C,SAMP,5	8/5/2019 3:36:01 AM	SAMP,2>10mL
58	N036671-017C,SAMP,5	8/5/2019 3:50:49 AM	SAMP,2>10mL
59	CCV-4,CCV,1	8/5/2019 4:05:37 AM	CCV
60	CCB-4,CCB,1	8/5/2019 4:20:25 AM	CCB
61	N036655-020C,SAMP,2	8/5/2019 4:35:13 AM	SAMP,5>10mL
62	N036671-017C,SAMP,2	8/5/2019 4:50:01 AM	SAMP,5>10mL
63	N036678-004B,SAMP,20	8/5/2019 5:04:50 AM	SAMP,0.5>10mL
64	N036678-005B,SAMP,20	8/5/2019 5:19:38 AM	SAMP,0.5>10mL
65	N036678-006B,SAMP,20	8/5/2019 5:34:27 AM	SAMP,0.5>10mL
66	N036678-007B,SAMP,20	8/5/2019 5:49:15 AM	SAMP,0.5>10mL
67	N036678-008B,SAMP,20	8/5/2019 6:04:03 AM	SAMP,0.5>10mL
68	N036678-009B,SAMP,20	8/5/2019 6:18:52 AM	SAMP,0.5>10mL
69	N036645-001A,SAMP,20	8/5/2019 6:33:40 AM	SAMP,0.5>10mL
70	N036645-002A,SAMP,20	8/5/2019 6:48:28 AM	SAMP,0.5>10mL
71	N036700-007C,SAMP,1	8/5/2019 7:03:16 AM	SAMP,10mL
72	CCV-5,CCV,1	8/5/2019 7:18:04 AM	CCV
73	CCB-5,CCB,1	8/5/2019 7:32:52 AM	CCB
74	N036563-013CMS,MS,2	8/5/2019 8:49:59 AM	MS,2>10mL
75	N036563-013CMS,MS,5	8/5/2019 9:04:47 AM	MS,5>10mL
76	N036563-014CMS,MS,2	8/5/2019 9:23:24 AM	MS,2>10mL
77	N036563-014CMS,MS,5	8/5/2019 9:38:13 AM	MS,5>10mL
78	N036607-016CMS,MS,2	8/5/2019 9:55:44 AM	MS,5>10mL
79	N036607-017CMS,MS,2	8/5/2019 10:10:32 AM	MS,5>10mL
80	N036700-007CMS,MS,2	8/5/2019 11:11:58 AM	MS,2>10mL
81	N036700-010CMS,MS,2	8/5/2019 11:26:46 AM	MS,2>10mL
82	N036655-020CMS,MS,2	8/5/2019 11:41:34 AM	MS,5>10mL

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 85
Created: 8/4/2019 11:19:11 AM by IC-05
Last Update: 8/5/2019 11:21:59 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
83	N036671-017CMS,MS,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
84	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
85	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 85
Created: 8/4/2019 11:19:11 AM by IC-05
Last Update: 8/5/2019 11:21:59 AM by IC-05

No.	Name	Inj. Date/Time	Comment
83	N036671-017CMS,MS,2	8/5/2019 11:56:22 AM	MS,5>10mL
84	CCV-6,CCV,1	8/5/2019 12:11:10 PM	CCV
85	CCB-6,CCB,1	8/5/2019 12:25:58 PM	CCB

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 66
Created: 8/5/2019 12:44:36 PM by IC-05
Last Update: 8/6/2019 10:41:39 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
2	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
3	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
4	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
5	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
6	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190804	Finished
7	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
8	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
9	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
10	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
11	N036641-010C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
12	N036641-010CDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
13	N036652-001A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
14	N036652-001AMS,MS,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
15	N036652-001AMSD,MSD,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
16	N036678-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
17	N036678-002AMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
18	N036652-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
19	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
20	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
21	N036652-003A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
22	N036652-004A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
23	N036652-005A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
24	N036652-006A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
25	N036652-007A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
26	N036677-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
27	N036677-002C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
28	N036678-001A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
29	N036678-003A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
30	N036678-004B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
31	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
32	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
33	N036678-005B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
34	N036678-006B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
35	N036678-007B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
36	N036678-008B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
37	N036678-009B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
38	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
39	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
40	N036643-001A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
41	N036643-004A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 66
Created: 8/5/2019 12:44:36 PM by IC-05
Last Update: 8/6/2019 10:41:39 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	8/4/2019 11:21:24 AM	IBLANK
2	Std - 1	8/4/2019 12:00:38 PM	STD-LOW
3	Std - 2	8/4/2019 12:15:26 PM	STD
4	Std - 3	8/4/2019 12:30:14 PM	STD
5	Std - 4	8/4/2019 12:45:01 PM	STD
6	Std - 5	8/4/2019 12:59:50 PM	STD-HIGH
7	CCV-1,CCV,1	8/5/2019 12:45:21 PM	CCV
8	CCB-1,CCB,1	8/5/2019 1:00:09 PM	CCB
9	MB-H2O,MBLK,1	8/5/2019 1:14:57 PM	METHOD BLANK
10	LCS-H2O,LCS,1	8/5/2019 1:29:45 PM	LCS
11	N036641-010C,SAMP,5	8/5/2019 1:46:38 PM	SAMP,2>10mL
12	N036641-010CDUP,DUP,5	8/5/2019 2:01:25 PM	DUP,2>10mL
13	N036652-001A,SAMP,20	8/5/2019 2:16:14 PM	SAMP,0.5>10mL
14	N036652-001AMS,MS,20	8/5/2019 2:31:02 PM	MS,0.5>10mL
15	N036652-001AMSD,MSD,20	8/5/2019 2:45:50 PM	MSD,0.5>10mL
16	N036678-002A,SAMP,50	8/5/2019 3:00:38 PM	SAMP,0.2>10mL
17	N036678-002AMS,MS,50	8/5/2019 3:15:26 PM	MS,0.2>10mL
18	N036652-002A,SAMP,50	8/5/2019 3:30:14 PM	SAMP,0.2>10mL
19	CCV-2,CCV,1	8/5/2019 3:45:02 PM	CCV
20	CCB-2,CCB,1	8/5/2019 3:59:49 PM	CCB
21	N036652-003A,SAMP,50	8/5/2019 4:14:38 PM	SAMP,0.2>10mL
22	N036652-004A,SAMP,50	8/5/2019 4:29:26 PM	SAMP,0.2>10mL
23	N036652-005A,SAMP,20	8/5/2019 4:44:14 PM	SAMP,0.5>10mL
24	N036652-006A,SAMP,20	8/5/2019 4:59:02 PM	SAMP,0.5>10mL
25	N036652-007A,SAMP,50	8/5/2019 5:23:39 PM	SAMP,0.2>10mL
26	N036677-001C,SAMP,50	8/5/2019 5:53:54 PM	SAMP,0.2>10mL
27	N036677-002C,SAMP,50	8/5/2019 6:08:42 PM	SAMP,0.2>10mL
28	N036678-001A,SAMP,50	8/5/2019 6:23:30 PM	SAMP,5>10mL
29	N036678-003A,SAMP,50	8/5/2019 6:38:18 PM	SAMP,2>10mL
30	N036678-004B,SAMP,100	8/5/2019 6:53:06 PM	SAMP,10mL
31	CCV-3,CCV,1	8/5/2019 7:07:54 PM	CCV
32	CCB-3,CCB,1	8/5/2019 7:22:42 PM	CCB
33	N036678-005B,SAMP,100	8/5/2019 7:37:30 PM	SAMP,0.1>10mL
34	N036678-006B,SAMP,20	8/5/2019 7:52:17 PM	SAMP,0.5>10mL
35	N036678-007B,SAMP,100	8/5/2019 8:07:06 PM	SAMP,0.1>10mL
36	N036678-008B,SAMP,100	8/5/2019 8:21:55 PM	SAMP,0.1>10mL
37	N036678-009B,SAMP,20	8/5/2019 8:36:43 PM	SAMP,0.5>10mL
38	LCS-2,LCS,1	8/5/2019 8:51:32 PM	LCS
39	MB-2,MBLK,1	8/5/2019 9:06:20 PM	METHOD BLANK
40	N036643-001A,SAMP,20	8/5/2019 9:21:08 PM	SAMP,0.5>10mL
41	N036643-004A,SAMP,50	8/5/2019 9:35:55 PM	SAMP,0.2>10mL

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 66
Created: 8/5/2019 12:44:36 PM by IC-05
Last Update: 8/6/2019 10:41:39 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N036703-003A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
43	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
44	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
45	N036643-001AMS,MS,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
46	N036643-001AMSD,MSD,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
47	N036703-003AMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
48	N036643-004ADUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
49	N036643-002A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
50	N036643-003A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
51	N036703-001A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
52	N036703-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
53	N036703-004A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
54	N036715-004C,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
55	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
56	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
57	N036715-003C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
58	N036715-010C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
59	N036715-011C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
60	N036715-001C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
61	N036715-002C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
62	N036715-007C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
63	N036715-008C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
64	N036715-009C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
65	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished
66	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190804	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 66
Created: 8/5/2019 12:44:36 PM by IC-05
Last Update: 8/6/2019 10:41:39 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N036703-003A,SAMP,50	8/5/2019 9:50:43 PM	SAMP,0.2>10mL
43	CCV-4,CCV,1	8/5/2019 10:05:31 PM	CCV
44	CCB-4,CCB,1	8/5/2019 10:20:19 PM	CCB
45	N036643-001AMS,MS,20	8/5/2019 10:35:07 PM	MS,0.5>10mL
46	N036643-001AMSD,MSD,20	8/5/2019 10:49:55 PM	MSD,0.5>10mL
47	N036703-003AMS,MS,50	8/5/2019 11:04:43 PM	MS,0.2>10mL
48	N036643-004ADUP,DUP,50	8/5/2019 11:19:31 PM	DUP,0.2>10mL
49	N036643-002A,SAMP,20	8/5/2019 11:34:19 PM	SAMP,0.5>10mL
50	N036643-003A,SAMP,50	8/5/2019 11:49:07 PM	SAMP,0.2>10mL
51	N036703-001A,SAMP,50	8/6/2019 12:03:55 AM	SAMP,0.2>10mL
52	N036703-002A,SAMP,50	8/6/2019 12:18:44 AM	SAMP,0.2>10mL
53	N036703-004A,SAMP,50	8/6/2019 12:33:32 AM	SAMP,0.2>10mL
54	N036715-004C,SAMP,20	8/6/2019 12:48:19 AM	SAMP,0.5>10mL
55	CCV-6,CCV,1	8/6/2019 1:03:07 AM	CCV
56	CCB-6,CCB,1	8/6/2019 1:17:56 AM	CCB
57	N036715-003C,SAMP,5	8/6/2019 1:32:44 AM	SAMP,2>10mL
58	N036715-010C,SAMP,10	8/6/2019 1:47:32 AM	SAMP,1>10mL
59	N036715-011C,SAMP,5	8/6/2019 2:02:20 AM	SAMP,2>10mL
60	N036715-001C,SAMP,2	8/6/2019 2:17:08 AM	SAMP,5>10mL
61	N036715-002C,SAMP,2	8/6/2019 2:31:56 AM	SAMP,5>10mL
62	N036715-007C,SAMP,2	8/6/2019 2:46:44 AM	SAMP,5>10mL
63	N036715-008C,SAMP,2	8/6/2019 3:01:32 AM	SAMP,5>10mL
64	N036715-009C,SAMP,2	8/6/2019 3:16:20 AM	SAMP,5>10mL
65	CCV-7,CCV,1	8/6/2019 3:31:08 AM	CCV
66	CCB-7,CCB,1	8/6/2019 3:45:56 AM	CCB

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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 7/30/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0780	0.1506	0.3042	0.7871	1.6586	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 8/4/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0593	0.2304	0.4695	1.1976	2.4796	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV** SampType: **ICV** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **135572**
Client ID: **ICV** Batch ID: **R135572** TestNo: **EPA 300.0** Analysis Date: **7/30/2019** SeqNo: **3469037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.985	0.50	2.000	0	99.2	90	110				

Sample ID **CCV-1** SampType: **CCV** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **135572**
Client ID: **CCV** Batch ID: **R135572** TestNo: **EPA 300.0** Analysis Date: **8/2/2019** SeqNo: **3469039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.943	0.50	2.000	0	97.2	90	110				

Sample ID **CCV-2** SampType: **CCV** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **135572**
Client ID: **CCV** Batch ID: **R135572** TestNo: **EPA 300.0** Analysis Date: **8/2/2019** SeqNo: **3469051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.939	0.50	2.000	0	97.0	90	110				

Sample ID **CCV-3** SampType: **CCV** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **135572**
Client ID: **CCV** Batch ID: **R135572** TestNo: **EPA 300.0** Analysis Date: **8/2/2019** SeqNo: **3469063**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.933	0.50	2.000	0	96.6	90	110				

Sample ID **CCV-4** SampType: **CCV** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **135572**
Client ID: **CCV** Batch ID: **R135572** TestNo: **EPA 300.0** Analysis Date: **8/2/2019** SeqNo: **3469071**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.927	0.50	2.000	0	96.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **ICV**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/4/2019**	SeqNo: **3472368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.851	0.50	4.000	0	96.3	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCV**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472370**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.906	0.50	4.000	0	97.6	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCV**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.866	0.50	4.000	0	96.6	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCV**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.842	0.50	4.000	0	96.0	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCV**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.902	0.50	4.000	0	97.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **ICB**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **7/30/2019**	SeqNo: **3469038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **CCB**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **CCB**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **CCB**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **135572**
Client ID: **CCB**	Batch ID: **R135572**	TestNo: **EPA 300.0**		Analysis Date: **8/2/2019**	SeqNo: **3469072**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.134	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **ICB**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/4/2019**	SeqNo: **3472369**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCB**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCB**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCB**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472395**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **135626**
Client ID: **CCB**	Batch ID: **R135626**	TestNo: **EPA 300.0**		Analysis Date: **8/5/2019**	SeqNo: **3472407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 8/2/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	3.963	
CCV-1	Chloride	4.007	
CCV-2	Chloride	3.990	
CCV-3	Chloride	3.984	
CCV-4	Chloride	3.984	
	Average	3.991	
	Applied RT Window	3.791 - 4.191	
MB-R135572_CL	Chloride	N.A.	N.A.
LCS-R135572_CL	Chloride	4.004	PASS
N036643-001AMS	Chloride	3.984	PASS
N036643-001AMSD	Chloride	3.983	PASS
N036652-001AMS	Chloride	3.983	PASS
N036703-003ADUP	Chloride	3.983	PASS
N036677-002C	Chloride	3.980	PASS
N036677-001C	Chloride	3.983	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 8/5/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	7.493	
CCV-1	Sulfate	7.387	
CCV-2	Sulfate	7.390	
CCV-3	Sulfate	7.417	
CCV-4	Sulfate	7.430	
	Average	7.406	
	Applied RT Window	7.206 - 7.606	
MB-R135626_SO4	Sulfate	N.A.	N.A.
LCS-R135626_SO4	Sulfate	7.387	PASS
N036641-010CDUP	Sulfate	7.394	PASS
N036652-001AMS	Sulfate	7.390	PASS
N036652-001AMSD	Sulfate	7.390	PASS
N036678-002AMS	Sulfate	7.394	PASS
N036677-001C	Sulfate	7.404	PASS
N036677-002C	Sulfate	7.407	PASS

MDL STUDY

METHOD DETECTION LIMIT 2019

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 1/7/2019 ; 1/9/2019 ; 5/6/2019
Analyst/Technician: Ria Abes / Hanah Glodoviza

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	190107A D51	190107A D52	190107A D53	190109A D79	190109A D80	190506A D16	190506A D17					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.034	0.039	0.039	0.038	0.038	0.043	0.043	0.020	0.0031	**0.0096**	0.020	0.10
Chloride	0.201	0.201	0.200	0.200	0.202	0.178	0.179	0.050	0.0111	**0.0348**	0.080	0.50
Nitrite	0.033	0.032	0.032	0.035	0.035	0.031	0.031	0.020	0.0016	**0.0050**	0.010	0.05
Bromide	0.040	0.043	0.044	0.043	0.043	0.025	0.022	0.040	0.0095	**0.0300**	0.060	0.50
Nitrate	0.037	0.035	0.035	0.037	0.042	0.040	0.040	0.020	0.0028	**0.0087**	0.020	0.05
Phosphate	0.067	0.069	0.061	0.066	0.069	0.080	0.097	0.040	0.0120	**0.0378**	0.080	0.10
Sulfate	0.294	0.291	0.289	0.325	0.305	0.309	0.306	0.100	0.0127	**0.0399**	0.080	0.50

Note: All 7 Method Blanks analyzed together with the MDL samples have 0 ug/L concentrations

MDL/LOD & PQL Verification 2019 (1st Quarter)

Method Name: **Inorganic Anions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/8/2019
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD actual Conc., mg/L	PQL Spike Conc., mg/L	PQL actual Conc., mg/L	%Recovery
Fluoride	**0.0096**	0.02	0.038	0.100	0.114	**114**
Chloride	**0.0348**	0.08	0.207	0.500	0.550	**110**
Nitrite	**0.0050**	0.01	0.023	0.050	0.057	**114**
Bromide	**0.0300**	0.06	0.048	0.500	0.503	**101**
Nitrate	**0.0087**	0.02	0.032	0.050	0.064	**129**
Phosphate	**0.0378**	0.08	0.139	0.100	0.141	**141**
Sulfate	**0.0399**	0.08	0.291	0.500	0.661	**132**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R135621 **Analyst:** RBA

ASSET #: N036703, 677, 678, 698 **Date Analyzed:** 8/5/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer RBA Date: 8/23/2019

2nd Level Reviewer NS 8/23/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N036677-002D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.5413	*	5
	=	2.7065	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.7 mg/L

NS 8/25/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

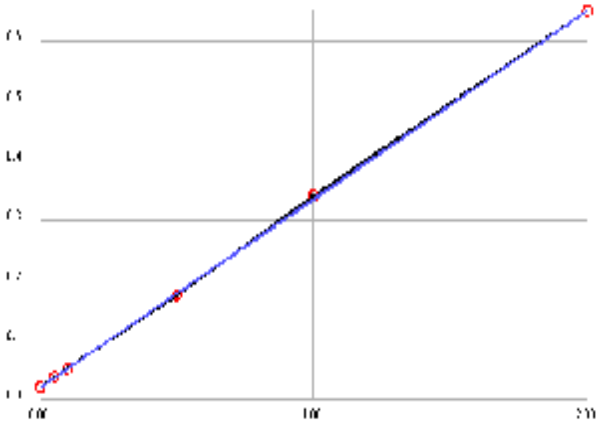
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3152x + 0.021
Correlation	.999919

Calibrant	Energy	Set	Conc
1	0.0203	0.0000	-0.0021
2	0.0379	0.0500	0.0538
3	0.0531	0.1000	0.1020
4	0.1739	0.5000	0.4852
5	0.3410	1.0000	1.0153
6	0.6501	2.0000	1.9959

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ICV**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.595	0.050	0.5000	0	119	90	110				S

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **CCV**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.474	0.050	0.5000	0	94.8	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **CCV**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.496	0.050	0.5000	0	99.1	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **CCV**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472172**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.456	0.050	0.5000	0	91.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036677
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **ICB**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **CCB**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **CCB**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **135621**
Client ID: **CCB**	Batch ID: **R135621**	TestNo: **SM4500-NO3**		Analysis Date: **8/5/2019**	SeqNo: **3472173**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 08-05-2019 17:36
Time end: 08-05-2019 20:31

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	19:50:51	0.0519		0.0373
2	<BLANK>	19:51:45	-0.0021		0.0203
3	<CAL1>	19:52:40	-0.0021	[0]	0.0203
4	<CAL2>	19:53:42	0.0538	[0.05]	0.0379
5	<CAL3>	19:54:36	0.1020	[0.1]	0.0531
6	<CAL4>	19:55:31	0.4852	[0.5]	0.1739
7	<CAL5>	19:56:33	1.0153	[1]	0.3410
8	<CAL6>	19:57:28	1.9959	[2]	0.6501
9	,BLANK,BLANK,1, NOT REPORTED	19:58:23	0.0376		0.0328
10	,ICV,ICV,1,	19:59:18	0.5946		0.2084
11	,ICB,ICB,1,	20:00:20	0.0128		0.0250
12	,MB-H2O,MBLK,1,	20:01:14	0.0024		0.0217
13	,LCS-H2O,LCS,1,	20:02:09	0.5033		0.1796
14	,N036703-001B,SAMP,1,	20:03:11	0.4357		0.1583
15	,N036703-001BDUP,DUP,1,	20:04:07	0.4401		0.1597
16	,N036677-002D,SAMP,5,	20:05:01	0.5413		0.1916
17	,N036677-002DMS,MS,5,	20:05:57	1.0375		0.3480
18	,N036677-002DMSD,MSD,5,	20:06:58	1.0794		0.3612
19	,N036703-003B,SAMP,10,	20:07:53	0.9791		0.3296
20	,N036678-001B,SAMP,10,	20:08:48	0.5061		0.1805
21	,BLANK, NOT REPORTED	20:09:44	0.0128		0.0250
22	,CCV-1,CCV,1,	20:10:46	0.4741		0.1704
23	,CCB-1,CCB,1,	20:11:40	0.0100		0.0241
24	,N036678-002B,SAMP,5,	20:12:35	0.3650		0.1360
25	,N036678-003B,SAMP,5,	20:13:37	0.5176		0.1841

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N036678-004C,SAMP,10,	20:14:31	0.7748		0.2652
27	,N036678-007C,SAMP,10,	20:15:33	0.9074		0.3070
28	,N036678-008C,SAMP,1,	20:16:17	0.4846		0.1737
29	,N036678-006C,SAMP,1,	20:16:59	0.5800		0.2038
30	,N036678-009C,SAMP,5,	20:17:48	0.5578		0.1968
31	,N036698-003A,SAMP,5,	20:18:30	0.8142		0.2776
32	,N036698-004A,SAMP,10,	20:19:14	0.7564		0.2594
33	,BLANK,BLANK,1, NOT REPORTED	20:20:04	0.0128		0.0250
34	,CCV-2,CCV,1,	20:20:45	0.4957		0.1772
35	,CCB-2,CCB,1,	20:21:29	0.0036		0.0221
36	,N036677-001D,SAMP,1,	20:22:17	0.0068		0.0231
37	,N036645-001C,SAMP,1, NOT REPORTED	20:23:00	0.0550		0.0383
38	,N036645-002C,SAMP,1, NOT REPORTED	20:23:42	0.0068		0.0231
39	,N036678-005C,SAMP,1,	20:24:26	0.1245		0.0602
40	,N036698-001A,SAMP,1,	20:25:14	0.1036		0.0536
41	,N036698-002A,SAMP,1,	20:25:57	0.1845		0.0791
42	,N036703-002B,SAMP,1,	20:26:43	0.3716		0.1381
43	,N036703-004B,SAMP,10,	20:27:25	0.8129		0.2772
44	,BLANK, NOT REPORTED	20:28:09	0.0084		0.0236
45	,CCV-3,CCV,1,	20:28:57	0.4563		0.1648
46	,CCB-3,CCB,1,	20:29:40	0.0020		0.0216

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 8/5/2019
Time Analyzed: 5 : 36 PM
Analyzed By: RBA

Reagent ID #
Ammonium Chloride reagent/Buffer: R190802B
Color reagent R190731B
2% Copper Sulfate: R190802C
Ammonium Hydroxide: CINV-190723A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N036678-001B		7.34							
N036678-002B		7.63							
N036678-003B		7.67							
N036678-004C		7.92							
N036678-005C		8.28							
N036678-006C		7.67							
N036678-007C		8.96							
N036678-008C		8.55							
N036678-009C		8.06							
N036677-001D		8.34							
N036677-002D		7.92							
N036698-001A		8.71							
N036698-002A		6.74							
N036698-003A		7.55							
N036698-004A		7.63							
N036703-001B		8.87							
N036703-002B		8.49							
N036703-003B		8.35							
N036703-004B		8.01							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

September 11, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037066

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 19, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037066-001D-MS and N037066-001D-MSD possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037066
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037066-001A	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-001B	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-001C	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-001D	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-002A	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-002B	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-002C	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-002D	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-003A	EB-701-Q319	Groundwater	8/19/2019 3:30:00 PM	8/19/2019	9/11/2019
N037066-004A	EB-702-Q319	Groundwater	8/19/2019 3:30:00 PM	8/19/2019	9/11/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190820C**	QC Batch: **R135941**			PrepDate:			Analyst: **LR**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	8/20/2019 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:08:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190820C**	QC Batch: **R135941**			PrepDate:			Analyst: **LR**
Specific Conductance	7600	0.10	0.10		umhos/cm	1	8/20/2019 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037066-002BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **135941**
Client ID:	**ZZZZZZ**	Batch ID: **R135941**	TestNo: **EPA 120.1**		Analysis Date: **8/20/2019**	SeqNo: **3484652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7660.000	0.10						7600	0.786	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A** QC Batch: **R135971**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	90	0.33	2.0		µg/L	10	8/21/2019 10:46 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A** QC Batch: **75122**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	88	0.13	1.0		µg/L	1	9/5/2019 05:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:08:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A** QC Batch: **R135971**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	90	0.33	2.0		µg/L	10	8/21/2019 11:05 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A** QC Batch: **75122**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	89	0.13	1.0		µg/L	1	9/5/2019 06:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-701-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:30:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A**	QC Batch: **R135971**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/21/2019 12:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-702-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:30:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A**	QC Batch: **R135971**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/21/2019 01:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R135971	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	PBW	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486612

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R135971	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	LCSW	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486613

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.921	0.20	5.000	0	98.4	90	110				

Sample ID	N037079-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486615

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.158	0.20	5.000	5.192	99.3	90	110				

Sample ID	N037066-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486619

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	139.460	2.0	50.00	89.97	99.0	90	110				

Sample ID	N037066-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486621

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	139.428	2.0	50.00	90.24	98.4	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037066-002ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486624

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	90.287	2.0						90.24	0.0476	20	

Sample ID	N037066-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486625

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	139.991	2.0	50.00	89.97	100	90	110	139.5	0.380	20	

Sample ID	N037066-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486627

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.010	0.20	1.000	0	101	90	110				

Sample ID	N037066-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486629

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.988	0.20	1.000	0	98.8	90	110				

Sample ID	N037079-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	135971
Client ID:	ZZZZZZ	Batch ID:	R135971	TestNo:	EPA 218.6			Analysis Date:	8/21/2019	SeqNo:	3486631

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.837	1.0	5.000	1.064	95.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037103-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID **N037036-001CMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.220	0.20	1.000	0.2474	97.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75122	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136323
Client ID:	PBW	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504033

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75122	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	LCSW	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504034

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.085	1.0	10.00	0	101	85	115				

Sample ID	N037066-001D-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504040

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	95.464	1.0	10.00	88.47	70.0	75	125				S

Sample ID	N037066-001D-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504042

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	93.711	1.0	10.00	88.47	52.4	75	125	95.46	1.85	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037066-001D-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID:	**ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	97.881	1.0	10.00	88.47	94.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190904C**	QC Batch: **R136372**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	1.5	0.032	0.050		mg/L	1	9/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:08:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190904C**	QC Batch: **R136372**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	1.4	0.032	0.050		mg/L	1	9/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136372	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	PBW	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506790

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136372	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	LCSW	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506791

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	85	115				

Sample ID	N037067-001CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	ZZZZZZ	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506797

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.766	0.050						0.8047	4.89	20	

Sample ID	N037036-001DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	ZZZZZZ	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506799

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.426	0.25	2.500	2.772	106	75	125				

Sample ID	N037036-001DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	ZZZZZZ	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506801

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.667	0.25	2.500	2.772	116	75	125	5.426	4.34	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190905B**	QC Batch: **75122**			PrepDate:	**8/23/2019**	Analyst: **CEI**	
Arsenic	1.9	0.081	0.10		µg/L	1	9/5/2019 05:12 PM
Manganese	230	1.3	2.5		µg/L	5	9/5/2019 05:18 PM
Molybdenum	22	0.21	0.50		µg/L	1	9/5/2019 05:12 PM
Selenium	2.7	0.36	0.50		µg/L	1	9/5/2019 08:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:08:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190905B**	QC Batch: **75122**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Arsenic	1.9	0.081	0.10		µg/L	1	9/5/2019 06:07 PM
Manganese	220	1.3	2.5		µg/L	5	9/5/2019 06:12 PM
Molybdenum	23	0.21	0.50		µg/L	1	9/5/2019 06:07 PM
Selenium	2.6	0.36	0.50		µg/L	1	9/5/2019 06:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75122**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **PBW**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504191**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-75122**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **LCSW**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504192**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.397	0.10	10.00	0	104	85	115				
Manganese	102.919	0.50	100.0	0	103	85	115				
Molybdenum	9.767	0.50	10.00	0	97.7	85	115				
Selenium	9.617	0.50	10.00	0	96.2	85	115				

Sample ID **N037066-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.517	0.10	10.00	1.869	106	75	125				
Molybdenum	33.252	0.50	10.00	22.43	108	75	125				
Selenium	12.612	0.50	10.00	2.623	99.9	75	125				

Sample ID **N037066-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	326.620	2.5	100.0	230.9	95.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037066-001D-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136324
Client ID:	ZZZZZZ	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504200

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.246	0.10	10.00	1.869	104	75	125	12.52	2.19	20	
Molybdenum	33.020	0.50	10.00	22.43	106	75	125	33.25	0.699	20	
Selenium	12.374	0.50	10.00	2.623	97.5	75	125	12.61	1.90	20	

Sample ID	N037066-001D-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136324
Client ID:	ZZZZZZ	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504203

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	329.238	2.5	100.0	230.9	98.3	75	125	326.6	0.798	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ARCUS02 C: 9/2/2019 12:00 AM
FOLDER R: 8/19/2019
N037066-005A 1 of 1

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 1 of 1

P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Gantt Jeffers		Phone: 949-727-1400, ext 200	Fax:
Title: Geologist	Phone: 916-786-3302 Fax:		
Signature: Date: 8/19/2019	Sampled By: Nara Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
Project Name: PG&E Topock - GMP	Signature: Date: 8/19/2019		
Project Number: 30019131			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		✓
Labspec		CalTrans		3. Container Intact		✓
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number	7	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 1.9°C		

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (SW 6019B) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM2540C) (1 liter poly)	Nitrate/Nitrite as Nitrogen (SM4500N03F); H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020); HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020); HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg: HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Dissolved metals (SW 6020), HNO3 Total Cr (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037066-01	MW-58BR-Q319	8/19/2019	14:58		X						X		X		X								E	4	PV	BNS	
2	-02	MW-901-Q319	8/19/2019	15:08		X						X		X		X								E	4	PV	BNS	
3	-03	EB-701-Q319	8/19/2019	15:30		X																		E	1	P	B	
4	-04	EB-702-Q319	8/19/2019	15:30		X																		E	1	P	B	
5																												
6																												
7																												
8																												
9																												
10																												

Courier:

Tracking No.:

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
	8/19/19 1548		8/19/19 1548
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
	8/19/19 1648		8/19/19 1800
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms

1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs.=200% Next Day=150% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/20/2019	Workorder:	N037066
Rep sample Temp (Deg C):	1.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By YR

Reviewed By: LG 082919

Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Tuesday, August 20, 2019 10:03 AM
To: Yoandra Rodriguez
Cc: maryann.balilu@assetlaboratoriesph.com; andrea.gallardo@assetlaboratories.com
Subject: RE: PG&E Topock - GMP, 30019131 (Asset Labs No. N037066)

Hi,
The Cr6 method should be EPA 218.6. The COC listed the method incorrectly.

Thanks,
Laura

-----Original Message-----
From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Monday, August 19, 2019 8:27 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; andrea.gallardo@assetlaboratories.com
Subject: PG&E Topock - GMP, 30019131 (Asset Labs No. N037066)

Hi Laura,

Please kindly confirm if Cr 6+ must be analyzed by 218.6.

6019B is requested on the attached COC.

Thanks,

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ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037066

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 8/19/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037066-001A	MW-58BR-Q319	8/19/2019 2:58:00 PM	9/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-001B			9/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037066-001C			9/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037066-001D			9/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037066-002A	MW-901-Q319	8/19/2019 3:08:00 PM	9/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-002B			9/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037066-002C			9/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037066-002D			9/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037066-003A	EB-701-Q319	8/19/2019 3:30:00 PM	9/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-004A	EB-702-Q319		9/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-005A	FOLDER	9/3/2019	9/3/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/3/2019		Folder	Folder	☐	☐	☐	LAB
			9/3/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037066

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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September 11, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037066

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 19, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037066

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N037066-001D-MS and N037066-001D-MSD possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *11-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037066
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037066-001A	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-001B	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-001C	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-001D	MW-58BR-Q319	Groundwater	8/19/2019 2:58:00 PM	8/19/2019	9/11/2019
N037066-002A	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-002B	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-002C	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-002D	MW-901-Q319	Groundwater	8/19/2019 3:08:00 PM	8/19/2019	9/11/2019
N037066-003A	EB-701-Q319	Groundwater	8/19/2019 3:30:00 PM	8/19/2019	9/11/2019
N037066-004A	EB-702-Q319	Groundwater	8/19/2019 3:30:00 PM	8/19/2019	9/11/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190820C**	QC Batch: **R135941**			PrepDate:			Analyst: **LR**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	8/20/2019 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:08:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190820C**	QC Batch: **R135941**			PrepDate:			Analyst: **LR**
Specific Conductance	7600	0.10	0.10		umhos/cm	1	8/20/2019 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037066-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **135941**
Client ID: **ZZZZZZ** Batch ID: **R135941** TestNo: **EPA 120.1** Analysis Date: **8/20/2019** SeqNo: **3484652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7660.000	0.10						7600	0.786	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A** QC Batch: **R135971**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	90	0.33	2.0		µg/L	10	8/21/2019 10:46 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A** QC Batch: **75122**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	88	0.13	1.0		µg/L	1	9/5/2019 05:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037066
Project: PG&E Topock - GMP, 30019131
Lab ID: N037066-002

Client Sample ID: MW-901-Q319
Collection Date: 8/19/2019 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A** QC Batch: **R135971**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	90	0.33	2.0		µg/L	10	8/21/2019 11:05 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190905A** QC Batch: **75122**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	89	0.13	1.0		µg/L	1	9/5/2019 06:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-701-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:30:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A**	QC Batch: **R135971**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/21/2019 12:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	EB-702-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:30:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190821A**	QC Batch: **R135971**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/21/2019 01:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R135971**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:		RunNo: **135971**
Client ID:	**PBW**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date:	**8/21/2019**	SeqNo: **3486612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R135971**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:		RunNo: **135971**
Client ID:	**LCSW**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date:	**8/21/2019**	SeqNo: **3486613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.921	0.20	5.000	0	98.4	90	110				

Sample ID	**N037079-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:		RunNo: **135971**
Client ID:	**ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date:	**8/21/2019**	SeqNo: **3486615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.158	0.20	5.000	5.192	99.3	90	110				

Sample ID	**N037066-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:		RunNo: **135971**
Client ID:	**ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date:	**8/21/2019**	SeqNo: **3486619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	139.460	2.0	50.00	89.97	99.0	90	110				

Sample ID	**N037066-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:		RunNo: **135971**
Client ID:	**ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date:	**8/21/2019**	SeqNo: **3486621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	139.428	2.0	50.00	90.24	98.4	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037066-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135971**
Client ID: **ZZZZZZ** Batch ID: **R135971** TestNo: **EPA 218.6** Analysis Date: **8/21/2019** SeqNo: **3486624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	90.287	2.0						90.24	0.0476	20	

Sample ID **N037066-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135971**
Client ID: **ZZZZZZ** Batch ID: **R135971** TestNo: **EPA 218.6** Analysis Date: **8/21/2019** SeqNo: **3486625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	139.991	2.0	50.00	89.97	100	90	110	139.5	0.380	20	

Sample ID **N037066-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135971**
Client ID: **ZZZZZZ** Batch ID: **R135971** TestNo: **EPA 218.6** Analysis Date: **8/21/2019** SeqNo: **3486627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.010	0.20	1.000	0	101	90	110				

Sample ID **N037066-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135971**
Client ID: **ZZZZZZ** Batch ID: **R135971** TestNo: **EPA 218.6** Analysis Date: **8/21/2019** SeqNo: **3486629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.988	0.20	1.000	0	98.8	90	110				

Sample ID **N037079-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **135971**
Client ID: **ZZZZZZ** Batch ID: **R135971** TestNo: **EPA 218.6** Analysis Date: **8/21/2019** SeqNo: **3486631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.837	1.0	5.000	1.064	95.5	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037103-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID **N037036-001CMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.220	0.20	1.000	0.2474	97.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75122	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136323
Client ID:	PBW	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504033

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75122	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	LCSW	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504034

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.085	1.0	10.00	0	101	85	115				

Sample ID	N037066-001D-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504040

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	95.464	1.0	10.00	88.47	70.0	75	125				S

Sample ID	N037066-001D-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504042

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	93.711	1.0	10.00	88.47	52.4	75	125	95.46	1.85	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037066-001D-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID:	**ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	97.881	1.0	10.00	88.47	94.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190904C**	QC Batch: **R136372**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	1.5	0.032	0.050		mg/L	1	9/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 3:08:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190904C**	QC Batch: **R136372**			PrepDate:			Analyst: **RAB**
Nitrate/Nitrite as N	1.4	0.032	0.050		mg/L	1	9/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136372	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	PBW	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506790

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136372	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	LCSW	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506791

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	85	115				

Sample ID	N037067-001CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	ZZZZZZ	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506797

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.766	0.050						0.8047	4.89	20	

Sample ID	N037036-001DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	ZZZZZZ	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506799

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.426	0.25	2.500	2.772	106	75	125				

Sample ID	N037036-001DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136372
Client ID:	ZZZZZZ	Batch ID:	R136372	TestNo:	SM4500-NO3			Analysis Date:	9/4/2019	SeqNo:	3506801

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.667	0.25	2.500	2.772	116	75	125	5.426	4.34	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q319
Lab Order:	N037066	**Collection Date:**	8/19/2019 2:58:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037066-001		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190905B** QC Batch: **75122** PrepDate: **8/23/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	1.9	0.081	0.10		µg/L	1	9/5/2019 05:12 PM
Manganese	230	1.3	2.5		µg/L	5	9/5/2019 05:18 PM
Molybdenum	22	0.21	0.50		µg/L	1	9/5/2019 05:12 PM
Selenium	2.7	0.36	0.50		µg/L	1	9/5/2019 08:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037066
Project: PG&E Topock - GMP, 30019131
Lab ID: N037066-002

Client Sample ID: MW-901-Q319
Collection Date: 8/19/2019 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75122**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	1.9	0.081	0.10		µg/L	1	9/5/2019 06:07 PM
Manganese	220	1.3	2.5		µg/L	5	9/5/2019 06:12 PM
Molybdenum	23	0.21	0.50		µg/L	1	9/5/2019 06:07 PM
Selenium	2.6	0.36	0.50		µg/L	1	9/5/2019 06:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75122**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **PBW**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504191**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-75122**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **LCSW**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504192**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.397	0.10	10.00	0	104	85	115				
Manganese	102.919	0.50	100.0	0	103	85	115				
Molybdenum	9.767	0.50	10.00	0	97.7	85	115				
Selenium	9.617	0.50	10.00	0	96.2	85	115				

Sample ID **N037066-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.517	0.10	10.00	1.869	106	75	125				
Molybdenum	33.252	0.50	10.00	22.43	108	75	125				
Selenium	12.612	0.50	10.00	2.623	99.9	75	125				

Sample ID **N037066-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	326.620	2.5	100.0	230.9	95.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N037066-001D-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.246	0.10	10.00	1.869	104	75	125	12.52	2.19	20	
Molybdenum	33.020	0.50	10.00	22.43	106	75	125	33.25	0.699	20	
Selenium	12.374	0.50	10.00	2.623	97.5	75	125	12.61	1.90	20	

Sample ID **N037066-001D-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	329.238	2.5	100.0	230.9	98.3	75	125	326.6	0.798	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ARCUS02 C: 9/2/2019 12:00 AM
FOLDER R: 8/19/2019
N037066-005A 1 of 1

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 1 of 1

P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Gantt Jeffers		Phone: 949-727-1400, ext 200	Fax:
Title: Geologist	Phone: 916-786-3302 Fax:		
Signature: Date: 8/19/2019	Sampled By: Nara Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
Project Name: PG&E Topock - GMP	Signature: Date: 8/19/2019		
Project Number: 30019131			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		✓
Labspec		CalTrans		3. Container Intact		✓
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number	7	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 1.9°C		

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (SW 6019B) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM2540C) (1 liter poly)	Nitrate/Nitrite as Nitrogen (SM4500N03F); H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020); HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020); HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg: HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Dissolved metals (SW 6020), HNO3 Total Cr (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037066-01	MW-58BR-Q319	8/19/2019	14:58		X						X		X		X								E	4	PV	BNS	
2	-02	MW-901-Q319	8/19/2019	15:08		X						X		X		X								E	4	PV	BNS	
3	-03	EB-701-Q319	8/19/2019	15:30		X																		E	1	P	B	
4	-04	EB-702-Q319	8/19/2019	15:30		X																		E	1	P	B	
5																												
6																												
7																												
8																												
9																												
10																												

Courier:

Tracking No.:

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
	8/19/19 1548		8/19/19 1548
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
	8/19/19 1648		8/19/19 1800
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms

1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs.=200% Next Day=150% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/20/2019	Workorder:	N037066
Rep sample Temp (Deg C):	1.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By YR

Reviewed By: LG 082919

Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Tuesday, August 20, 2019 10:03 AM
To: Yoandra Rodriguez
Cc: maryann.balilu@assetlaboratoriesph.com; andrea.gallardo@assetlaboratories.com
Subject: RE: PG&E Topock - GMP, 30019131 (Asset Labs No. N037066)

Hi,
The Cr6 method should be EPA 218.6. The COC listed the method incorrectly.

Thanks,
Laura

-----Original Message-----
From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Monday, August 19, 2019 8:27 PM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; andrea.gallardo@assetlaboratories.com
Subject: PG&E Topock - GMP, 30019131 (Asset Labs No. N037066)

Hi Laura,

Please kindly confirm if Cr 6+ must be analyzed by 218.6.

6019B is requested on the attached COC.

Thanks,

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ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037066

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 8/19/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037066-001A	MW-58BR-Q319	8/19/2019 2:58:00 PM	9/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-001B			9/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037066-001C			9/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037066-001D			9/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037066-002A	MW-901-Q319	8/19/2019 3:08:00 PM	9/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-002B			9/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037066-002C			9/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037066-002D			9/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037066-003A	EB-701-Q319	8/19/2019 3:30:00 PM	9/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-004A	EB-702-Q319		9/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037066-005A	FOLDER	9/3/2019	9/3/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/3/2019		Folder	Folder	☐	☐	☐	LAB
			9/3/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037066

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Lilia Ramit	EPA 120.1
Ria Abes	SM 4500-NO3F
Hanah Glodoviza	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R135941 **Analyst:** LSR

ASSET #: N037066 **Date Analyzed:** 20-Aug

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 8/28/2019

2nd Level Reviewer RLB 08/31/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 8/16/19 1705
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CINV-190516A	10.19 @24.4°C	% Rec: (90-110%)
1410 |	190724D	1415 @24.6°C	
10000 |	190516B	9950 @24.6°C	
99999 ↓	190613A	98600 @ 24.8°C	

	Sample ID	Matrix	Reading	Comments
1	ND37036-1B	H2O	7110 @25.7°C	
2	1BDUP	"	7140 @25.5°C	
3				
4				
5				
6				
7				
8				
9	1418 uS/cm	CINV-190313A	1453 @26.7°C	
10	10000 |	↓ B	10071 @24.8°C	
Dup	99999 ↓	CINV-190524A	95800 @24.8°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 8/20/19 915
Analyst: LSR

Julia Ramit 8/28/2019

Standard	Std ID	Reading	Comments
9.98 uS/cm	CINV-190516A	10.18 @23.9°C	% Rec: (90-110%)
1410 |	190724D	1425 @24.1°C	
10000 |	190516B	9950 @24.1°C	
99999 ↓	190613A	100400 @24.1°C	

	Sample ID	Matrix	Reading	Comments
1	ND37066-1B	H2O	7490 @18.5°C	
2	2B |	|	7600 @18.3°C	
3	2BDUP ↓	↓	7660 @18.5°C	
4				
5				
6				
7				
8	1413 uS/cm	CINV-190313A	1447 @23.8°C	
9	10000 |	↓ B	10160 @24.0°C	
10	99999 ↓	CINV-190524A	98800 @24.0°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R135971
ASSET #: N037066

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 8/21/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X					
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?	X					
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X					
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: HG Date: 09/12/2019

2nd Level Reviewer: NS Date: 09/12/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037066-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 8.9966 * 10$$

$$Cr^{+6}, \mu g/L = 89.9660$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 90}$$

ANALYSIS RUN LOG

INJECTION LOG: 190731A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 11:12 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	07/31/19 11:23 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:33 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:42 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:51 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:01 PM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:10 PM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:20 PM	Reported
9	ICV	ICV	1	Hexavalent Chromium	07/31/19 12:29 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/31/19 12:39 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	07/31/19 12:48 PM	Reported
12	MB-R135511	MBLK	1	Hexavalent Chromium	07/31/19 12:58 PM	Reported
13	LCS-R135511	LCS	1	Hexavalent Chromium	07/31/19 1:07 PM	Reported
14	N036715-009A	SAMP	10	Hexavalent Chromium	07/31/19 2:12 PM	Reported
15	N036715-011A	SAMP	100	Hexavalent Chromium	07/31/19 2:23 PM	Reported
16	N036700-018A	SAMP	1	Hexavalent Chromium	07/31/19 2:33 PM	Reported
17	N036700-019A	SAMP	1	Hexavalent Chromium	07/31/19 2:42 PM	Reported
18	N036700-020A	SAMP	1	Hexavalent Chromium	07/31/19 2:52 PM	Reported
19	N036700-021A	SAMP	1	Hexavalent Chromium	07/31/19 3:01 PM	Reported
20	N036715-001A	SAMP	1	Hexavalent Chromium	07/31/19 3:11 PM	Reported
21	N036715-002A	SAMP	1	Hexavalent Chromium	07/31/19 3:20 PM	Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	07/31/19 3:29 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	07/31/19 3:39 PM	Reported
24	N036715-003A	SAMP	1	Hexavalent Chromium	07/31/19 3:48 PM	Reported
25	N036715-004A	SAMP	1	Hexavalent Chromium	07/31/19 3:58 PM	Not Reported
26	N036715-005A	SAMP	1	Hexavalent Chromium	07/31/19 4:07 PM	Reported
27	N036715-006A	SAMP	1	Hexavalent Chromium	07/31/19 4:17 PM	Reported
28	N036715-007A	SAMP	1	Hexavalent Chromium	07/31/19 4:26 PM	Reported
29	N036715-008A	SAMP	1	Hexavalent Chromium	07/31/19 4:36 PM	Reported
30	N036715-009AMS	MS	10	Hexavalent Chromium	07/31/19 4:45 PM	Reported
31	N036715-009AMSD	MSD	10	Hexavalent Chromium	07/31/19 4:55 PM	Reported
32	N036715-011AMS	MS	100	Hexavalent Chromium	07/31/19 5:04 PM	Reported
33	N036700-018ADUP	DUP	1	Hexavalent Chromium	07/31/19 5:13 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	07/31/19 5:23 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	07/31/19 5:32 PM	Reported
36	N036715-010A	SAMP	1	Hexavalent Chromium	07/31/19 5:42 PM	Reported
37	N036715-012A	SAMP	1	Hexavalent Chromium	07/31/19 5:51 PM	Reported
38	N036715-013A	SAMP	1	Hexavalent Chromium	07/31/19 6:01 PM	Reported
39	N036715-004A	SAMP	2	Hexavalent Chromium	07/31/19 6:10 PM	Reported
40	N036716-001F	SAMP	500	Hexavalent Chromium	07/31/19 6:20 PM	Not Reported
41	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 6:29 PM	Not Reported
42	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 6:39 PM	Not Reported

INJECTION LOG: 190731A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-3	CCV1	1	Hexavalent Chromium	07/31/19 7:07 PM	Reported
44	CCB-3	CCB	1	Hexavalent Chromium	07/31/19 7:18 PM	Reported
45	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 7:28 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190731B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**01/Aug/19 14:08:33**
No. of Injections:	**48**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/31/2019 11:12	Finished	BLANK
2	iBLANK	2	1000	Unknown		07/31/2019 11:23	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	07/31/2019 11:33	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	07/31/2019 11:42	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	07/31/2019 11:51	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	07/31/2019 12:01	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	07/31/2019 12:10	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	07/31/2019 12:20	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		07/31/2019 12:29	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		07/31/2019 12:39	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		07/31/2019 12:48	Finished	CCB R190710A
12	MB-H2O,MBLK,1,	12	1000	Unknown		07/31/2019 12:58	Finished	MB R190701B
13	LCS-H2O,LCS,1,	13	1000	Unknown		07/31/2019 13:07	Finished	LCS @5ppb, IWST-190702B
14	N036715-009A,SAMP	1	1000	Unknown		07/31/2019 14:12	Finished	SAMP, 1>10mL
15	N036715-011A,SAMP	2	1000	Unknown		07/31/2019 14:23	Finished	SAMP, 0.1>10mL
16	N036700-018A,SAMP	3	1000	Unknown		07/31/2019 14:33	Finished	SAMP,10mL
17	N036700-019A,SAMP	4	1000	Unknown		07/31/2019 14:42	Finished	SAMP,10mL
18	N036700-020A,SAMP	5	1000	Unknown		07/31/2019 14:52	Finished	SAMP,10mL
19	N036700-021A,SAMP	6	1000	Unknown		07/31/2019 15:01	Finished	SAMP,10mL
20	N036715-001A,SAMP	7	1000	Unknown		07/31/2019 15:11	Finished	SAMP,10mL
21	N036715-002A,SAMP	8	1000	Unknown		07/31/2019 15:20	Finished	SAMP,10mL
22	CCV-1,CCV1,1,	9	1000	Blank		07/31/2019 15:29	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	10	1000	Unknown		07/31/2019 15:39	Finished	CCB R190701B
24	N036715-003A,SAMP	11	1000	Unknown		07/31/2019 15:48	Finished	SAMP,10mL
25	N036715-004A,SAMP	12	1000	Unknown		07/31/2019 15:58	Finished	SAMP,10mL
26	N036715-005A,SAMP	13	1000	Unknown		07/31/2019 16:07	Finished	SAMP,10mL
27	N036715-006A,SAMP	14	1000	Unknown		07/31/2019 16:17	Finished	SAMP,10mL
28	N036715-007A,SAMP	15	1000	Unknown		07/31/2019 16:26	Finished	SAMP,10mL
29	N036715-008A,SAMP	16	1000	Unknown		07/31/2019 16:36	Finished	SAMP,10mL
30	N036715-009AMS,MS	17	1000	Unknown		07/31/2019 16:45	Finished	MS (5ppb), IWST-190702B,1>1
31	N036715-009AMSD,M	18	1000	Unknown		07/31/2019 16:55	Finished	MSD (5ppb), IWST-190702B,1>
32	N036715-011AMS,MS	19	1000	Unknown		07/31/2019 17:04	Finished	MS (5ppb), IWST-190702B,0.1
33	N036700-018ADUP,D	20	1000	Unknown		07/31/2019 17:13	Finished	DUP,10mL
34	CCV-2,CCV,1,	21	1000	Unknown		07/31/2019 17:23	Finished	CCV @5ppb, IWST-190702A
35	CCB-2,CCB,1,	22	1000	Unknown		07/31/2019 17:32	Finished	CCB R190701B
36	N036715-010A,SAMP	23	1000	Unknown		07/31/2019 17:42	Finished	SAMP,10mL
37	N036715-012A,SAMP	24	1000	Unknown		07/31/2019 17:51	Finished	SAMP,10mL
38	N036715-013A,SAMP	25	1000	Unknown		07/31/2019 18:01	Finished	SAMP,10mL
39	N036715-004A,SAMP	26	1000	Unknown		07/31/2019 18:10	Finished	SAMP,5>10mL
40	N036716-001F,SAMP	27	1000	Unknown		07/31/2019 18:20	Finished	SAMP,0.02>10mL
41	BLANK	28	1000	Unknown		07/31/2019 18:29	Finished	BLANK
42	BLANK	29	1000	Unknown		07/31/2019 18:39	Finished	BLANK
43	CCV-3,CCV1,1,	31	1000	Unknown		07/31/2019 19:07	Finished	CCV @10ppb, IWST-190702A
44	CCB-3,CCB,1,	32	1000	Unknown		07/31/2019 19:18	Finished	CCB R190701B
45	BLANK	33	1000	Unknown		07/31/2019 19:28	Finished	BLANK
46	SHUTDOWN	34	1000	Unknown		07/31/2019 19:37	Finished	
47	Eluent: R190730A	35	1000	Unknown		n.a.	Finished	Eluent
48	PCR: R190731A	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190821A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 11:12 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	07/31/19 11:23 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:33 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:42 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:51 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:01 PM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:10 PM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:20 PM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/21/19 8:53 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	08/21/19 9:04 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/21/19 9:14 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	08/21/19 9:23 AM	Reported
13	MB-R135971	MBLK	1	Hexavalent Chromium	08/21/19 9:32 AM	Reported
14	LCS-R135971	LCS	1	Hexavalent Chromium	08/21/19 9:42 AM	Reported
15	N037079-001A	SAMP	1	Hexavalent Chromium	08/21/19 10:06 AM	Reported
16	N037079-001AMS	MS	1	Hexavalent Chromium	08/21/19 10:18 AM	Reported
17	N037079-002A	SAMP	1	Hexavalent Chromium	08/21/19 10:27 AM	Not Reported
18	N037079-002AMS	MS	1	Hexavalent Chromium	08/21/19 10:36 AM	Not Reported
19	N037066-001A	SAMP	10	Hexavalent Chromium	08/21/19 10:46 AM	Reported
20	N037066-001AMS	MS	10	Hexavalent Chromium	08/21/19 10:55 AM	Reported
21	N037066-002A	SAMP	10	Hexavalent Chromium	08/21/19 11:05 AM	Reported
22	N037066-002AMS	MS	10	Hexavalent Chromium	08/21/19 11:14 AM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	08/21/19 11:24 AM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	08/21/19 11:33 AM	Reported
25	N037066-002ADUP	DUP	10	Hexavalent Chromium	08/21/19 12:30 PM	Reported
26	N037066-001AMSD	MSD	10	Hexavalent Chromium	08/21/19 12:42 PM	Reported
27	N037066-003A	SAMP	1	Hexavalent Chromium	08/21/19 12:51 PM	Reported
28	N037066-003AMS	MS	1	Hexavalent Chromium	08/21/19 1:00 PM	Reported
29	N037066-004A	SAMP	1	Hexavalent Chromium	08/21/19 1:10 PM	Reported
30	N037066-004AMS	MS	1	Hexavalent Chromium	08/21/19 1:19 PM	Reported
31	N037079-002A	SAMP	5	Hexavalent Chromium	08/21/19 1:29 PM	Reported
32	N037079-002AMS	MS	5	Hexavalent Chromium	08/21/19 1:38 PM	Reported
33	N037103-001AMS	SAMP	1	Hexavalent Chromium	08/21/19 1:48 PM	Reported
34	N037103-001AMS	SAMP	5	Hexavalent Chromium	08/21/19 1:57 PM	Not Reported
35	CCV-3	CCV	1	Hexavalent Chromium	08/21/19 2:07 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	08/21/19 2:16 PM	Reported
37	N037036-001C	SAMP	1	Hexavalent Chromium	08/21/19 2:26 PM	Reported
38	N037036-001CMS	MS	1	Hexavalent Chromium	08/21/19 2:35 PM	Reported
39	N037036-001C	SAMP	5	Hexavalent Chromium	08/21/19 2:45 PM	Not Reported
40	N037036-001CMS	MS	5	Hexavalent Chromium	08/21/19 2:54 PM	Not Reported
41	N037103-001A	SAMP	1	Hexavalent Chromium	08/21/19 3:03 PM	Reported
42	N037103-001A	SAMP	5	Hexavalent Chromium	08/21/19 3:13 PM	Not Reported

INJECTION LOG: 190821A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-4	CCV1	1	Hexavalent Chromium	08/21/19 3:25 PM	Reported
44	CCB-4	CCB	1	Hexavalent Chromium	08/21/19 3:36 PM	Reported
45	BLANK	BLANK	1	Hexavalent Chromium	08/21/19 3:46 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190821A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**22/Aug/19 18:33:02**
No. of Injections:	**48**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/31/2019 11:12	Finished	BLANK
2	iBLANK	2	1000	Unknown		07/31/2019 11:23	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	07/31/2019 11:33	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	07/31/2019 11:42	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	07/31/2019 11:51	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	07/31/2019 12:01	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	07/31/2019 12:10	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	07/31/2019 12:20	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		08/21/2019 08:53	Finished	BLANK
10	CCV-1,CCV,1,	2	1000	Unknown		08/21/2019 09:04	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/21/2019 09:14	Finished	PQL @ 0.2ppb
12	CCB-1,CCB,1,	4	1000	Unknown		08/21/2019 09:23	Finished	CCB R190617C
13	MB-H2O,MBLK,1,	5	1000	Unknown		08/21/2019 09:32	Finished	MB R190617C
14	LCS-H2O,LCS,1,	6	1000	Unknown		08/21/2019 09:42	Finished	LCS @5ppb, IWST-190702B
15	N037079-001A,SAMF	8	1000	Unknown		08/21/2019 10:06	Finished	SAMP,10mL
16	N037079-001AMS,MS	9	1000	Unknown		08/21/2019 10:18	Finished	MS (1ppb), IWST-190702B,10
17	N037079-002A,SAMF	10	1000	Unknown		08/21/2019 10:27	Finished	SAMP,10mL
18	N037079-002AMS,MS	11	1000	Unknown		08/21/2019 10:36	Finished	MS (1ppb), IWST-190702B,10
19	N037066-001A,SAMF	12	1000	Unknown		08/21/2019 10:46	Finished	SAMP,1>10mL
20	N037066-001AMS,MS	13	1000	Unknown		08/21/2019 10:55	Finished	MS (5ppb), IWST-190702B,1>1
21	N037066-002A,SAMF	14	1000	Unknown		08/21/2019 11:05	Finished	SAMP,1>10mL
22	N037066-002AMS,MS	15	1000	Unknown		08/21/2019 11:14	Finished	MS (5ppb), IWST-190702B,1>1
23	CCV-2,CCV1,1,	16	1000	Unknown		08/21/2019 11:24	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	17	1000	Unknown		08/21/2019 11:33	Finished	CCB R190617C
25	N037066-002ADUP,D	18	1000	Unknown		08/21/2019 12:30	Finished	DUP,1>10mL
26	N037066-001AMSD,M	19	1000	Unknown		08/21/2019 12:42	Finished	MSD (5ppb), IWST-190702B,1
27	N037066-003A,SAMF	20	1000	Unknown		08/21/2019 12:51	Finished	SAMP,10mL
28	N037066-003AMS,MS	21	1000	Unknown		08/21/2019 13:00	Finished	MS (1ppb), IWST-190702B,10
29	N037066-004A,SAMF	22	1000	Unknown		08/21/2019 13:10	Finished	SAMP,10mL
30	N037066-004AMS,MS	23	1000	Unknown		08/21/2019 13:19	Finished	MS (1ppb), IWST-190702B,10
31	N037079-002A,SAMF	24	1000	Unknown		08/21/2019 13:29	Finished	SAMP,2>10mL
32	N037079-002AMS,MS	25	1000	Unknown		08/21/2019 13:38	Finished	MS (1ppb), IWST-190702B,2>1
33	N037103-001AMS,SA	26	1000	Unknown		08/21/2019 13:48	Finished	MS (1ppb), IWST-190702B,10
34	N037103-001AMS,SA	27	1000	Unknown		08/21/2019 13:57	Finished	MS (1ppb), IWST-190702B,2>1
35	CCV-3,CCV,1,	28	1000	Unknown		08/21/2019 14:07	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	29	1000	Unknown		08/21/2019 14:16	Finished	CCB R190617C
37	N037036-001A,SAMF	30	1000	Unknown		08/21/2019 14:26	Finished	SAMP,10mL
38	N037036-001AMS,MS	31	1000	Unknown		08/21/2019 14:35	Finished	MS (1ppb), IWST-190702B,10
39	N037036-001A,SAMF	32	1000	Unknown		08/21/2019 14:45	Finished	SAMP,2>10mL
40	N037036-001AMS,MS	33	1000	Unknown		08/21/2019 14:54	Finished	MS (1ppb), IWST-190702B,2>1
41	N037103-001A,SAMF	34	1000	Unknown		08/21/2019 15:03	Finished	SAMP,10mL
42	N037103-001A,SAMF	35	1000	Unknown		08/21/2019 15:13	Finished	SAMP,2>10mL
43	CCV-4,CCV1,1,	36	1000	Unknown		08/21/2019 15:25	Finished	CCV @10ppb, IWST-190702A
44	CCB-4,CCB,1,	37	1000	Unknown		08/21/2019 15:36	Finished	CCB R190617C
45	BLANK	38	1000	Unknown		08/21/2019 15:46	Finished	BLANK
46	SHUTDOWN	39	1000	Unknown		08/21/2019 15:55	Finished	
47	Eluent: R190816C	40	1000	Unknown		n.a.	Finished	Eluent
48	PCR: R190819A	41	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/16/19
Time Prepared: 11:18 AM
Prepared By: HSG

SLOPE: 98.4%
pH 4: 4.02
7: 7.03
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190615A
NH4OH + NH4SO4 buffer: R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037013-001A	9.02	9.43	~250 ml	~250ml	45 drops 6N NaOH	(R190722A)
2)	2A	9.38	–	"	"	"	
3)	N037014-001A	9.17	9.45	"	"	43 drops 6N NaOH	
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 8/20/19
Time Prepared: 1500
Prepared By: HSG

SLOPE: 98.3%
pH 4: 4.03
7: 7.01
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190816C
NH4OH + NH4SO4 buffer: R190817C, R190719B, R190716 (HSG)

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037036-001C	7.49	9.37	~250 mL	~250 mL	5mL BUFFER	LAB FILTERED/PRESERVED
2)	N037079-1A	8.95	9.46	"	"	46 drops 6N NaOH	
3)	2A	9.12	9.30	"	"	43 drops 6N NaOH	
4)	N037066-1A	9.19	9.39	"	"	43 drops 6N NaOH	
5)	2A	9.20	9.43	"	"	43 drops 6N NaOH	
6)	3A	9.17	9.44	"	"	43 drops 6N NaOH	
7)	4A	9.14	9.47	"	"	43 drops 6N NaOH	
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 7/31/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0497	0.2615	1.2902	2.5754	3.8847	5.1706	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ICV**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **7/31/2019**	SeqNo: **3486606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.951	0.20	5.000	0	99.0	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **7/31/2019**	SeqNo: **3486607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **CCV**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	0.20	5.000	0	99.2	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.197	0.20	0.2000	0	98.3	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.111	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **CCV**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.002	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ZZZZZZ**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.851	0.20	10.00	0	98.5	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **ICB**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **7/31/2019**	SeqNo: **3486608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **CCB**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **CCB**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **CCB**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **135971**
Client ID: **CCB**	Batch ID: **R135971**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2019**	SeqNo: **3486643**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/21/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.698	
CCV-2	4.706	
CCV-3	4.698	
CCV-4	4.698	
Average	4.700	
Actual RT Window	4.620 - 4.780	
Applied RT Window	4.500 - 4.900	
MB-~~R136034~~ R135971	N.A.	N.A.
LCS-~~R136034~~ R135971	4.698	PASS
N037079-001A	4.631	PASS
N037079-001AMS	4.631	PASS
N037079-002A	4.481	FAIL
N037079-002AMS	4.481	FAIL
N037066-001A	4.690	PASS
N037066-001AMS	4.690	PASS
N037066-002A	4.690	PASS
N037066-002AMS	4.690	PASS
N037066-002ADUP	4.690	PASS
N037066-001AMSD	4.690	PASS
N037066-003A	N.A.	N.A.
N037066-003AMS	4.706	PASS
N037066-004A	N.A.	N.A.
N037066-004AMS	4.706	PASS
N037079-002A	4.681	PASS
N037079-002AMS	4.665	PASS
N037103-001AMS	4.690	PASS
N037103-001AMS	4.698	PASS
N037036-001C	4.581	PASS
N037036-001CMS	4.590	PASS
N037036-001C	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/21/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.698	
CCV-2	4.706	
CCV-3	4.698	
CCV-4	4.698	
Average	4.700	
Actual RT Window	4.620 - 4.780	
Applied RT Window	4.500 - 4.900	
N037036-001CMS	4.681	PASS
N037103-001A	N.A.	N.A.
N037103-001A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190731A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 11:12 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	07/31/19 11:23 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:33 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:42 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:51 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:01 PM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:10 PM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:20 PM	Reported
9	ICV	ICV	1	Hexavalent Chromium	07/31/19 12:29 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/31/19 12:39 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	07/31/19 12:48 PM	Reported
12	MB-R135511	MBLK	1	Hexavalent Chromium	07/31/19 12:58 PM	Reported
13	LCS-R135511	LCS	1	Hexavalent Chromium	07/31/19 1:07 PM	Reported
14	N036715-009A	SAMP	10	Hexavalent Chromium	07/31/19 2:12 PM	Reported
15	N036715-011A	SAMP	100	Hexavalent Chromium	07/31/19 2:23 PM	Reported
16	N036700-018A	SAMP	1	Hexavalent Chromium	07/31/19 2:33 PM	Reported
17	N036700-019A	SAMP	1	Hexavalent Chromium	07/31/19 2:42 PM	Reported
18	N036700-020A	SAMP	1	Hexavalent Chromium	07/31/19 2:52 PM	Reported
19	N036700-021A	SAMP	1	Hexavalent Chromium	07/31/19 3:01 PM	Reported
20	N036715-001A	SAMP	1	Hexavalent Chromium	07/31/19 3:11 PM	Reported
21	N036715-002A	SAMP	1	Hexavalent Chromium	07/31/19 3:20 PM	Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	07/31/19 3:29 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	07/31/19 3:39 PM	Reported
24	N036715-003A	SAMP	1	Hexavalent Chromium	07/31/19 3:48 PM	Reported
25	N036715-004A	SAMP	1	Hexavalent Chromium	07/31/19 3:58 PM	Not Reported
26	N036715-005A	SAMP	1	Hexavalent Chromium	07/31/19 4:07 PM	Reported
27	N036715-006A	SAMP	1	Hexavalent Chromium	07/31/19 4:17 PM	Reported
28	N036715-007A	SAMP	1	Hexavalent Chromium	07/31/19 4:26 PM	Reported
29	N036715-008A	SAMP	1	Hexavalent Chromium	07/31/19 4:36 PM	Reported
30	N036715-009AMS	MS	10	Hexavalent Chromium	07/31/19 4:45 PM	Reported
31	N036715-009AMSD	MSD	10	Hexavalent Chromium	07/31/19 4:55 PM	Reported
32	N036715-011AMS	MS	100	Hexavalent Chromium	07/31/19 5:04 PM	Reported
33	N036700-018ADUP	DUP	1	Hexavalent Chromium	07/31/19 5:13 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	07/31/19 5:23 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	07/31/19 5:32 PM	Reported
36	N036715-010A	SAMP	1	Hexavalent Chromium	07/31/19 5:42 PM	Reported
37	N036715-012A	SAMP	1	Hexavalent Chromium	07/31/19 5:51 PM	Reported
38	N036715-013A	SAMP	1	Hexavalent Chromium	07/31/19 6:01 PM	Reported
39	N036715-004A	SAMP	2	Hexavalent Chromium	07/31/19 6:10 PM	Reported
40	N036716-001F	SAMP	500	Hexavalent Chromium	07/31/19 6:20 PM	Not Reported
41	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 6:29 PM	Not Reported
42	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 6:39 PM	Not Reported

INJECTION LOG: 190731A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-3	CCV1	1	Hexavalent Chromium	07/31/19 7:07 PM	Reported
44	CCB-3	CCB	1	Hexavalent Chromium	07/31/19 7:18 PM	Reported
45	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 7:28 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190731B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**01/Aug/19 14:08:33**
No. of Injections:	**48**	*Updated By:*	**ics 5000**

Injection Details

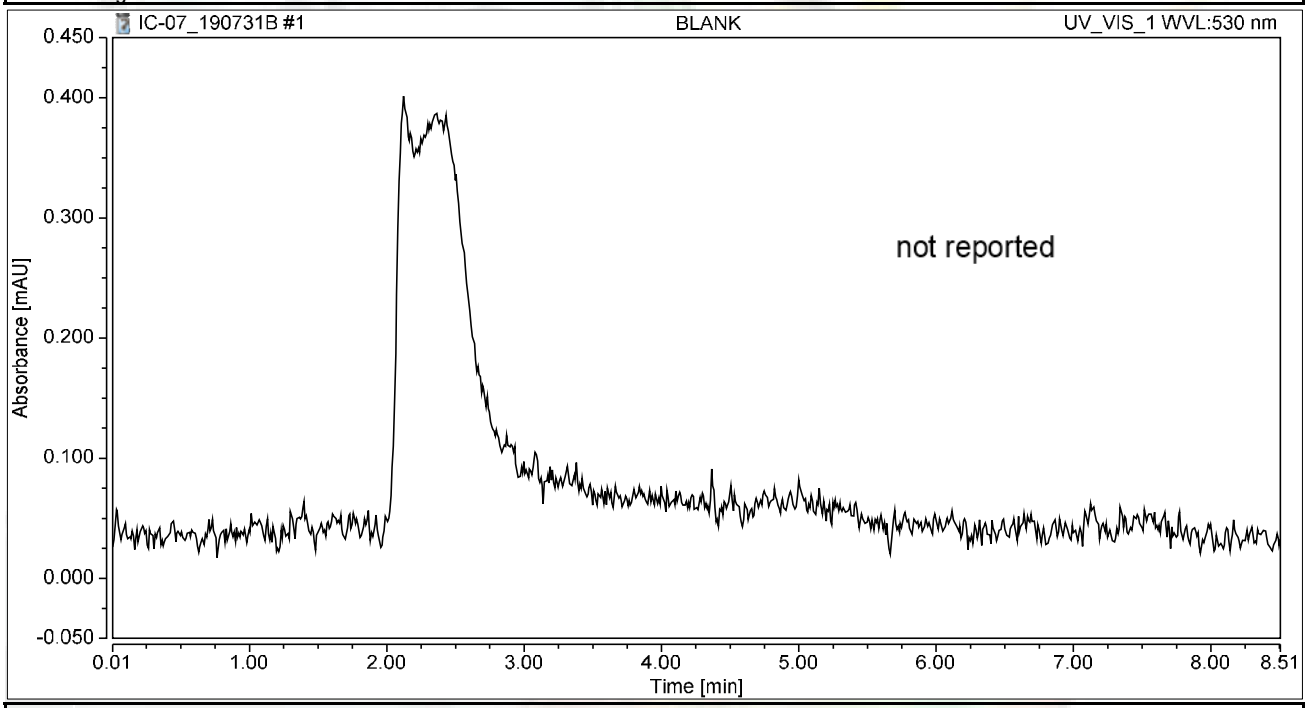
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/31/2019 11:12	Finished	BLANK
2	iBLANK	2	1000	Unknown		07/31/2019 11:23	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	07/31/2019 11:33	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	07/31/2019 11:42	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	07/31/2019 11:51	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	07/31/2019 12:01	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	07/31/2019 12:10	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	07/31/2019 12:20	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		07/31/2019 12:29	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		07/31/2019 12:39	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		07/31/2019 12:48	Finished	CCB R190710A
12	MB-H2O,MBLK,1,	12	1000	Unknown		07/31/2019 12:58	Finished	MB R190701B
13	LCS-H2O,LCS,1,	13	1000	Unknown		07/31/2019 13:07	Finished	LCS @5ppb, IWST-190702B
14	N036715-009A,SAMP	1	1000	Unknown		07/31/2019 14:12	Finished	SAMP, 1>10mL
15	N036715-011A,SAMP	2	1000	Unknown		07/31/2019 14:23	Finished	SAMP, 0.1>10mL
16	N036700-018A,SAMP	3	1000	Unknown		07/31/2019 14:33	Finished	SAMP,10mL
17	N036700-019A,SAMP	4	1000	Unknown		07/31/2019 14:42	Finished	SAMP,10mL
18	N036700-020A,SAMP	5	1000	Unknown		07/31/2019 14:52	Finished	SAMP,10mL
19	N036700-021A,SAMP	6	1000	Unknown		07/31/2019 15:01	Finished	SAMP,10mL
20	N036715-001A,SAMP	7	1000	Unknown		07/31/2019 15:11	Finished	SAMP,10mL
21	N036715-002A,SAMP	8	1000	Unknown		07/31/2019 15:20	Finished	SAMP,10mL
22	CCV-1,CCV1,1,	9	1000	Blank		07/31/2019 15:29	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	10	1000	Unknown		07/31/2019 15:39	Finished	CCB R190701B
24	N036715-003A,SAMP	11	1000	Unknown		07/31/2019 15:48	Finished	SAMP,10mL
25	N036715-004A,SAMP	12	1000	Unknown		07/31/2019 15:58	Finished	SAMP,10mL
26	N036715-005A,SAMP	13	1000	Unknown		07/31/2019 16:07	Finished	SAMP,10mL
27	N036715-006A,SAMP	14	1000	Unknown		07/31/2019 16:17	Finished	SAMP,10mL
28	N036715-007A,SAMP	15	1000	Unknown		07/31/2019 16:26	Finished	SAMP,10mL
29	N036715-008A,SAMP	16	1000	Unknown		07/31/2019 16:36	Finished	SAMP,10mL
30	N036715-009AMS,MS	17	1000	Unknown		07/31/2019 16:45	Finished	MS (5ppb), IWST-190702B,1>1
31	N036715-009AMSD,M	18	1000	Unknown		07/31/2019 16:55	Finished	MSD (5ppb), IWST-190702B,1>
32	N036715-011AMS,MS	19	1000	Unknown		07/31/2019 17:04	Finished	MS (5ppb), IWST-190702B,0.1
33	N036700-018ADUP,D	20	1000	Unknown		07/31/2019 17:13	Finished	DUP,10mL
34	CCV-2,CCV,1,	21	1000	Unknown		07/31/2019 17:23	Finished	CCV @5ppb, IWST-190702A
35	CCB-2,CCB,1,	22	1000	Unknown		07/31/2019 17:32	Finished	CCB R190701B
36	N036715-010A,SAMP	23	1000	Unknown		07/31/2019 17:42	Finished	SAMP,10mL
37	N036715-012A,SAMP	24	1000	Unknown		07/31/2019 17:51	Finished	SAMP,10mL
38	N036715-013A,SAMP	25	1000	Unknown		07/31/2019 18:01	Finished	SAMP,10mL
39	N036715-004A,SAMP	26	1000	Unknown		07/31/2019 18:10	Finished	SAMP,5>10mL
40	N036716-001F,SAMP	27	1000	Unknown		07/31/2019 18:20	Finished	SAMP,0.02>10mL
41	BLANK	28	1000	Unknown		07/31/2019 18:29	Finished	BLANK
42	BLANK	29	1000	Unknown		07/31/2019 18:39	Finished	BLANK
43	CCV-3,CCV1,1,	31	1000	Unknown		07/31/2019 19:07	Finished	CCV @10ppb, IWST-190702A
44	CCB-3,CCB,1,	32	1000	Unknown		07/31/2019 19:18	Finished	CCB R190701B
45	BLANK	33	1000	Unknown		07/31/2019 19:28	Finished	BLANK
46	SHUTDOWN	34	1000	Unknown		07/31/2019 19:37	Finished	
47	Eluent: R190730A	35	1000	Unknown		n.a.	Finished	Eluent
48	PCR: R190731A	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 11:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

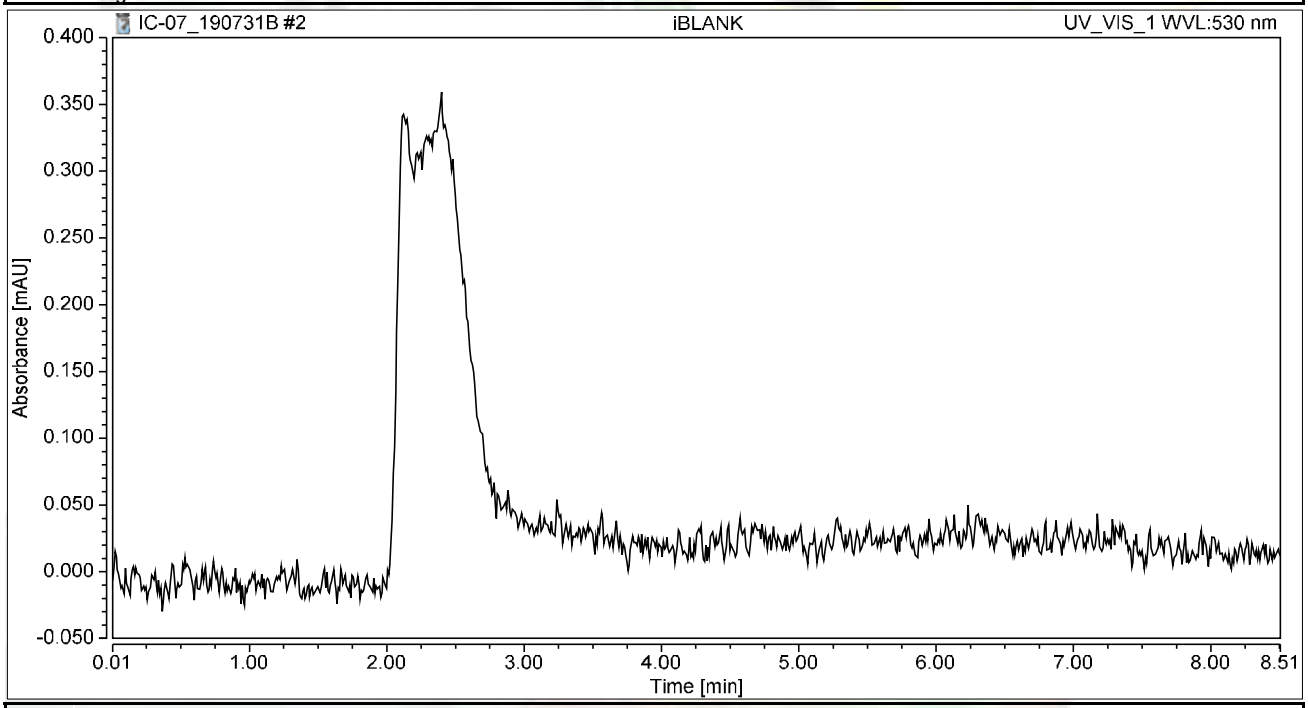
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 11:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

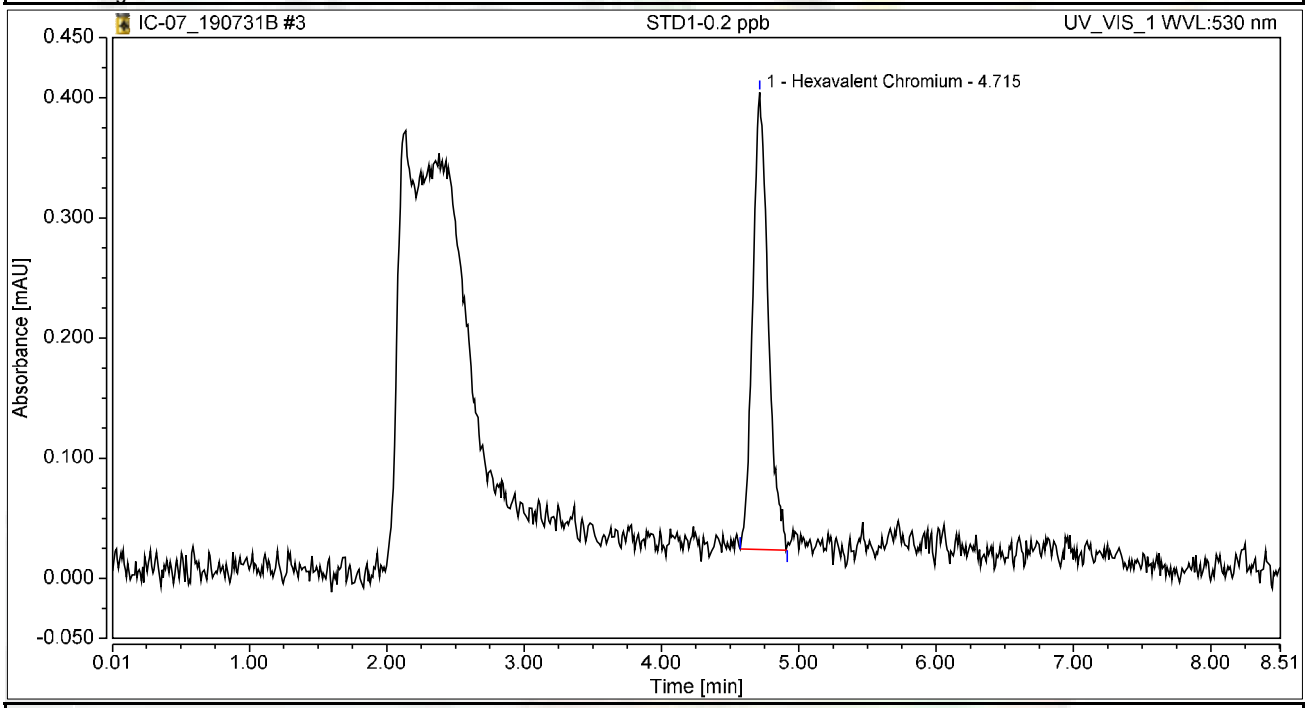
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

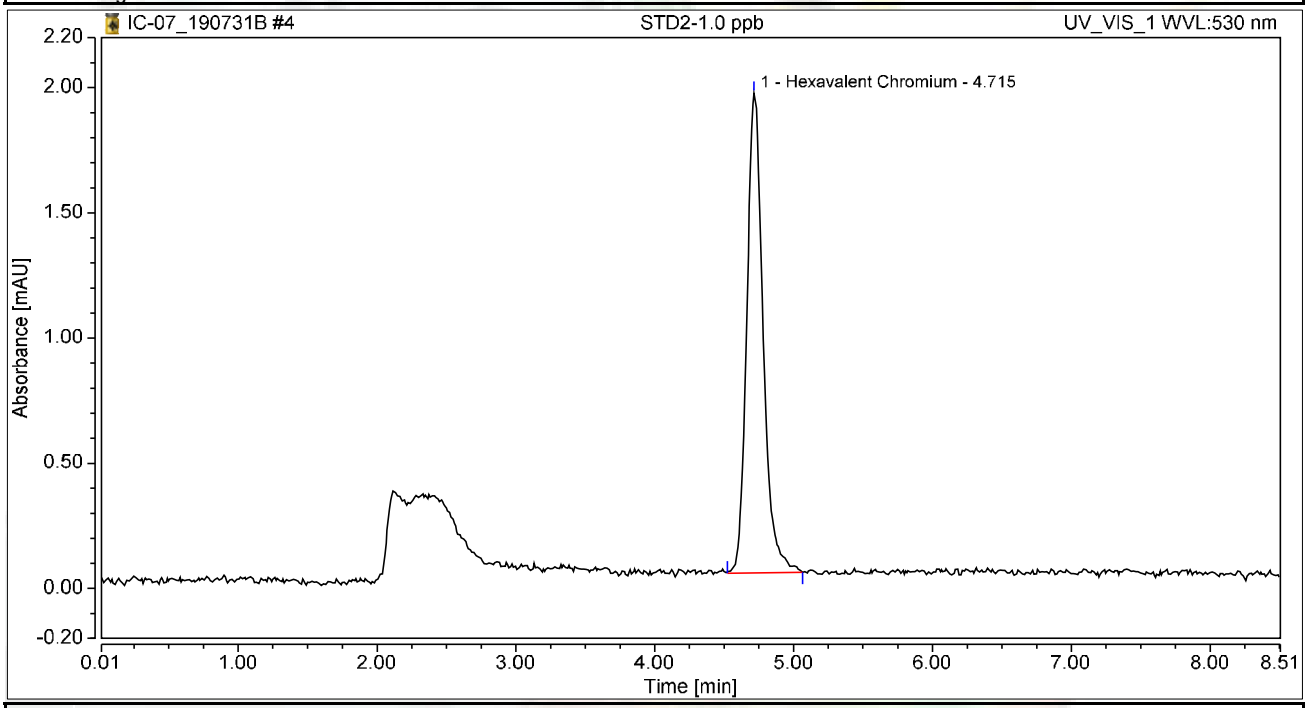
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.050	0.380	100.00	100.00	0.1922
Total:			**0.050**	**0.380**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

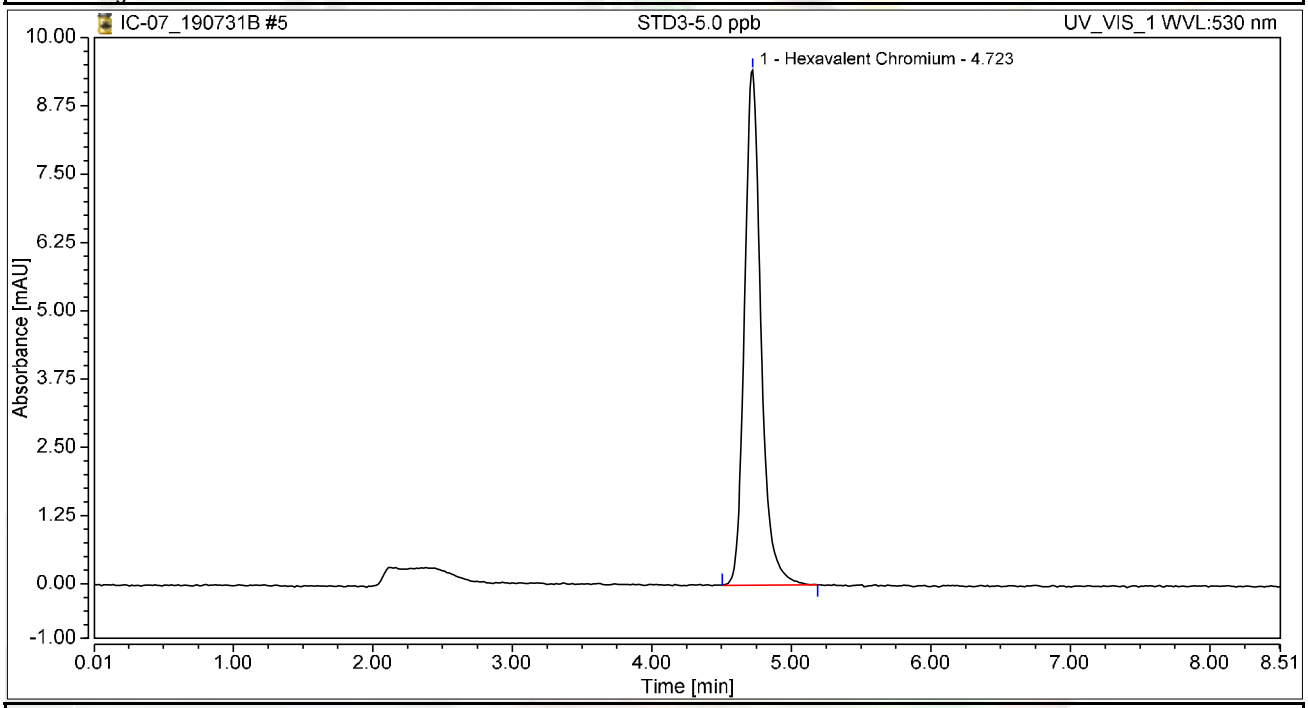
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.262	1.915	100.00	100.00	1.0117
Total:			**0.262**	**1.915**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 11:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

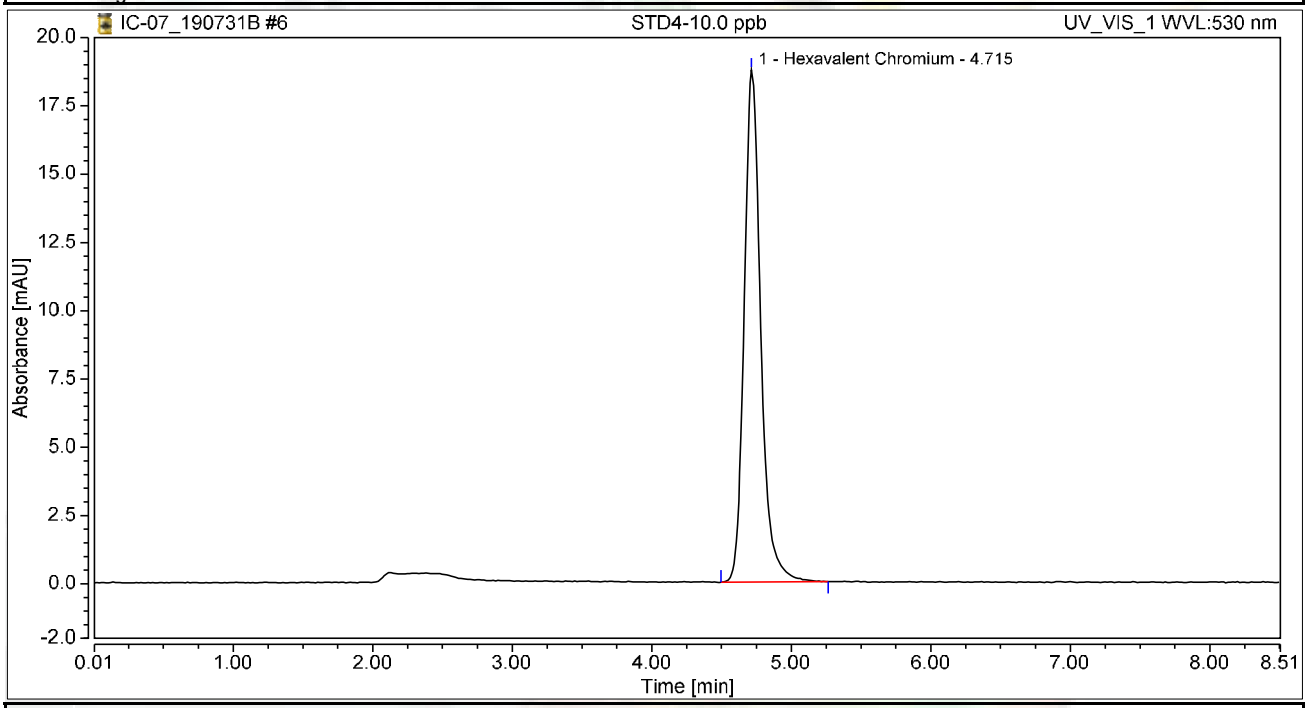
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.290	9.431	100.00	100.00	4.9907
Total:			**1.290**	**9.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 12:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

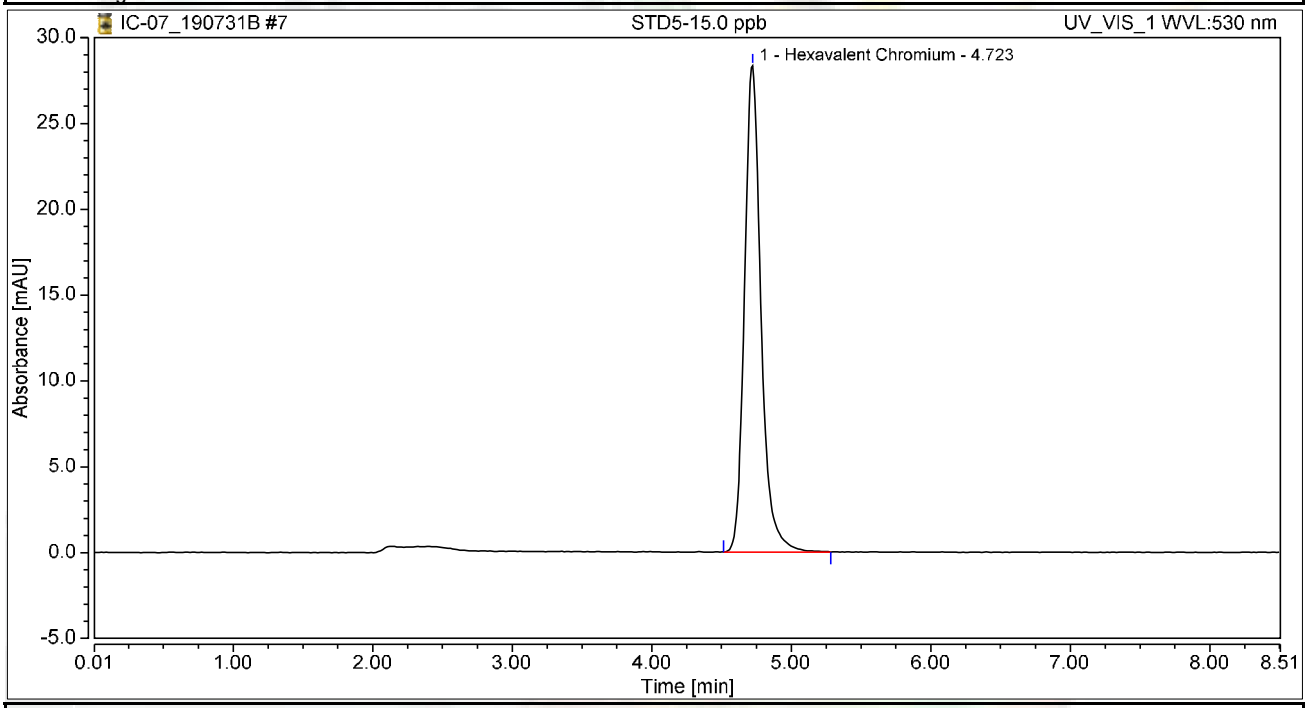
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.575	18.743	100.00	100.00	9.9620
Total:			**2.575**	**18.743**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 12:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

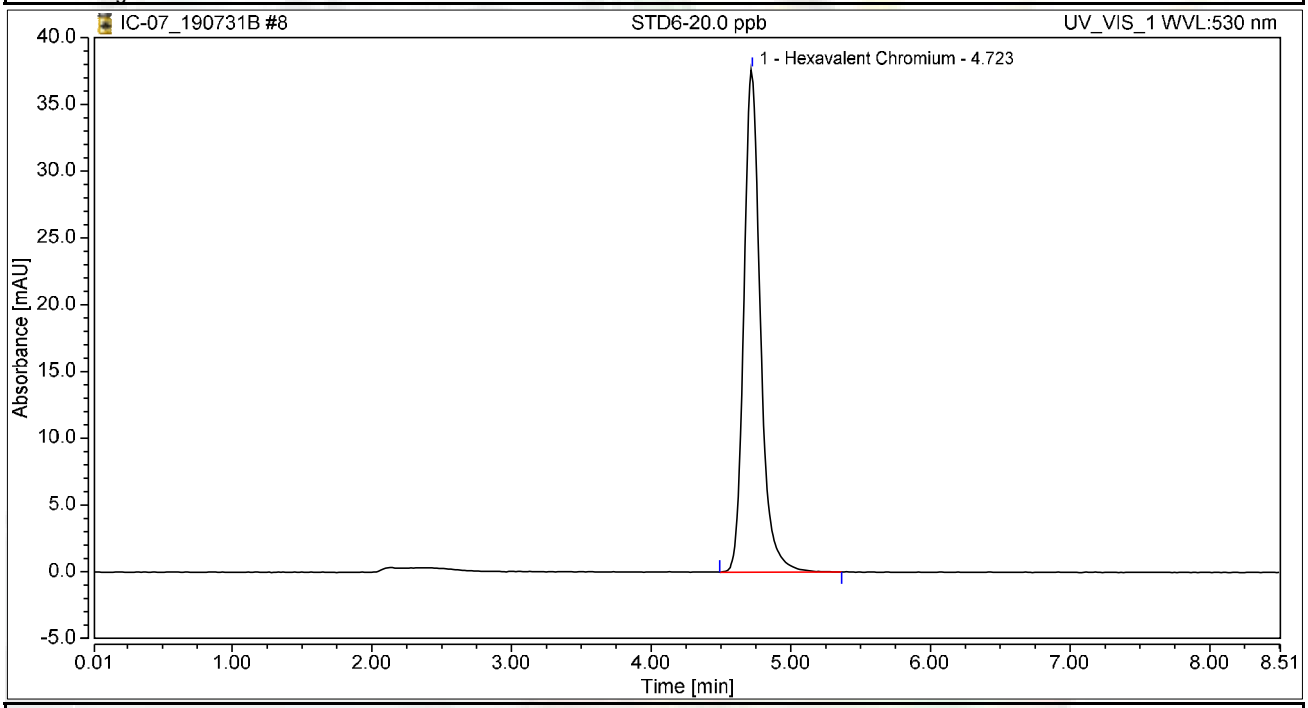
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	3.885	28.323	100.00	100.00	15.0268
Total:			**3.885**	**28.323**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



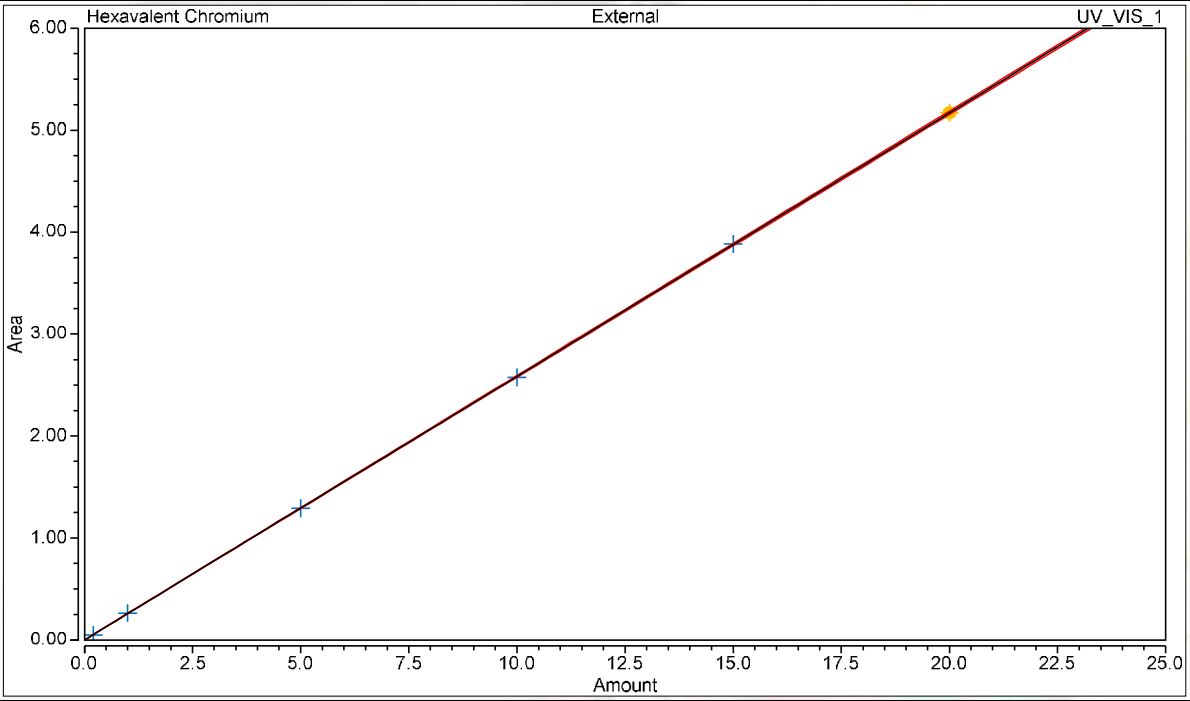
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	5.171	37.644	100.00	100.00	20.0007
Total:			**5.171**	**37.644**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2585
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

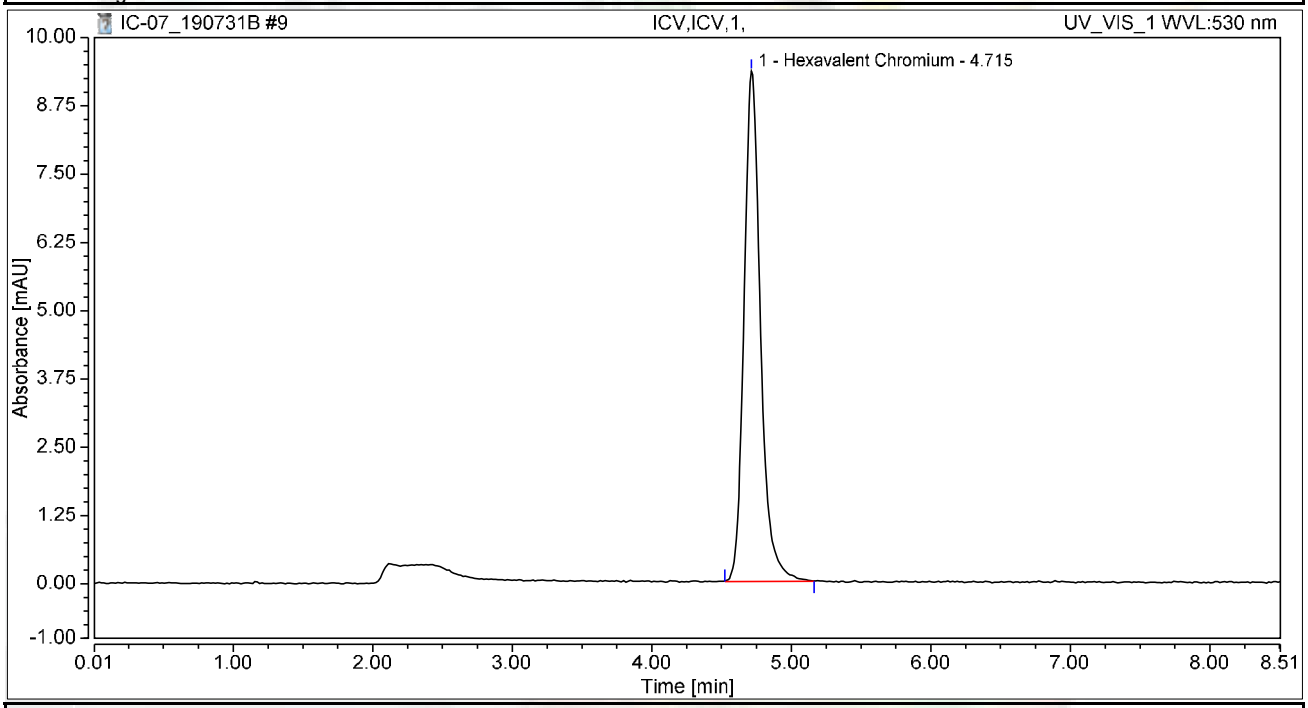
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
3	STD1-0.2 ppb	01	0.2000	0.0497	0.050	0.380
4	STD2-1.0 ppb	02	1.0000	0.2615	0.262	1.915
5	STD3-5.0 ppb	03	5.0000	1.2902	1.290	9.431
6	STD4-10.0 ppb	04	10.0000	2.5754	2.575	18.743
7	STD5-15.0 ppb	05	15.0000	3.8847	3.885	28.323
8	STD6-20.0 ppb	06	20.0000	5.1706	5.171	37.644

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 12:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

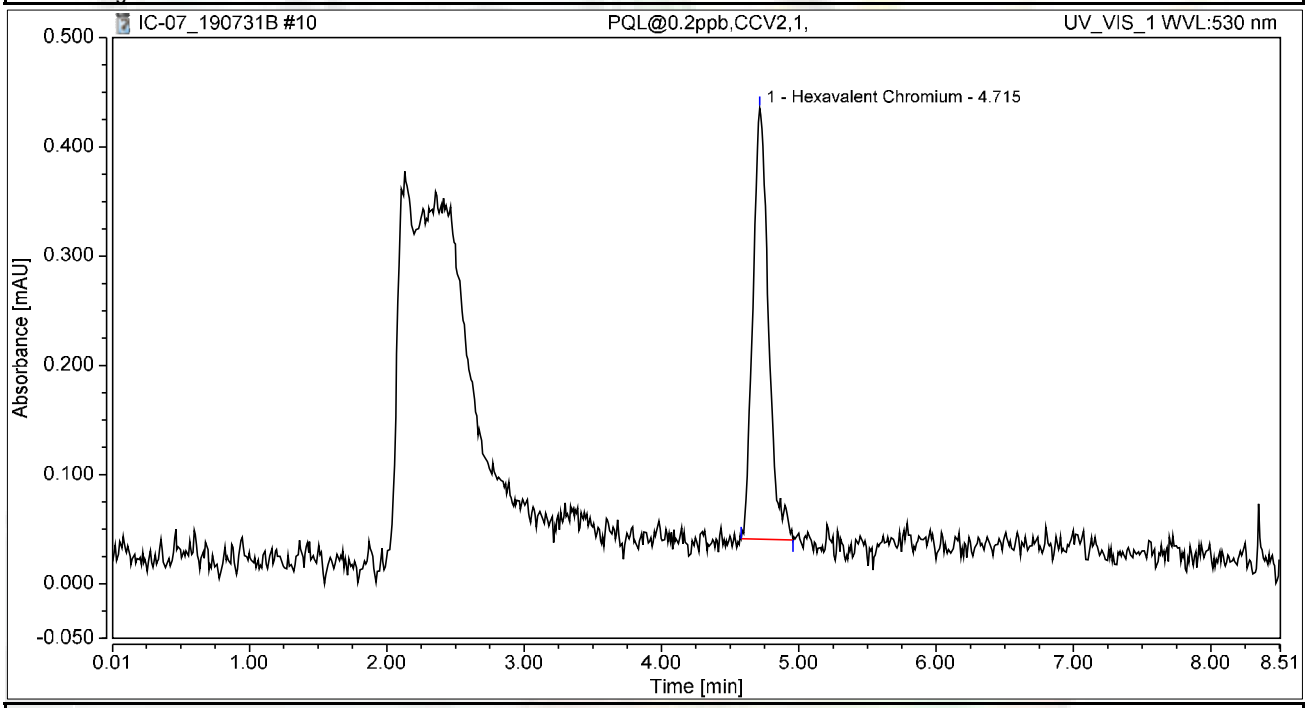
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.280	9.340	100.00	100.00	4.9507
Total:			**1.280**	**9.340**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 12:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

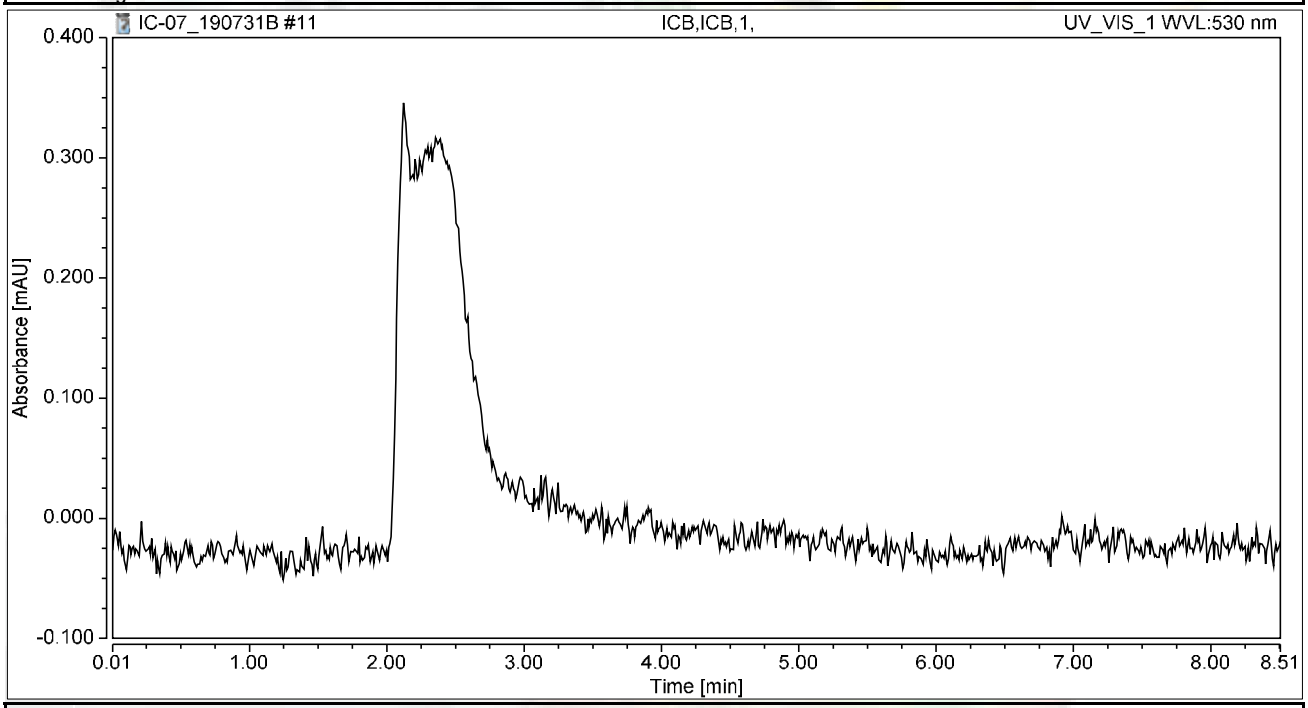
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.052	0.395	100.00	100.00	0.2012
Total:			**0.052**	**0.395**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/19 12:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190821A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/31/19 11:12 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	07/31/19 11:23 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:33 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:42 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 11:51 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:01 PM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:10 PM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/31/19 12:20 PM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/21/19 8:53 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	08/21/19 9:04 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/21/19 9:14 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	08/21/19 9:23 AM	Reported
13	MB-R135971	MBLK	1	Hexavalent Chromium	08/21/19 9:32 AM	Reported
14	LCS-R135971	LCS	1	Hexavalent Chromium	08/21/19 9:42 AM	Reported
15	N037079-001A	SAMP	1	Hexavalent Chromium	08/21/19 10:06 AM	Reported
16	N037079-001AMS	MS	1	Hexavalent Chromium	08/21/19 10:18 AM	Reported
17	N037079-002A	SAMP	1	Hexavalent Chromium	08/21/19 10:27 AM	Not Reported
18	N037079-002AMS	MS	1	Hexavalent Chromium	08/21/19 10:36 AM	Not Reported
19	N037066-001A	SAMP	10	Hexavalent Chromium	08/21/19 10:46 AM	Reported
20	N037066-001AMS	MS	10	Hexavalent Chromium	08/21/19 10:55 AM	Reported
21	N037066-002A	SAMP	10	Hexavalent Chromium	08/21/19 11:05 AM	Reported
22	N037066-002AMS	MS	10	Hexavalent Chromium	08/21/19 11:14 AM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	08/21/19 11:24 AM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	08/21/19 11:33 AM	Reported
25	N037066-002ADUP	DUP	10	Hexavalent Chromium	08/21/19 12:30 PM	Reported
26	N037066-001AMSD	MSD	10	Hexavalent Chromium	08/21/19 12:42 PM	Reported
27	N037066-003A	SAMP	1	Hexavalent Chromium	08/21/19 12:51 PM	Reported
28	N037066-003AMS	MS	1	Hexavalent Chromium	08/21/19 1:00 PM	Reported
29	N037066-004A	SAMP	1	Hexavalent Chromium	08/21/19 1:10 PM	Reported
30	N037066-004AMS	MS	1	Hexavalent Chromium	08/21/19 1:19 PM	Reported
31	N037079-002A	SAMP	5	Hexavalent Chromium	08/21/19 1:29 PM	Reported
32	N037079-002AMS	MS	5	Hexavalent Chromium	08/21/19 1:38 PM	Reported
33	N037103-001AMS	SAMP	1	Hexavalent Chromium	08/21/19 1:48 PM	Reported
34	N037103-001AMS	SAMP	5	Hexavalent Chromium	08/21/19 1:57 PM	Not Reported
35	CCV-3	CCV	1	Hexavalent Chromium	08/21/19 2:07 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	08/21/19 2:16 PM	Reported
37	N037036-001C	SAMP	1	Hexavalent Chromium	08/21/19 2:26 PM	Reported
38	N037036-001CMS	MS	1	Hexavalent Chromium	08/21/19 2:35 PM	Reported
39	N037036-001C	SAMP	5	Hexavalent Chromium	08/21/19 2:45 PM	Not Reported
40	N037036-001CMS	MS	5	Hexavalent Chromium	08/21/19 2:54 PM	Not Reported
41	N037103-001A	SAMP	1	Hexavalent Chromium	08/21/19 3:03 PM	Reported
42	N037103-001A	SAMP	5	Hexavalent Chromium	08/21/19 3:13 PM	Not Reported

INJECTION LOG: 190821A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-4	CCV1	1	Hexavalent Chromium	08/21/19 3:25 PM	Reported
44	CCB-4	CCB	1	Hexavalent Chromium	08/21/19 3:36 PM	Reported
45	BLANK	BLANK	1	Hexavalent Chromium	08/21/19 3:46 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190821A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**22/Aug/19 18:33:02**
No. of Injections:	**48**	*Updated By:*	**ics 5000**

Injection Details

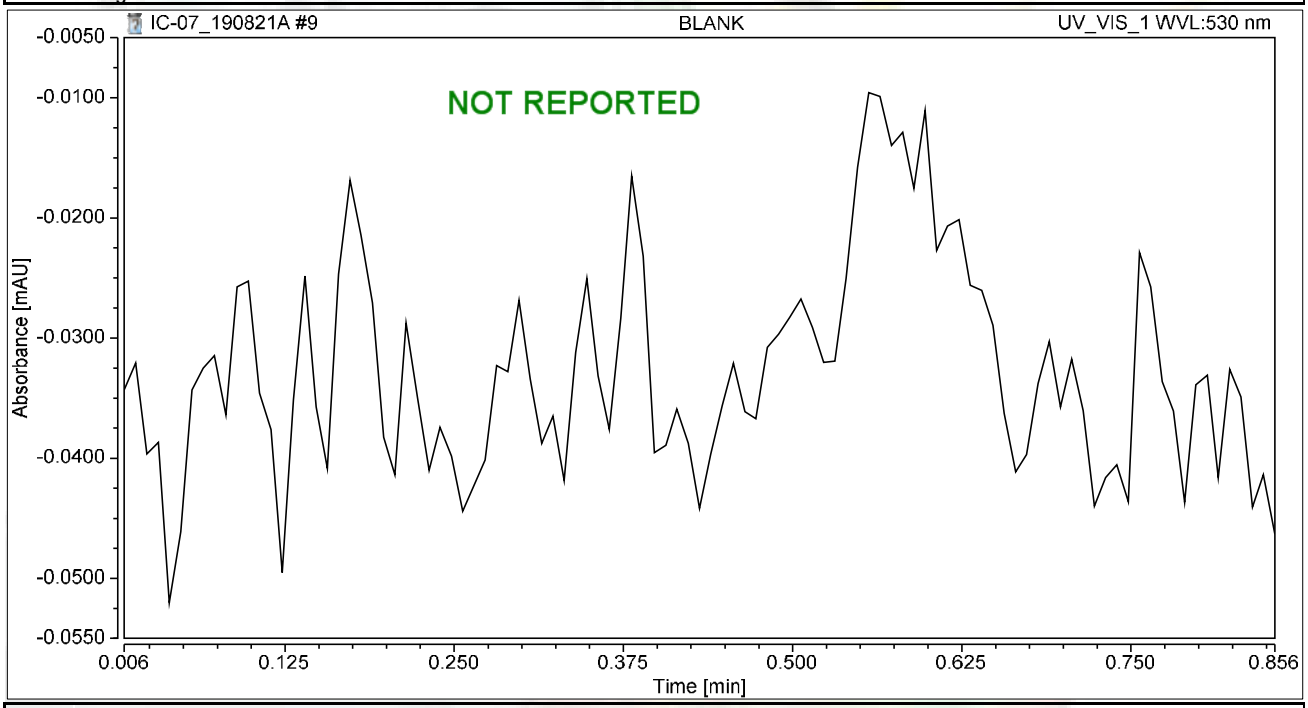
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/31/2019 11:12	Finished	BLANK
2	iBLANK	2	1000	Unknown		07/31/2019 11:23	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	07/31/2019 11:33	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	07/31/2019 11:42	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	07/31/2019 11:51	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	07/31/2019 12:01	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	07/31/2019 12:10	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	07/31/2019 12:20	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		08/21/2019 08:53	Finished	BLANK
10	CCV-1,CCV,1,	2	1000	Unknown		08/21/2019 09:04	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/21/2019 09:14	Finished	PQL @ 0.2ppb
12	CCB-1,CCB,1,	4	1000	Unknown		08/21/2019 09:23	Finished	CCB R190617C
13	MB-H2O,MBLK,1,	5	1000	Unknown		08/21/2019 09:32	Finished	MB R190617C
14	LCS-H2O,LCS,1,	6	1000	Unknown		08/21/2019 09:42	Finished	LCS @5ppb, IWST-190702B
15	N037079-001A,SAMP	8	1000	Unknown		08/21/2019 10:06	Finished	SAMP,10mL
16	N037079-001AMS,MS	9	1000	Unknown		08/21/2019 10:18	Finished	MS (1ppb), IWST-190702B,10
17	N037079-002A,SAMP	10	1000	Unknown		08/21/2019 10:27	Finished	SAMP,10mL
18	N037079-002AMS,MS	11	1000	Unknown		08/21/2019 10:36	Finished	MS (1ppb), IWST-190702B,10
19	N037066-001A,SAMP	12	1000	Unknown		08/21/2019 10:46	Finished	SAMP,1>10mL
20	N037066-001AMS,MS	13	1000	Unknown		08/21/2019 10:55	Finished	MS (5ppb), IWST-190702B,1>1
21	N037066-002A,SAMP	14	1000	Unknown		08/21/2019 11:05	Finished	SAMP,1>10mL
22	N037066-002AMS,MS	15	1000	Unknown		08/21/2019 11:14	Finished	MS (5ppb), IWST-190702B,1>1
23	CCV-2,CCV1,1,	16	1000	Unknown		08/21/2019 11:24	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	17	1000	Unknown		08/21/2019 11:33	Finished	CCB R190617C
25	N037066-002ADUP,D	18	1000	Unknown		08/21/2019 12:30	Finished	DUP,1>10mL
26	N037066-001AMSD,M	19	1000	Unknown		08/21/2019 12:42	Finished	MSD (5ppb), IWST-190702B,1>
27	N037066-003A,SAMP	20	1000	Unknown		08/21/2019 12:51	Finished	SAMP,10mL
28	N037066-003AMS,MS	21	1000	Unknown		08/21/2019 13:00	Finished	MS (1ppb), IWST-190702B,10
29	N037066-004A,SAMP	22	1000	Unknown		08/21/2019 13:10	Finished	SAMP,10mL
30	N037066-004AMS,MS	23	1000	Unknown		08/21/2019 13:19	Finished	MS (1ppb), IWST-190702B,10
31	N037079-002A,SAMP	24	1000	Unknown		08/21/2019 13:29	Finished	SAMP,2>10mL
32	N037079-002AMS,MS	25	1000	Unknown		08/21/2019 13:38	Finished	MS (1ppb), IWST-190702B,2>1
33	N037103-001AMS,SA	26	1000	Unknown		08/21/2019 13:48	Finished	MS (1ppb), IWST-190702B,10
34	N037103-001AMS,SA	27	1000	Unknown		08/21/2019 13:57	Finished	MS (1ppb), IWST-190702B,2>1
35	CCV-3,CCV,1,	28	1000	Unknown		08/21/2019 14:07	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	29	1000	Unknown		08/21/2019 14:16	Finished	CCB R190617C
37	N037036-001A,SAMP	30	1000	Unknown		08/21/2019 14:26	Finished	SAMP,10mL
38	N037036-001AMS,MS	31	1000	Unknown		08/21/2019 14:35	Finished	MS (1ppb), IWST-190702B,10
39	N037036-001A,SAMP	32	1000	Unknown		08/21/2019 14:45	Finished	SAMP,2>10mL
40	N037036-001AMS,MS	33	1000	Unknown		08/21/2019 14:54	Finished	MS (1ppb), IWST-190702B,2>1
41	N037103-001A,SAMP	34	1000	Unknown		08/21/2019 15:03	Finished	SAMP,10mL
42	N037103-001A,SAMP	35	1000	Unknown		08/21/2019 15:13	Finished	SAMP,2>10mL
43	CCV-4,CCV1,1,	36	1000	Unknown		08/21/2019 15:25	Finished	CCV @10ppb, IWST-190702A
44	CCB-4,CCB,1,	37	1000	Unknown		08/21/2019 15:36	Finished	CCB R190617C
45	BLANK	38	1000	Unknown		08/21/2019 15:46	Finished	BLANK
46	SHUTDOWN	39	1000	Unknown		08/21/2019 15:55	Finished	
47	Eluent: R190816C	40	1000	Unknown		n.a.	Finished	Eluent
48	PCR: R190819A	41	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**0.85**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 08:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

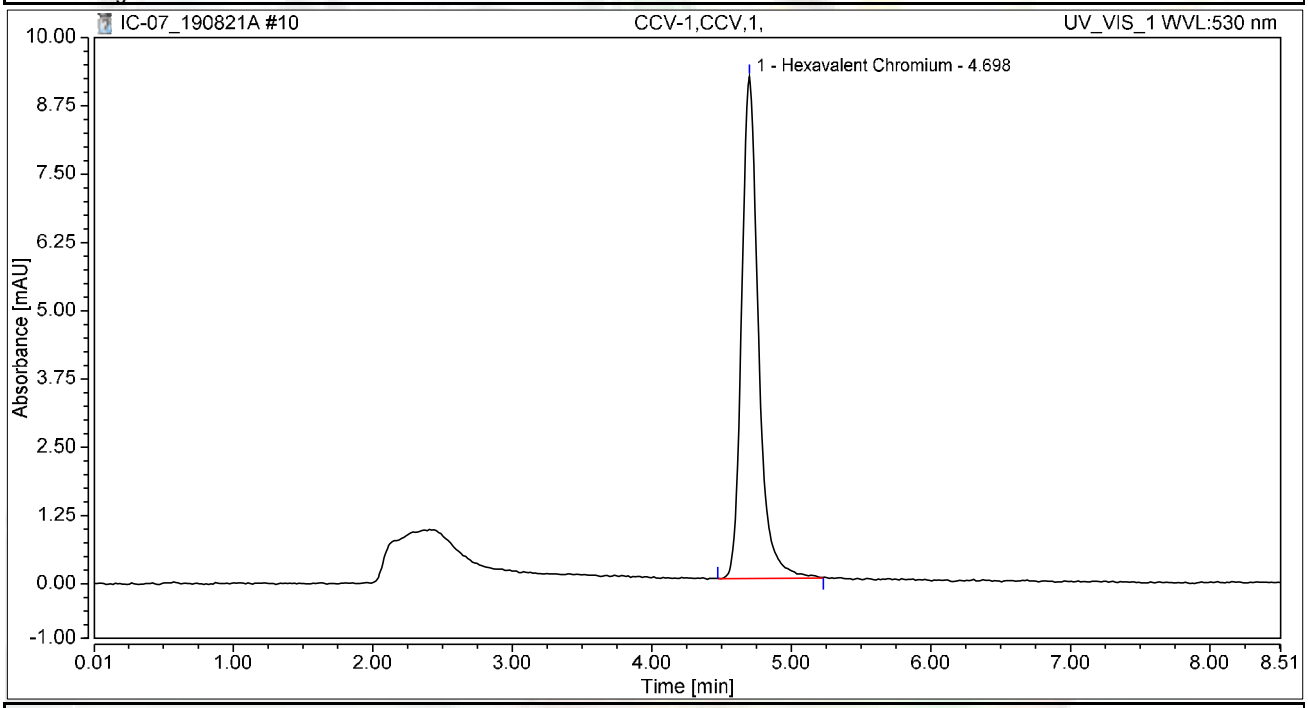
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 09:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

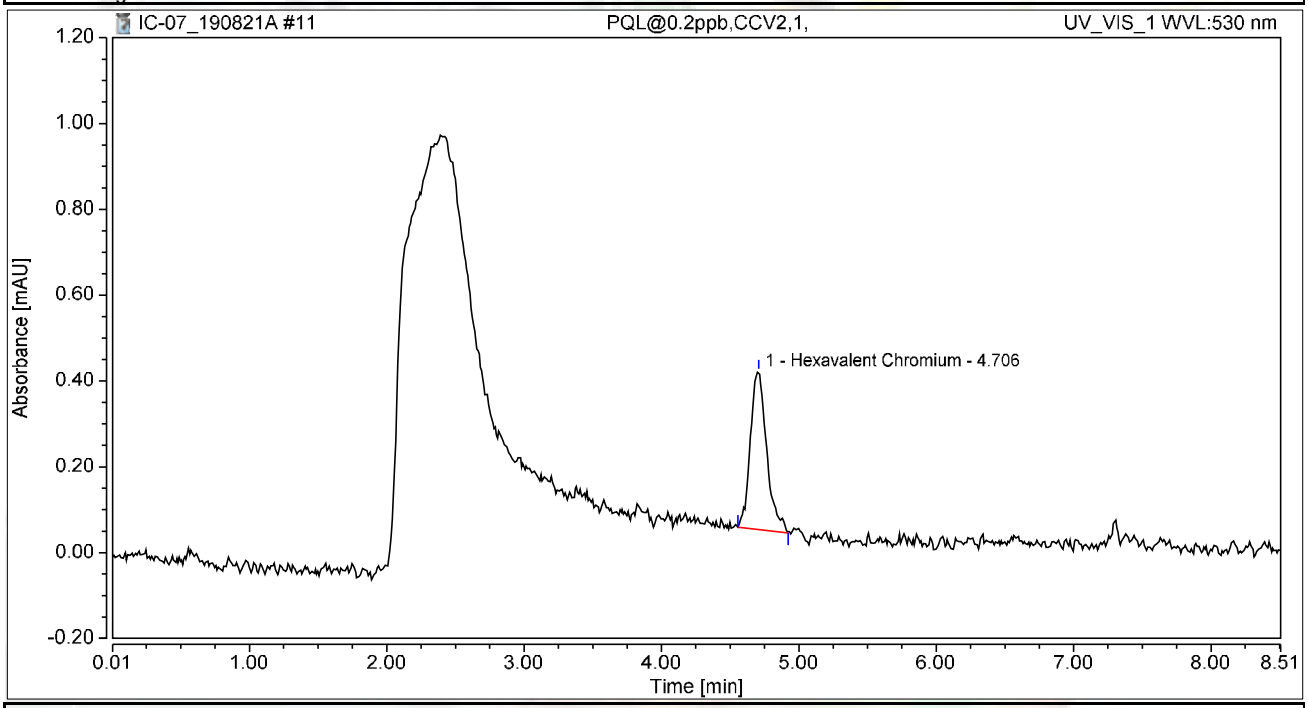
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.282	9.192	100.00	100.00	4.9607
Total:			**1.282**	**9.192**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 09:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

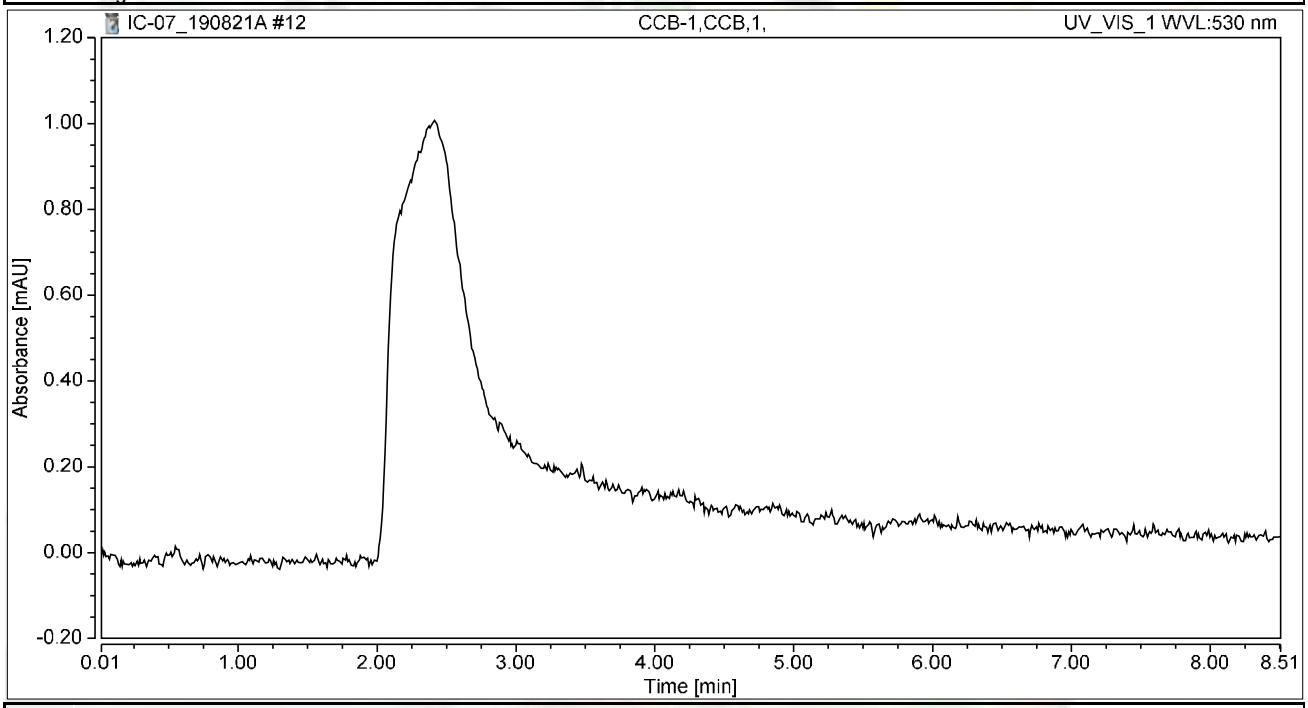
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.051	0.367	100.00	100.00	0.1966
Total:			**0.051**	**0.367**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 09:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

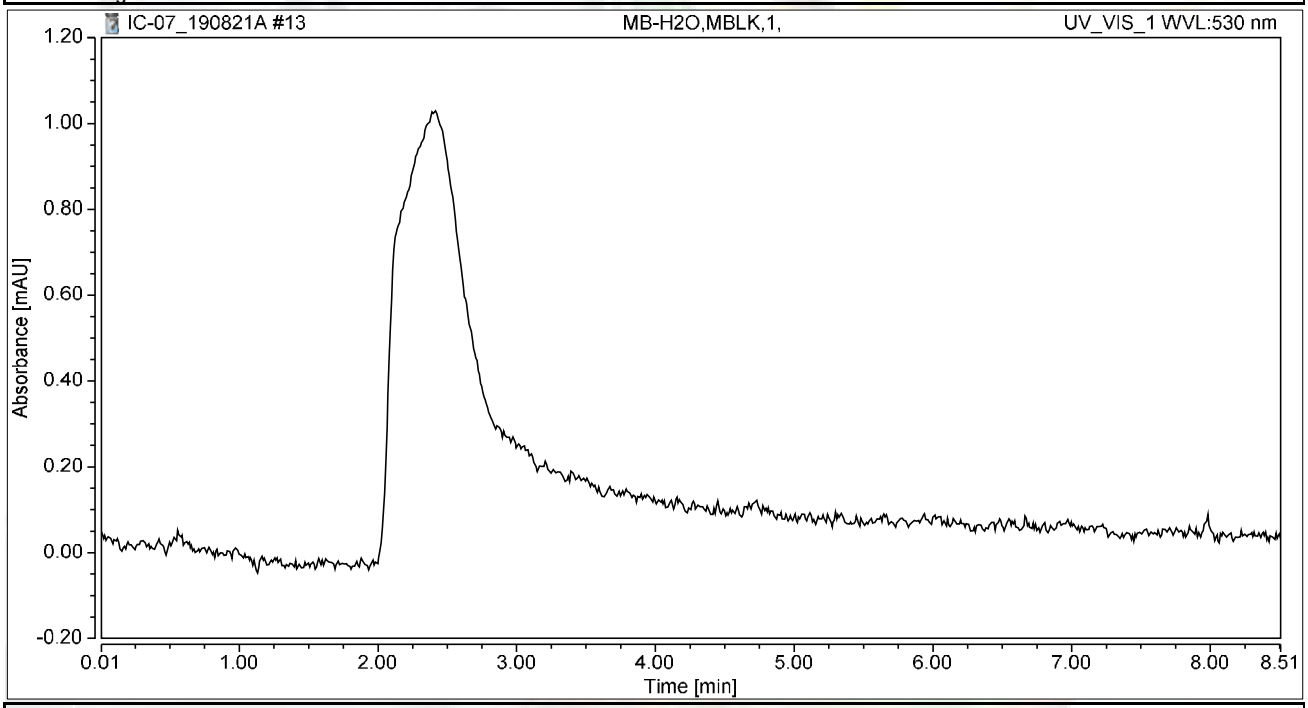
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

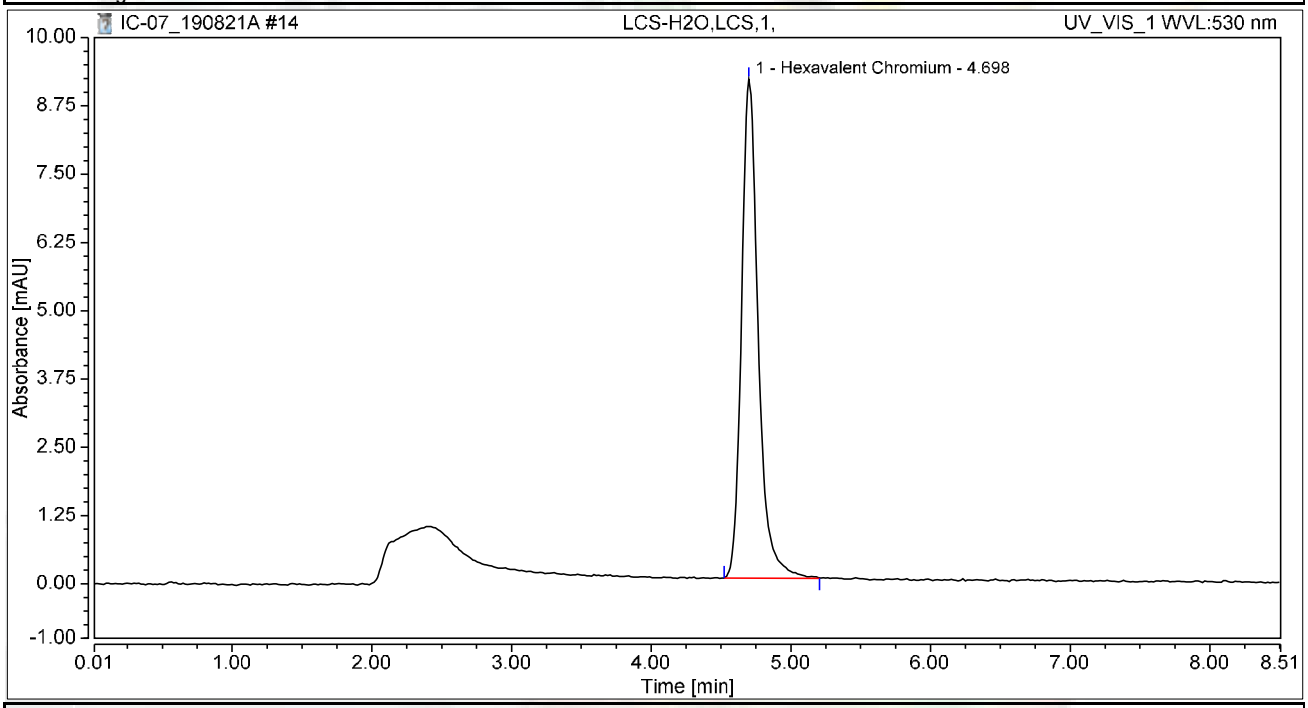
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 09:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

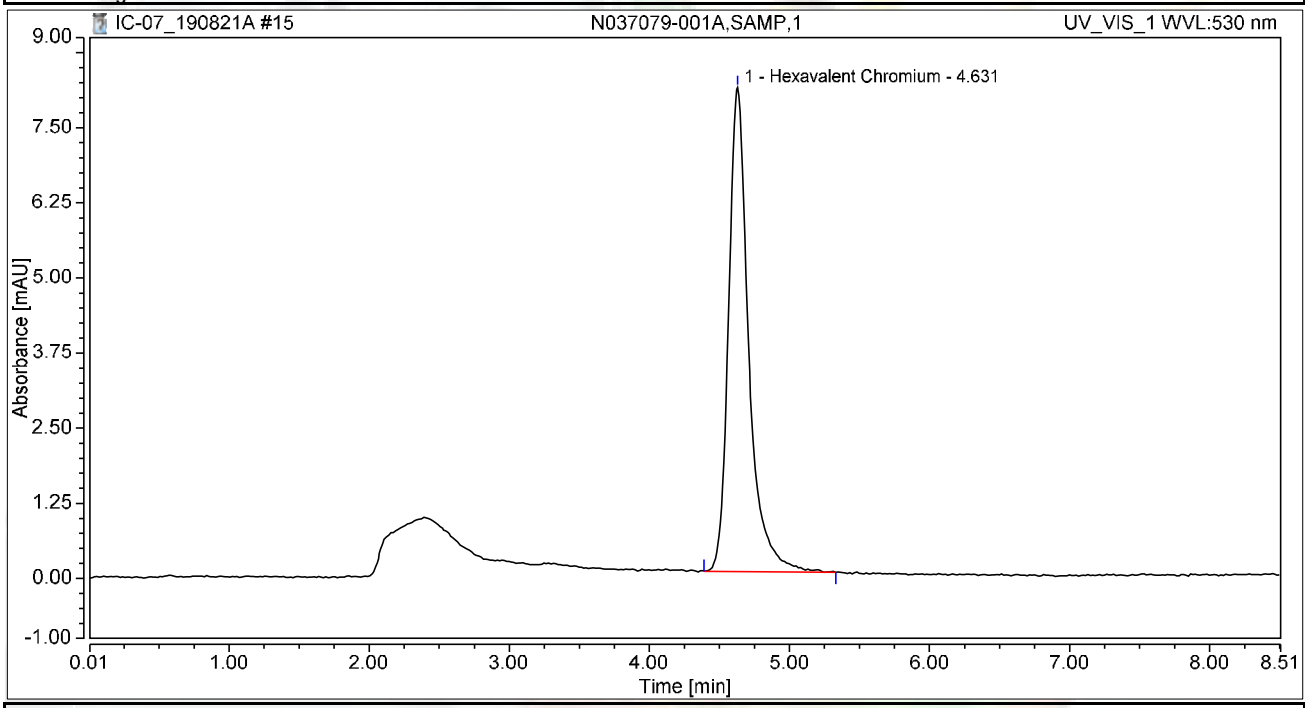
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.272	9.134	100.00	100.00	4.9213
Total:			**1.272**	**9.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037079-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 10:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

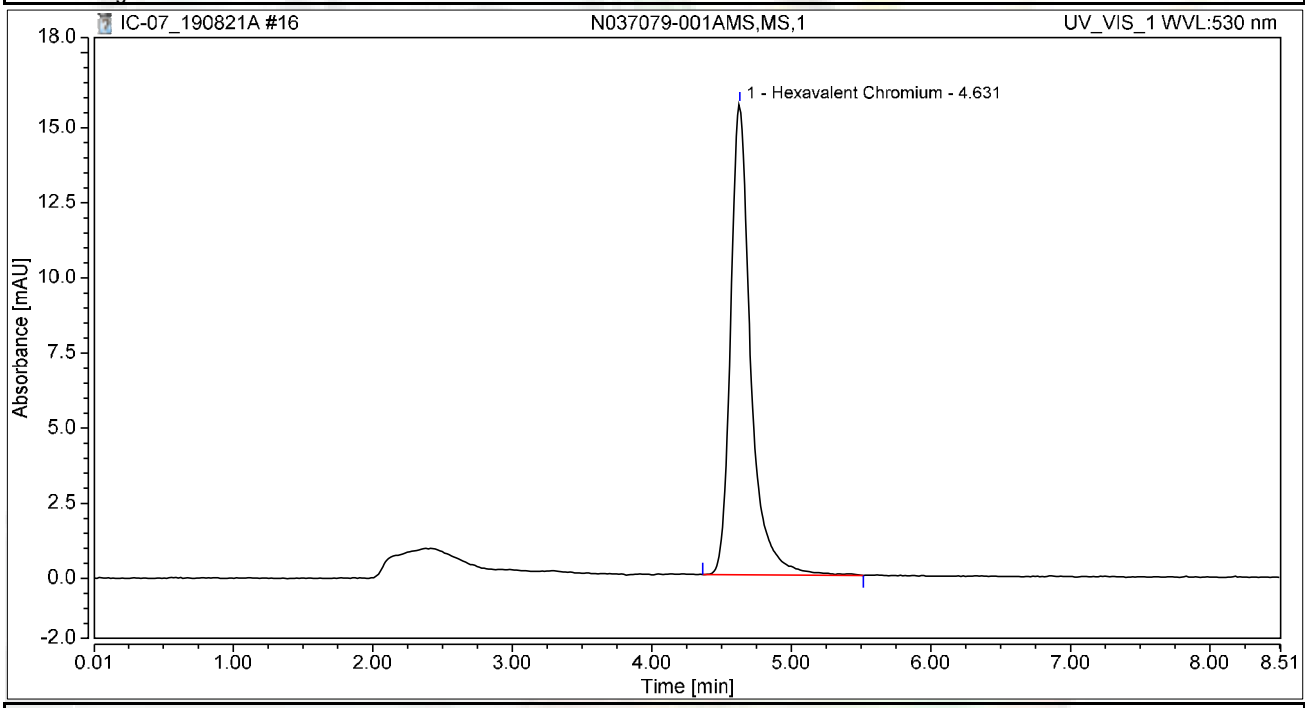
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	1.342	8.058	100.00	100.00	5.1923
Total:			**1.342**	**8.058**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037079-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 10:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

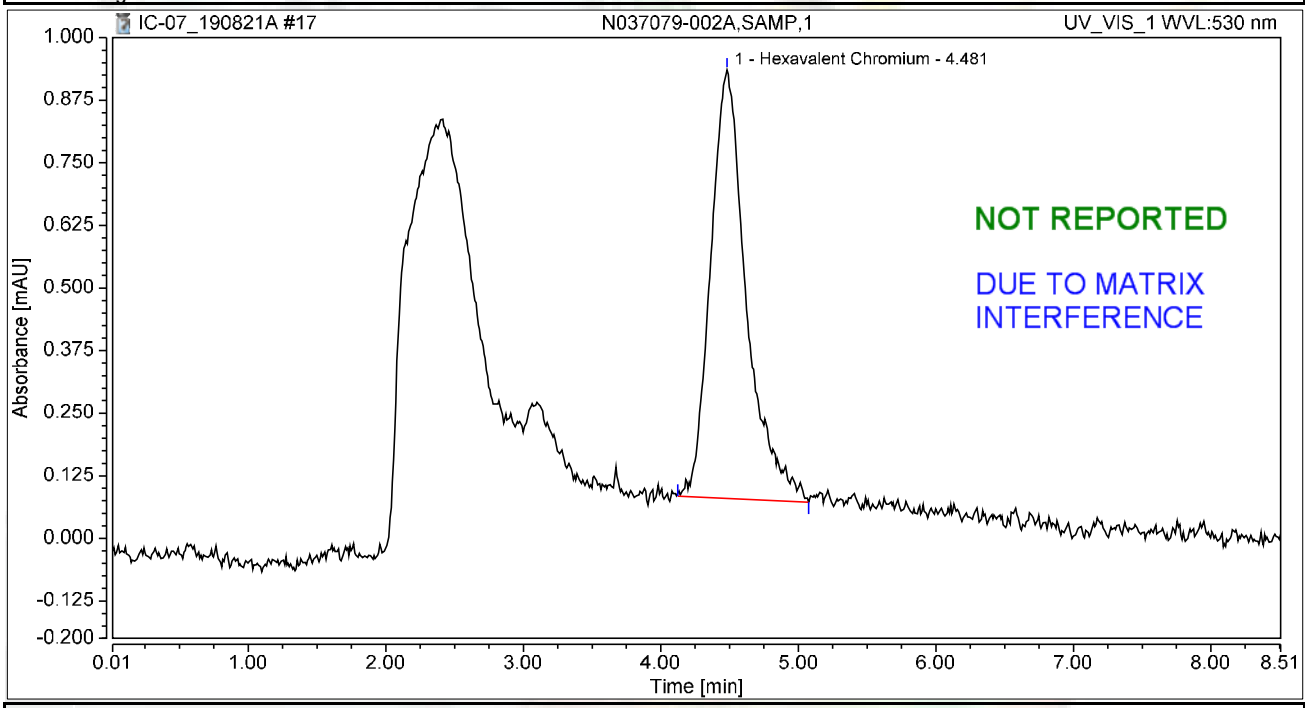
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	2.626	15.675	100.00	100.00	10.1582
Total:			**2.626**	**15.675**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037079-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 10:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

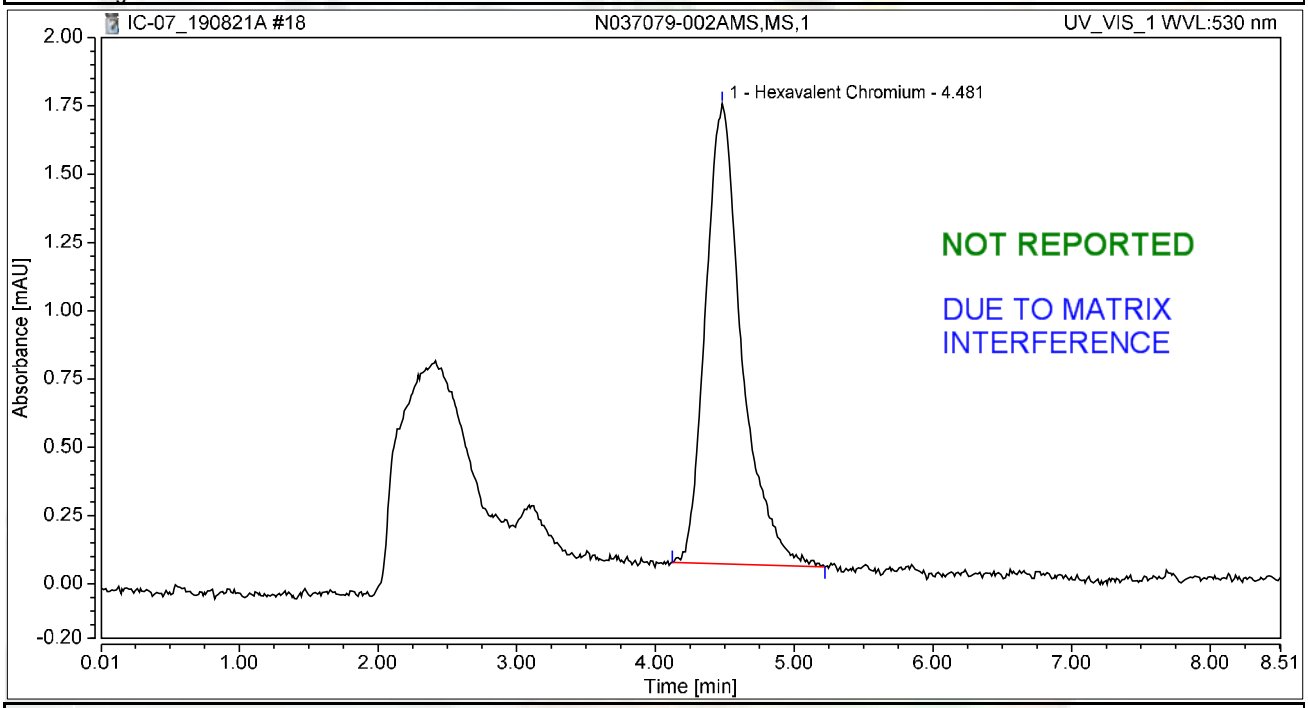
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.481	0.259	0.856	100.00	100.00	0.9999
Total:			**0.259**	**0.856**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037079-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 10:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

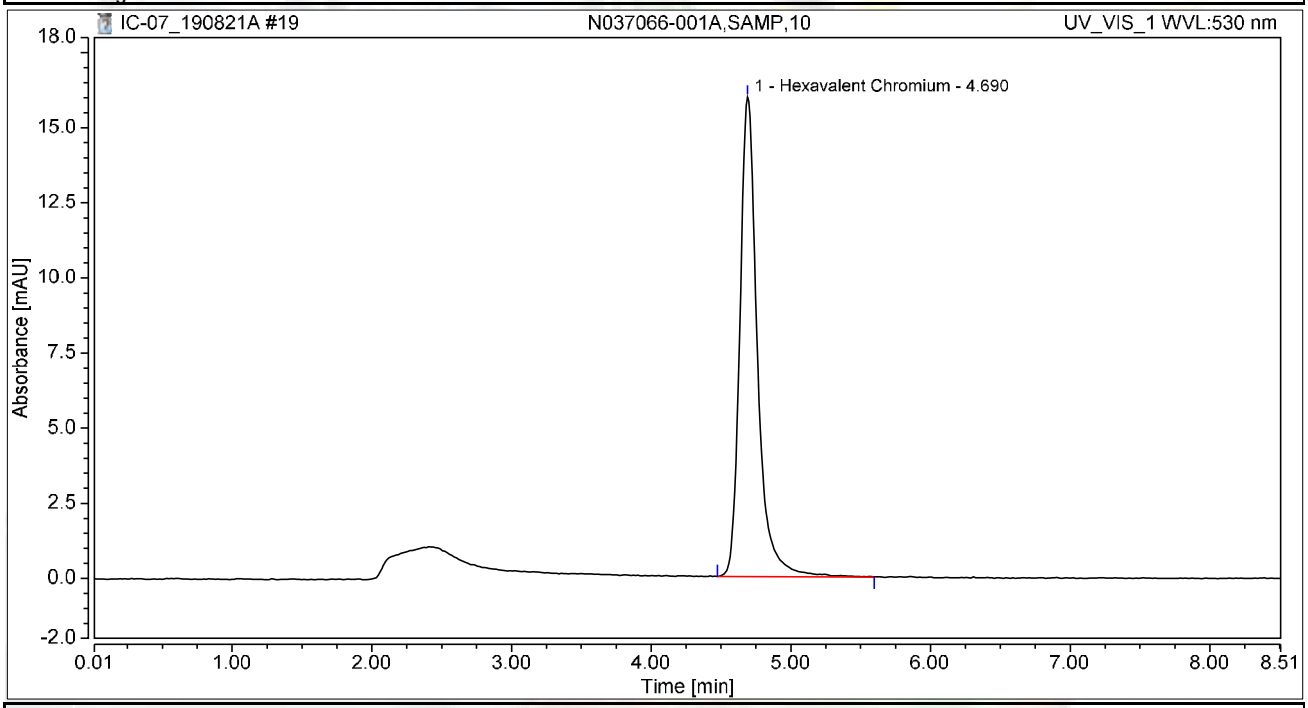
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.481	0.510	1.685	100.00	100.00	1.9729
Total:			**0.510**	**1.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-001A,SAMP,10**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 10:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

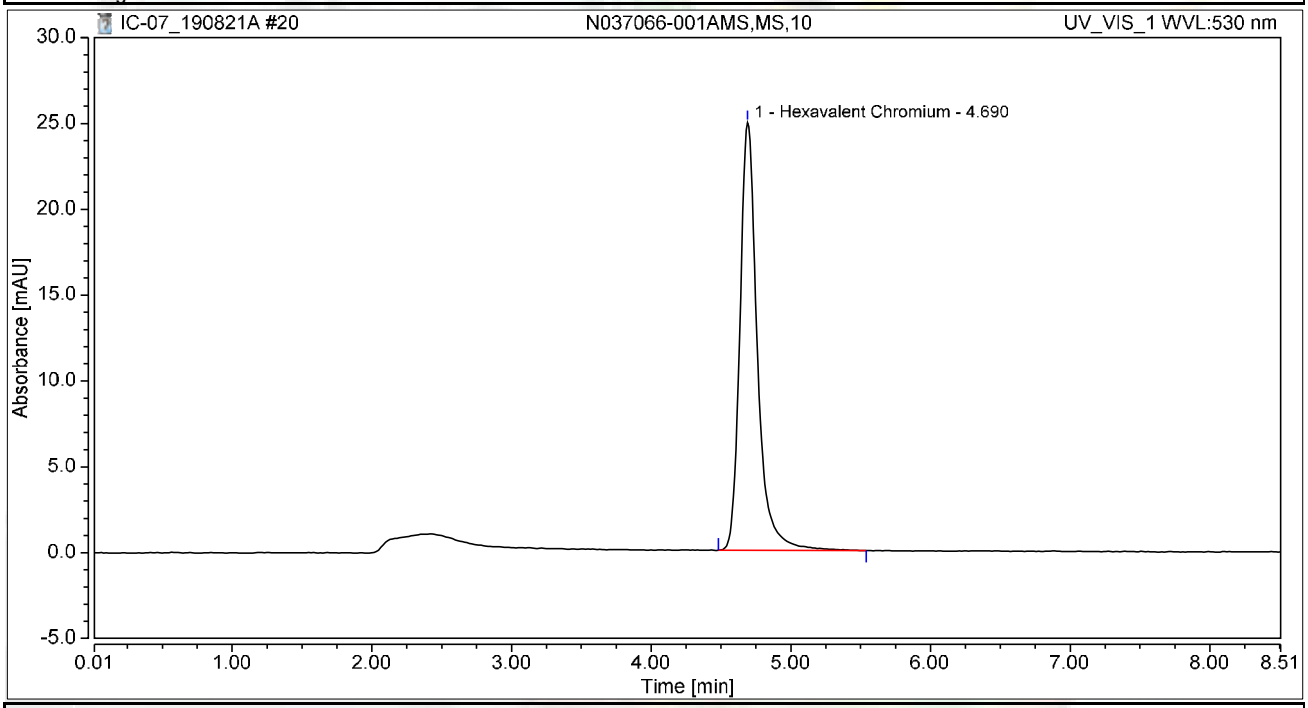
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	2.326	15.957	100.00	100.00	8.9966
Total:			**2.326**	**15.957**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-001AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 10:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

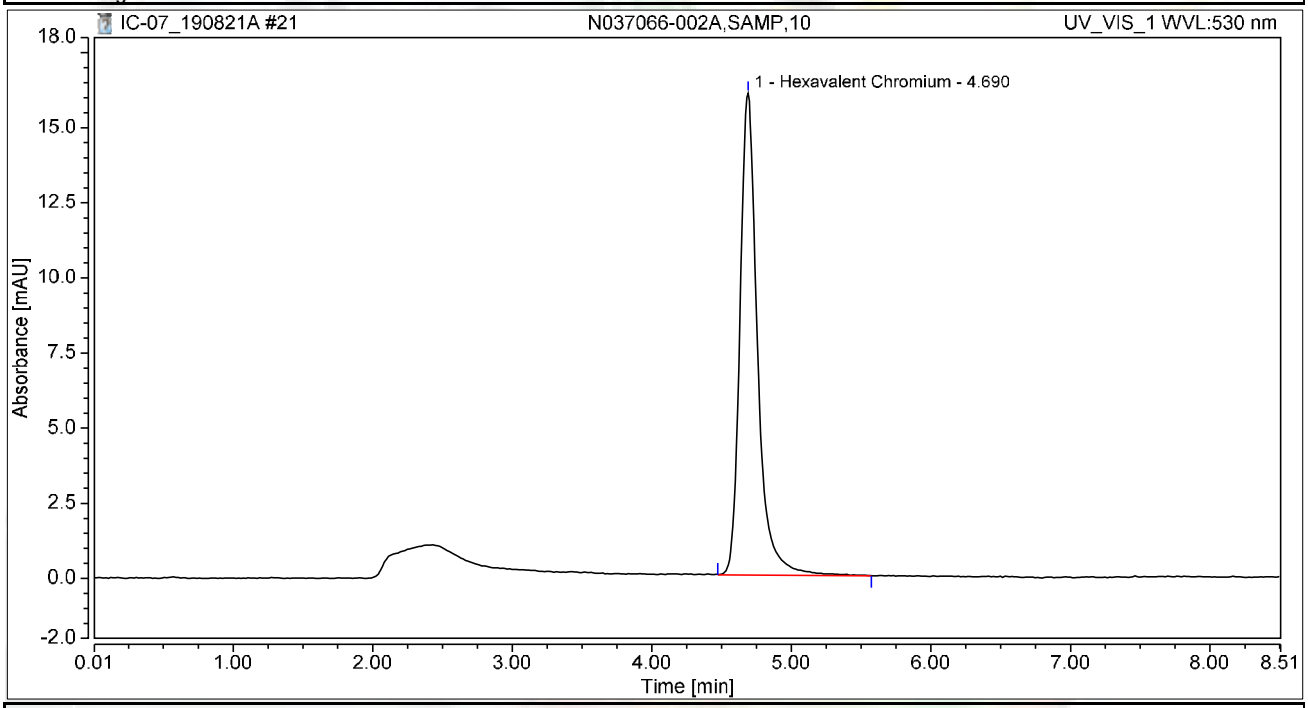
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.605	24.903	100.00	100.00	13.9460
Total:			**3.605**	**24.903**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

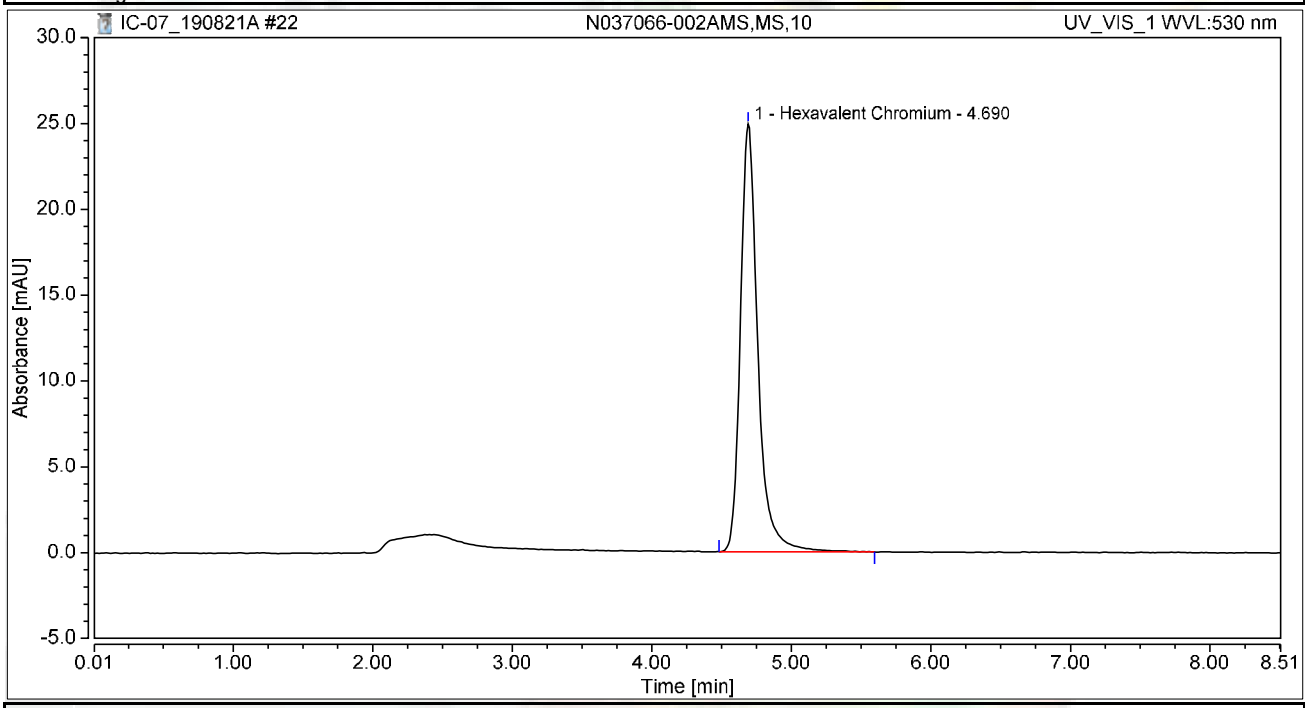
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	2.333	16.035	100.00	100.00	9.0244
Total:			**2.333**	**16.035**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-002AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 11:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

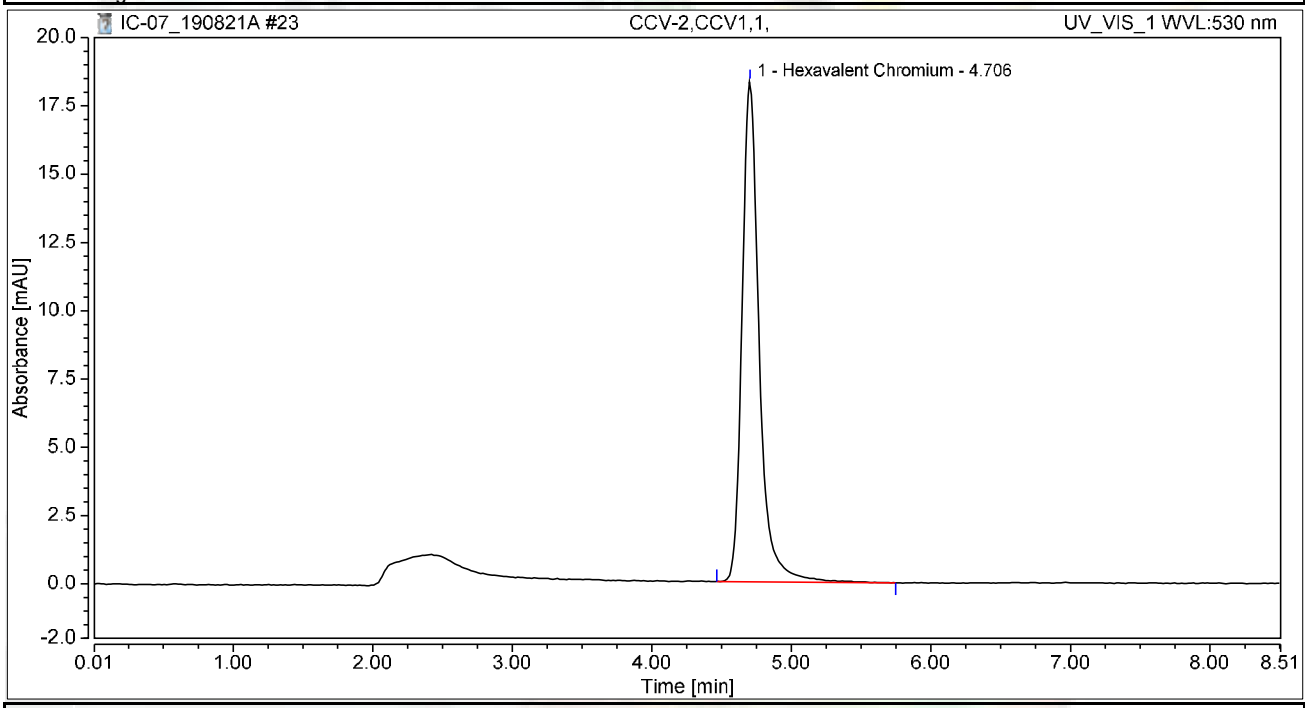
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.605	24.908	100.00	100.00	13.9428
Total:			**3.605**	**24.908**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 11:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

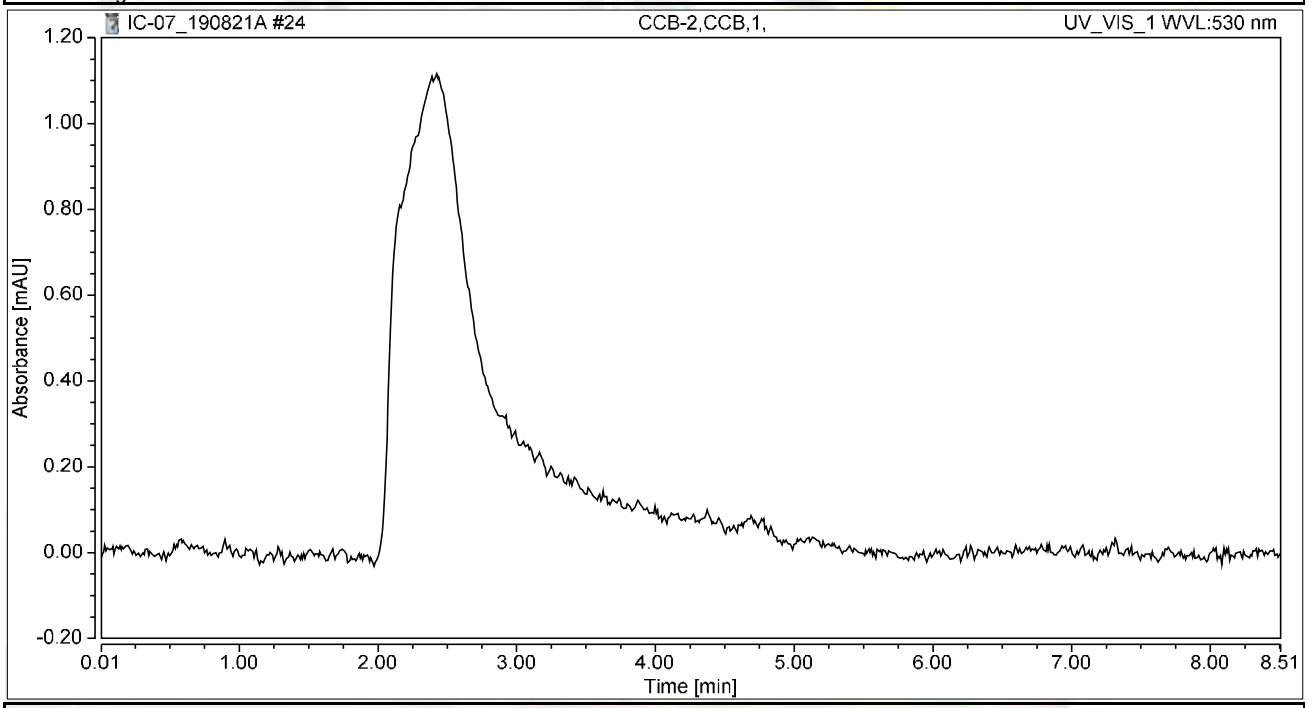
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.614	18.321	100.00	100.00	10.1106
Total:			**2.614**	**18.321**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

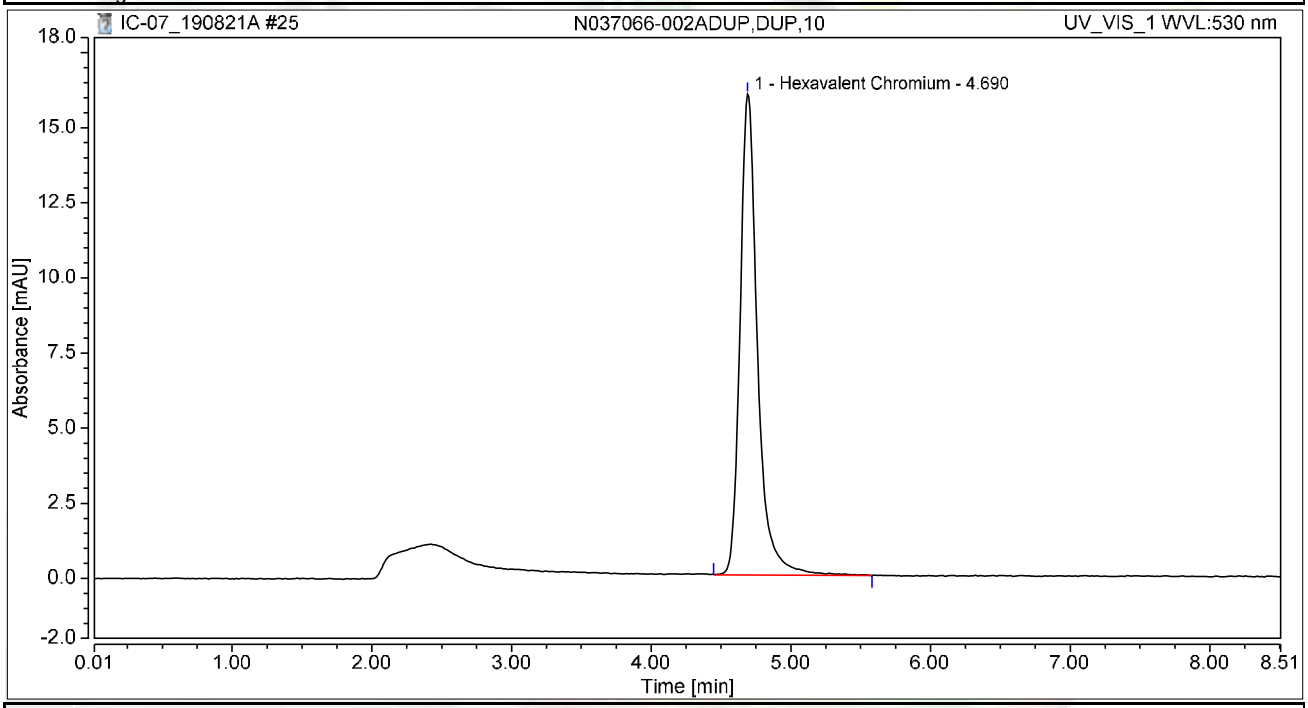
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-002ADUP,DUP,10**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 12:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

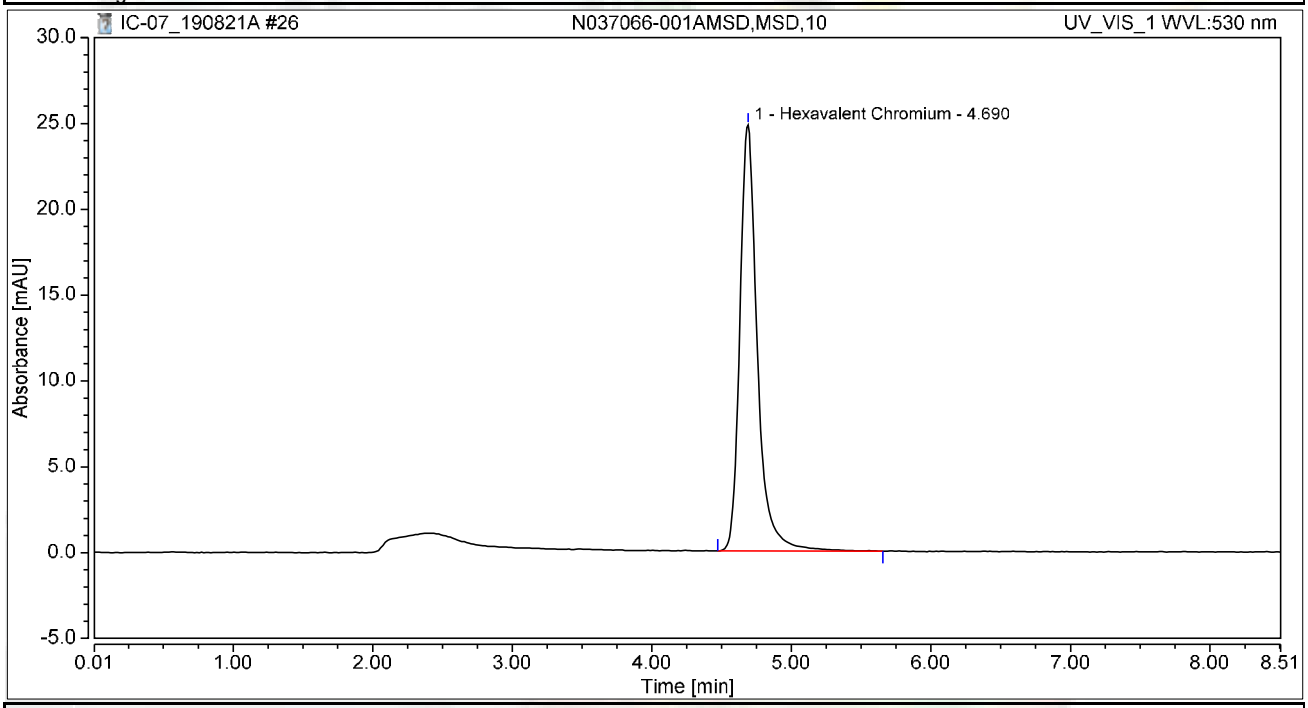
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	2.334	16.005	100.00	100.00	9.0287
Total:			**2.334**	**16.005**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-001AMSD,MSD,10**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 12:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

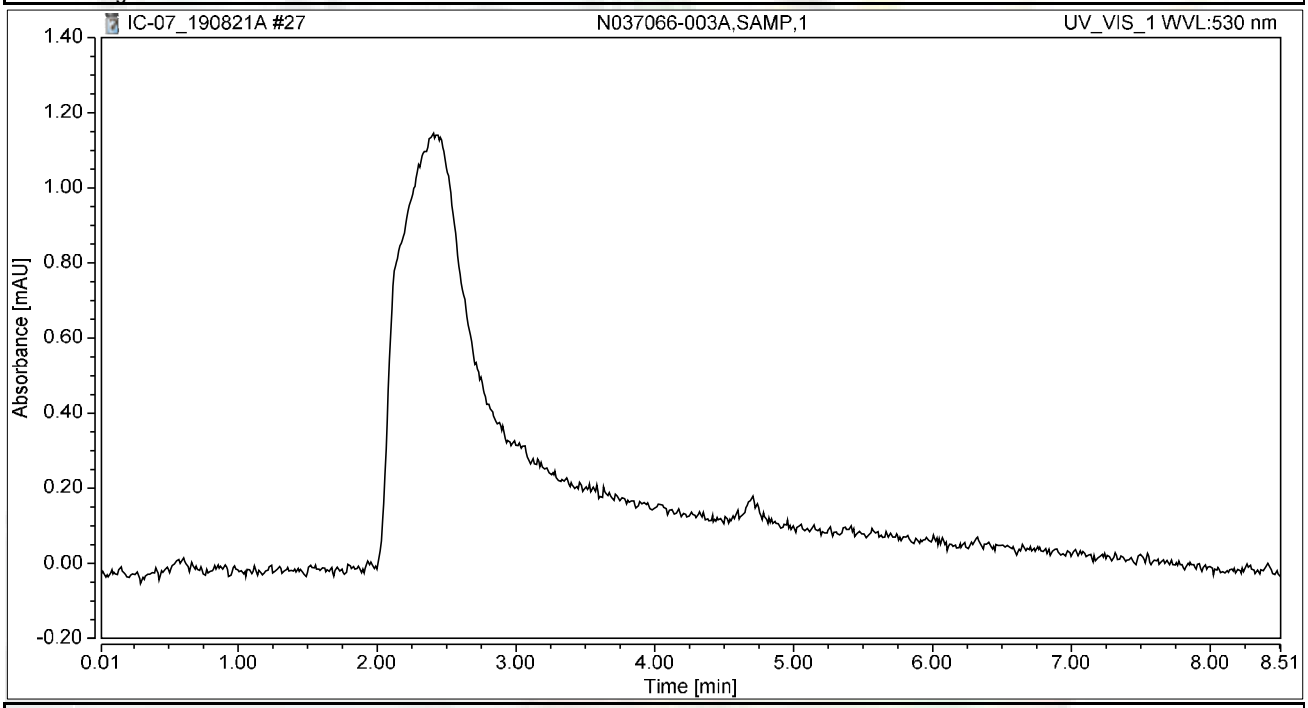
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.619	24.817	100.00	100.00	13.9991
Total:			**3.619**	**24.817**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 12:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

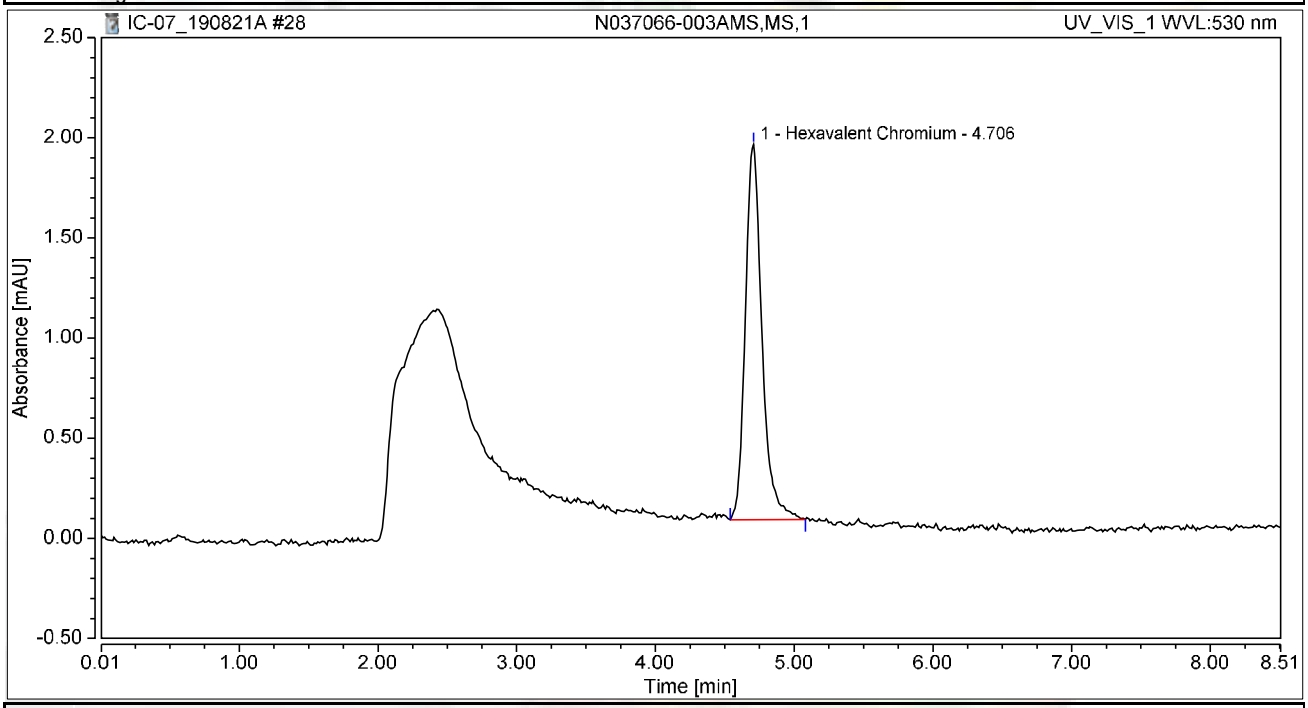
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

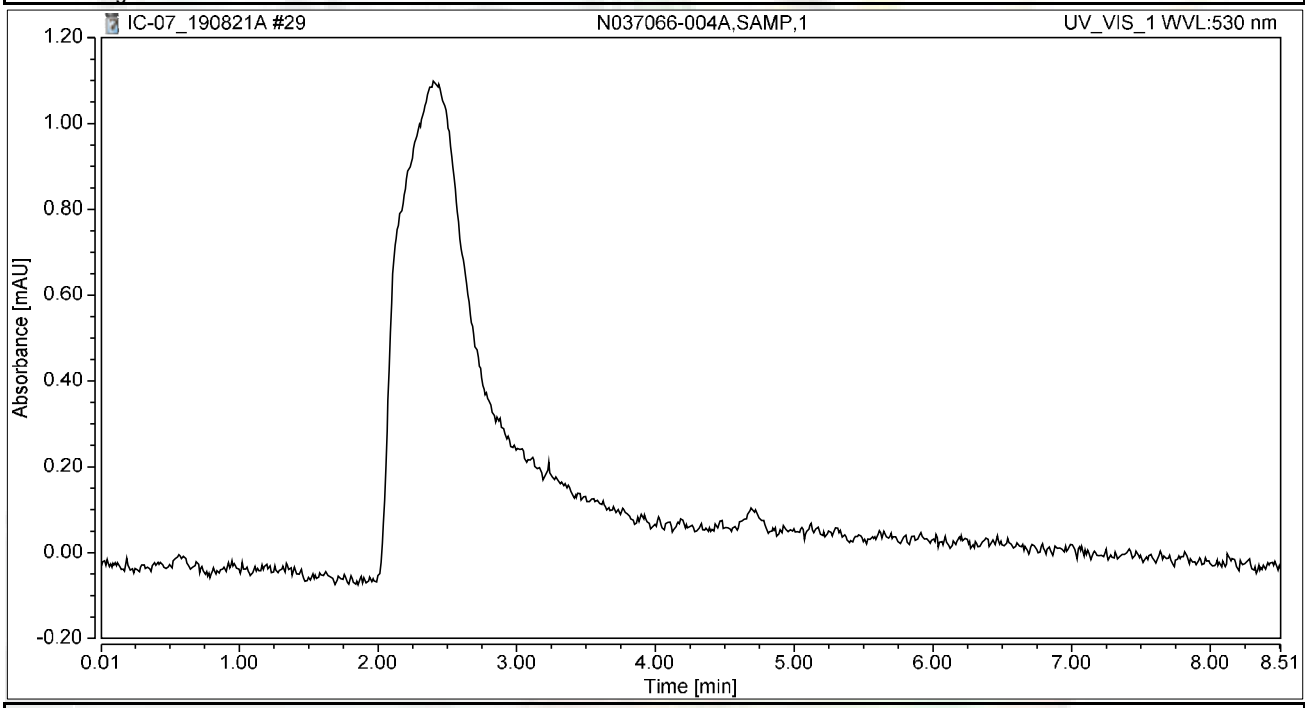
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.261	1.874	100.00	100.00	1.0103
Total:			**0.261**	**1.874**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 13:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

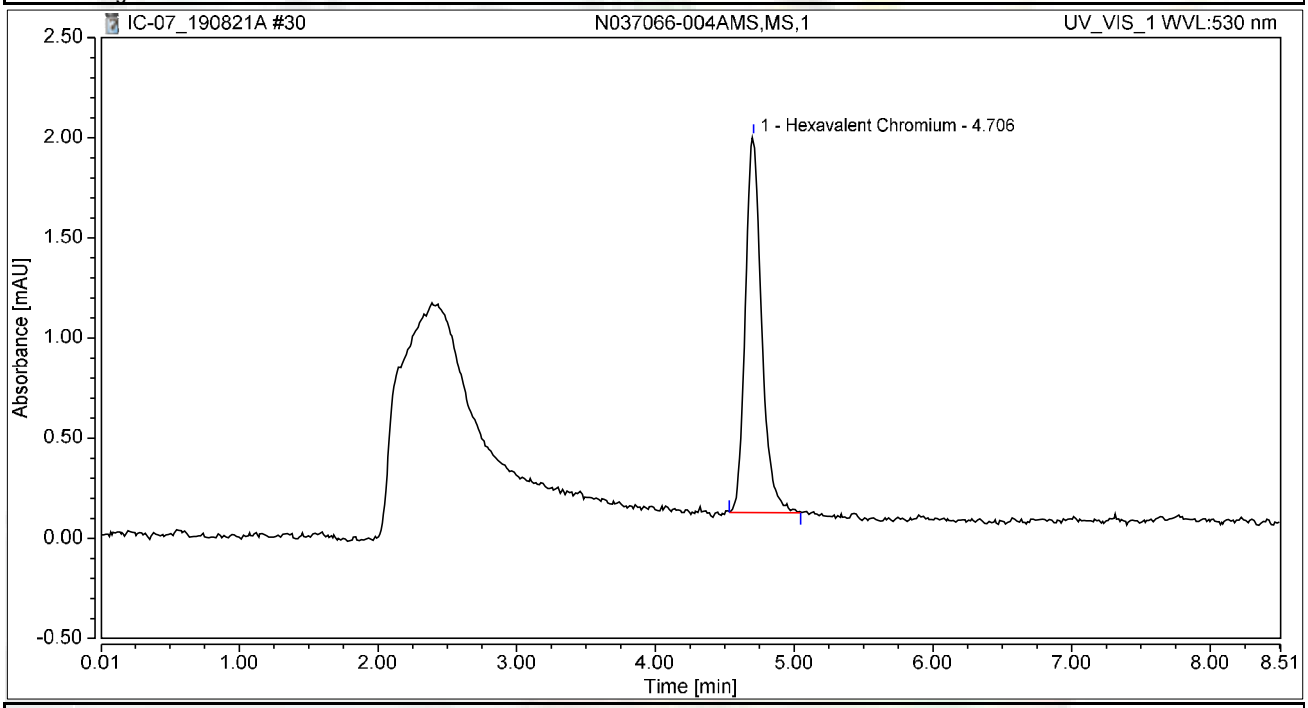
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037066-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 13:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

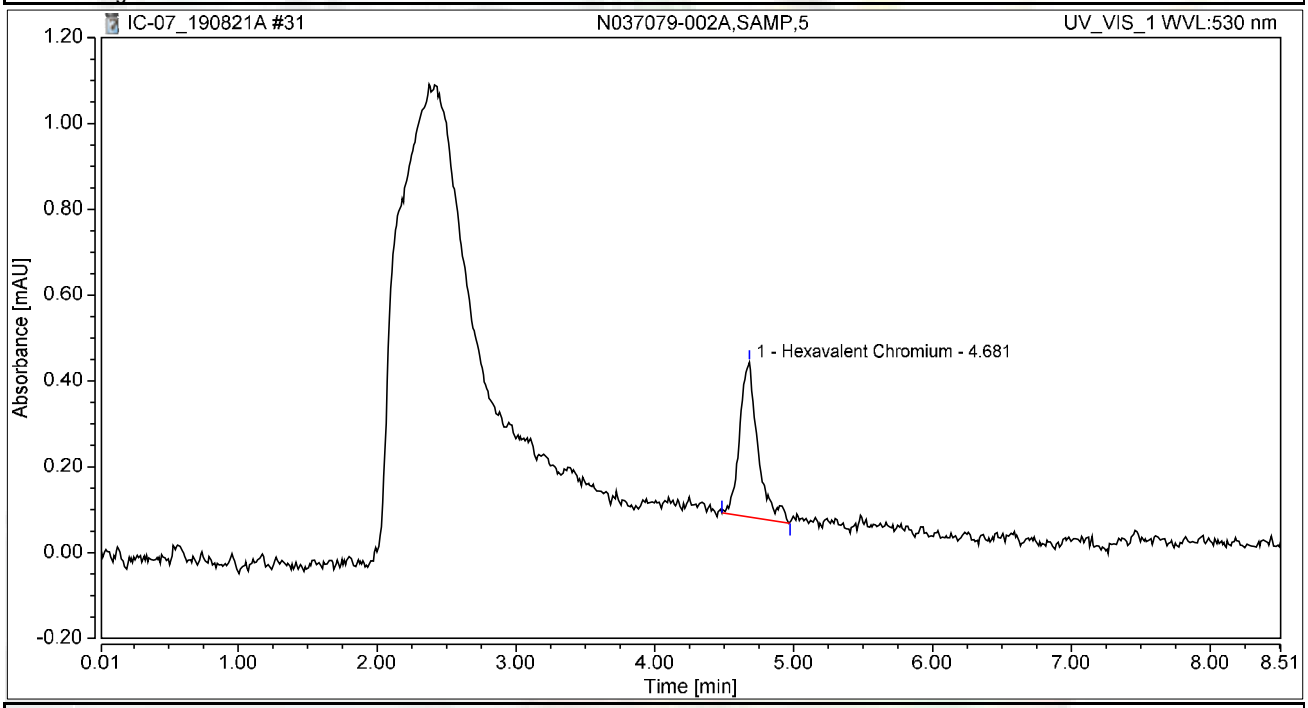
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.255	1.878	100.00	100.00	0.9882
Total:			**0.255**	**1.878**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037079-002A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 13:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

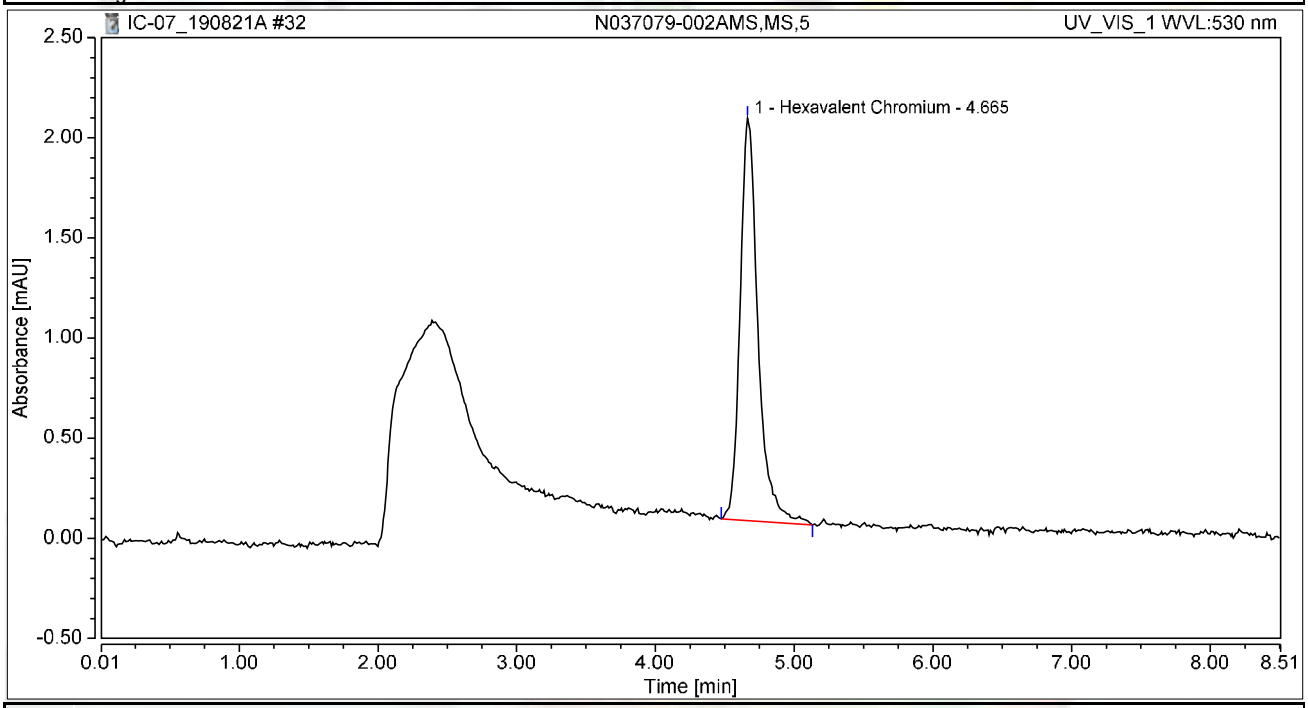
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.055	0.360	100.00	100.00	0.2128
Total:			**0.055**	**0.360**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037079-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

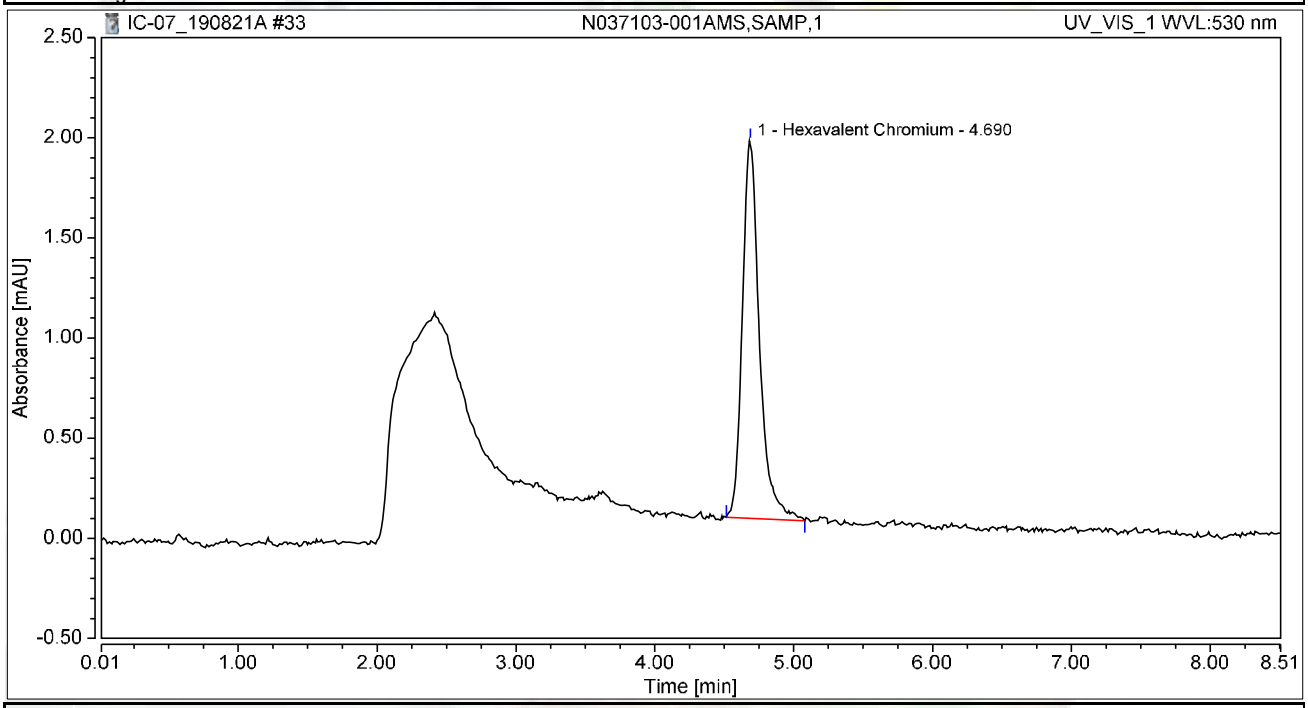
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.302	2.010	100.00	100.00	1.1674
Total:			**0.302**	**2.010**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037103-001AMS,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 13:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

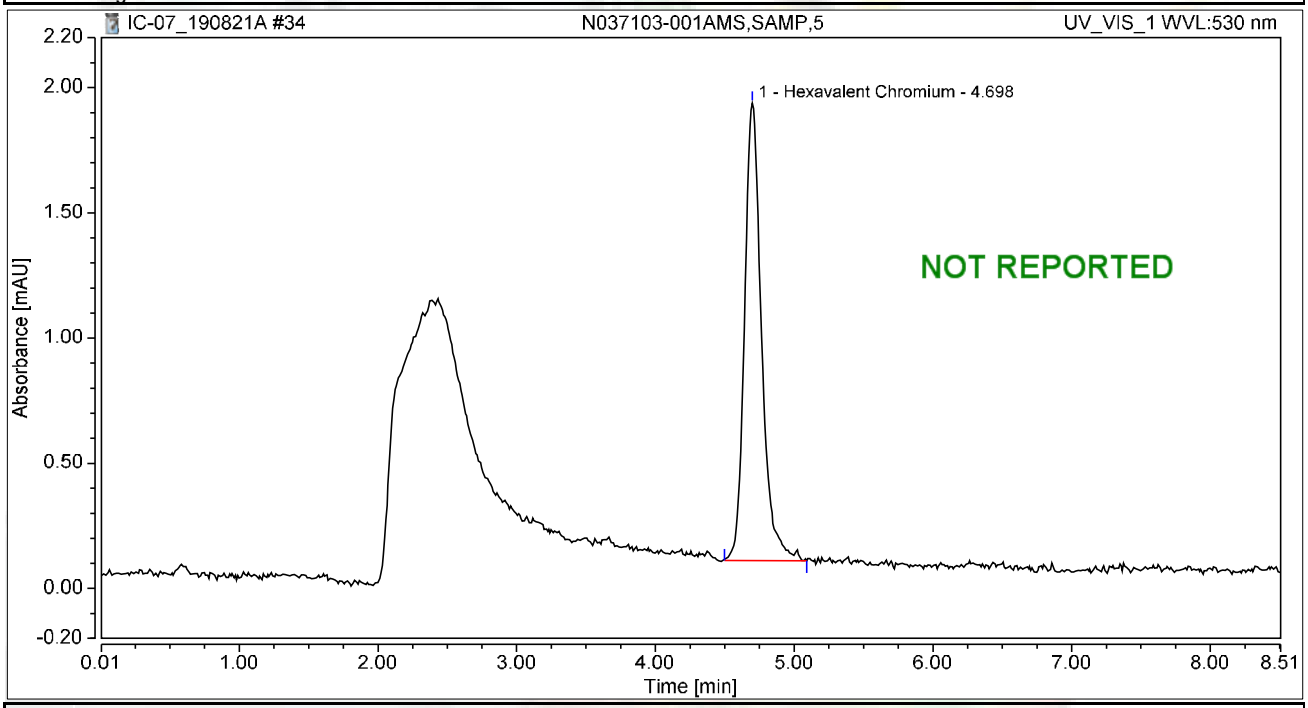
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.269	1.885	100.00	100.00	1.0420
Total:			**0.269**	**1.885**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037103-001AMS,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

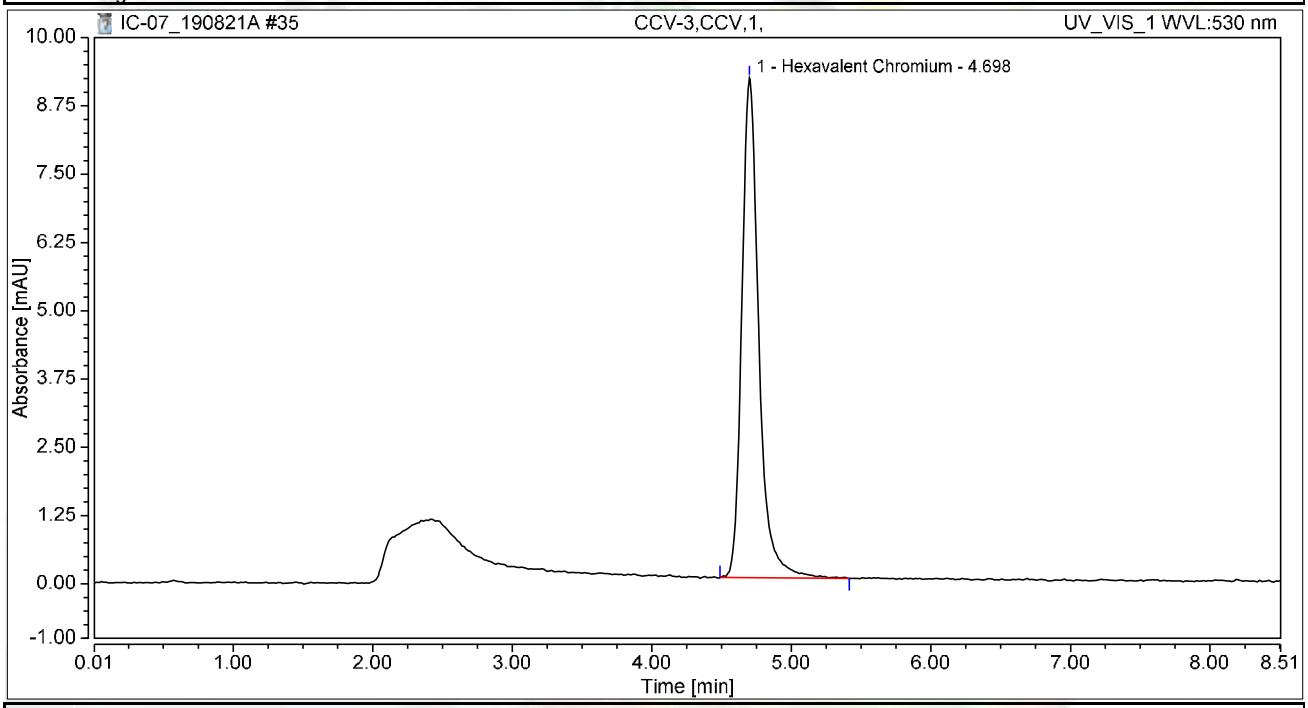
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.261	1.828	100.00	100.00	1.0078
Total:			**0.261**	**1.828**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 14:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

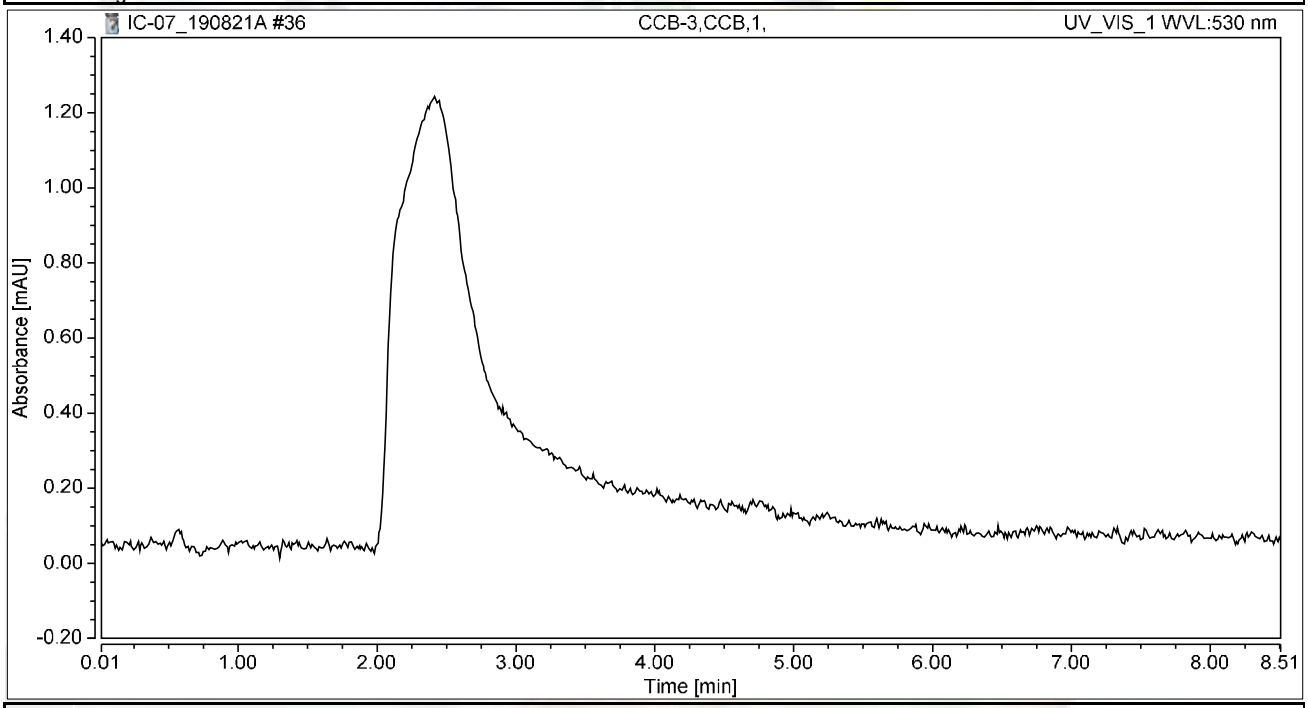
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.293	9.156	100.00	100.00	5.0021
Total:			**1.293**	**9.156**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 14:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

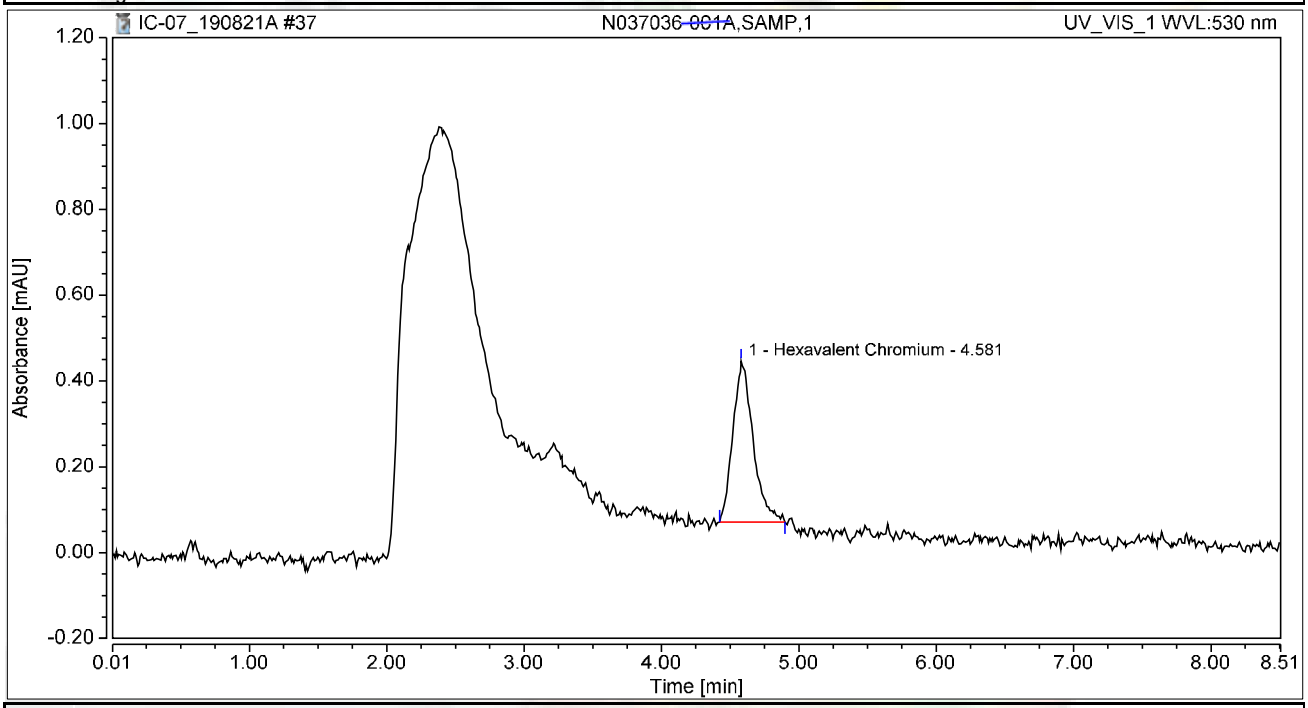
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037036-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 14:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

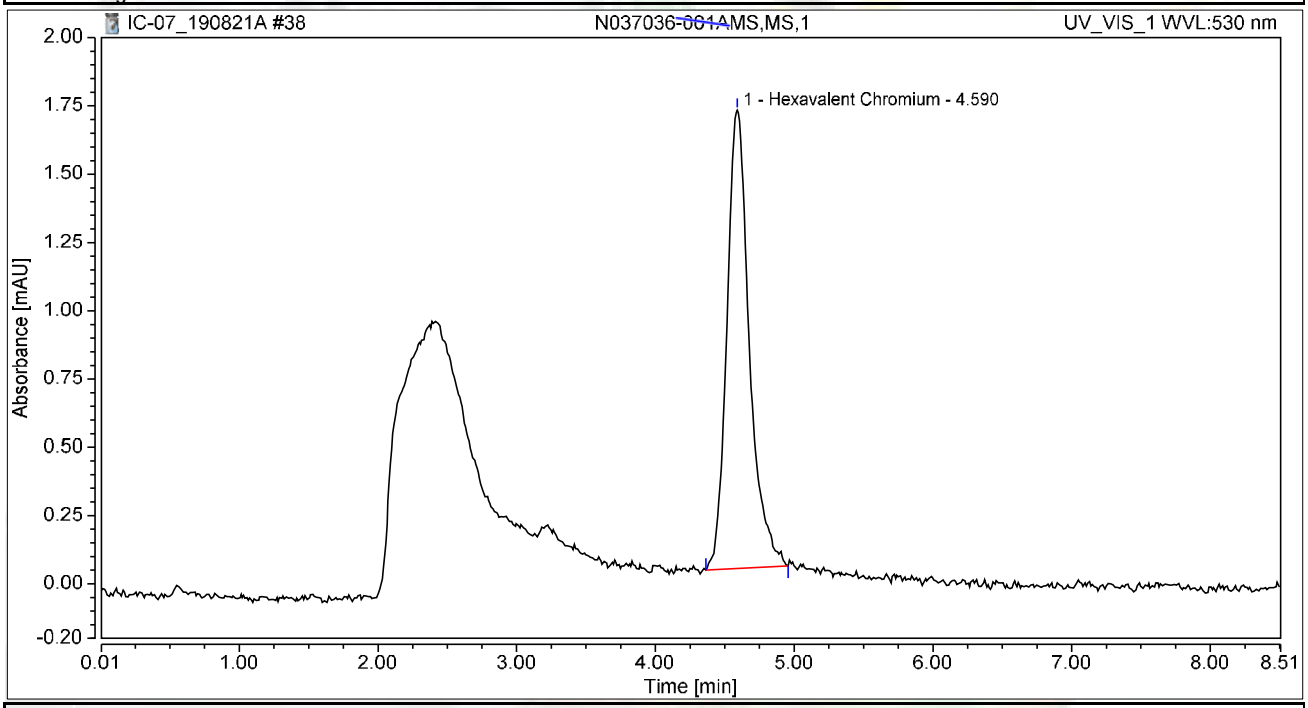
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.581	0.064	0.375	100.00	100.00	0.2474
Total:			**0.064**	**0.375**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037036-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.590	0.315	1.678	100.00	100.00	1.2199
Total:			**0.315**	**1.678**	**100.00**	**100.00**	

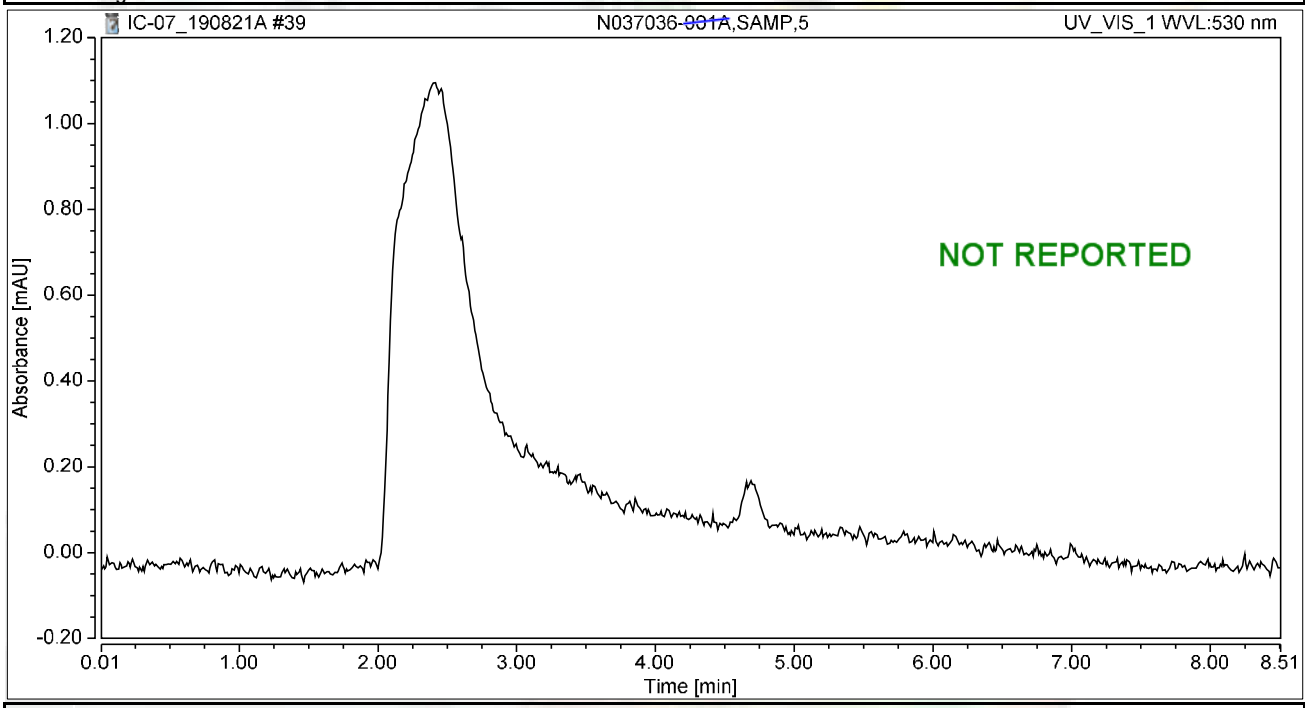
Chromatogram and Results

Injection Details

Injection Name:	**N037036-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 14:45**	*Sample Weight:*	**1.0000**

Chromatogram

001C



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

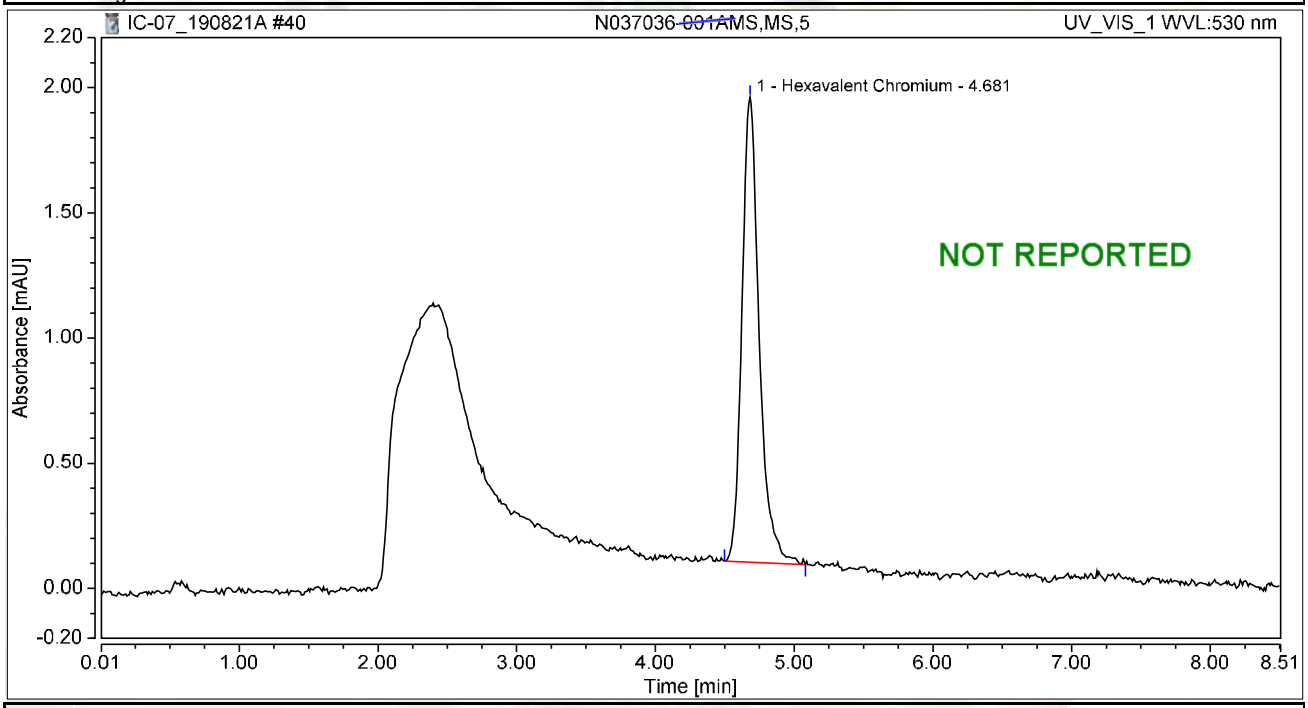
Chromatogram and Results

Injection Details

Injection Name:	**N037036-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 14:54**	*Sample Weight:*	**1.0000**

Chromatogram

001C



Integration Results

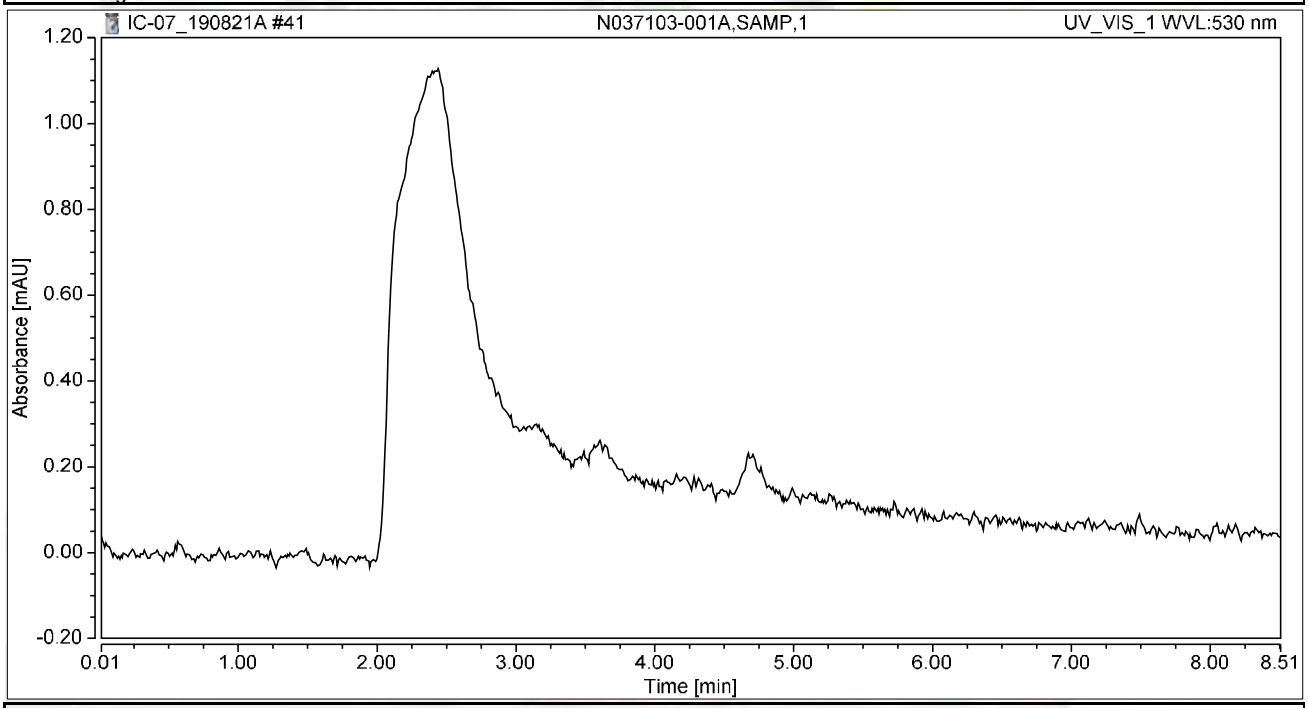
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.268	1.857	100.00	100.00	1.0378
Total:			**0.268**	**1.857**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037103-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

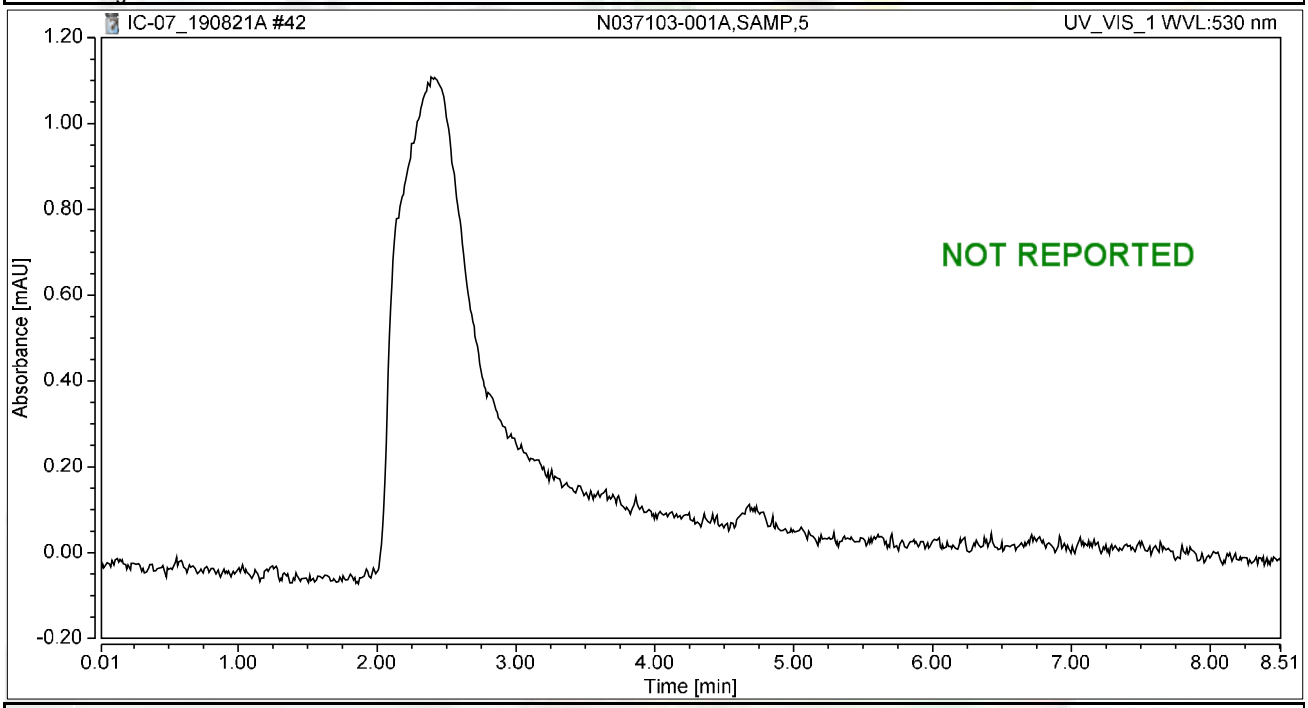
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037103-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 15:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

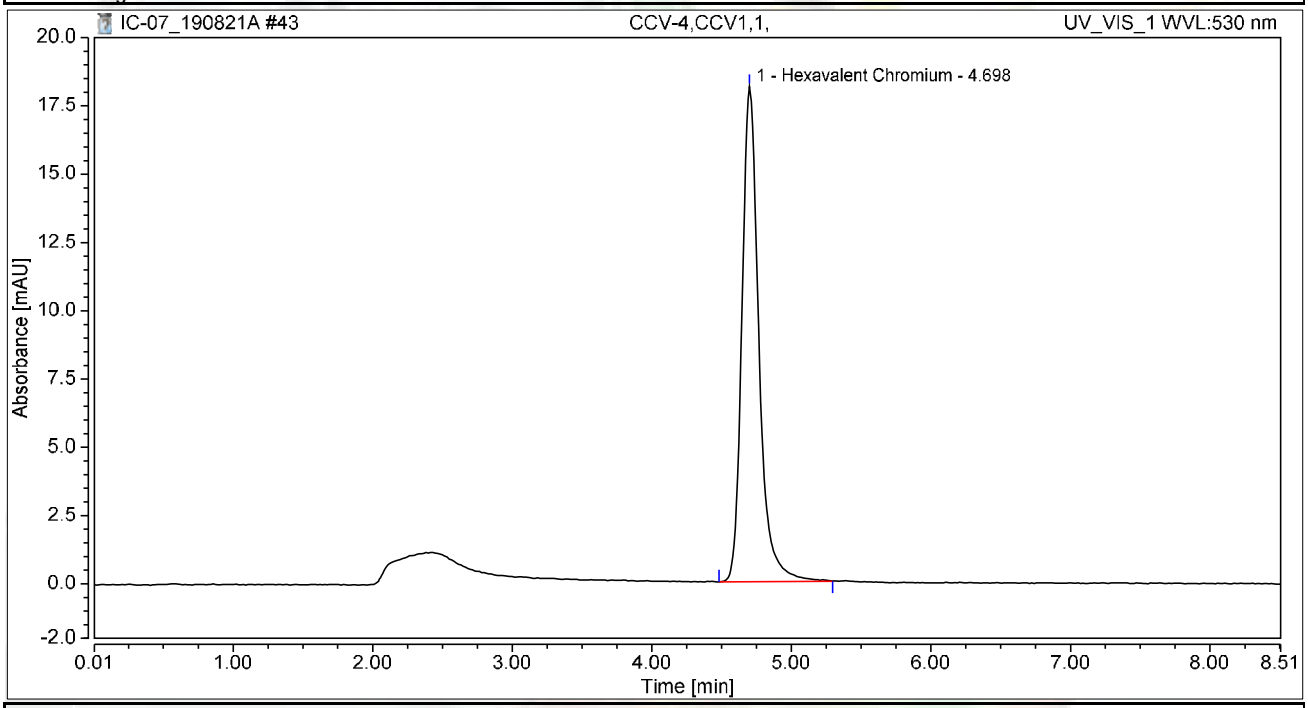
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 15:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

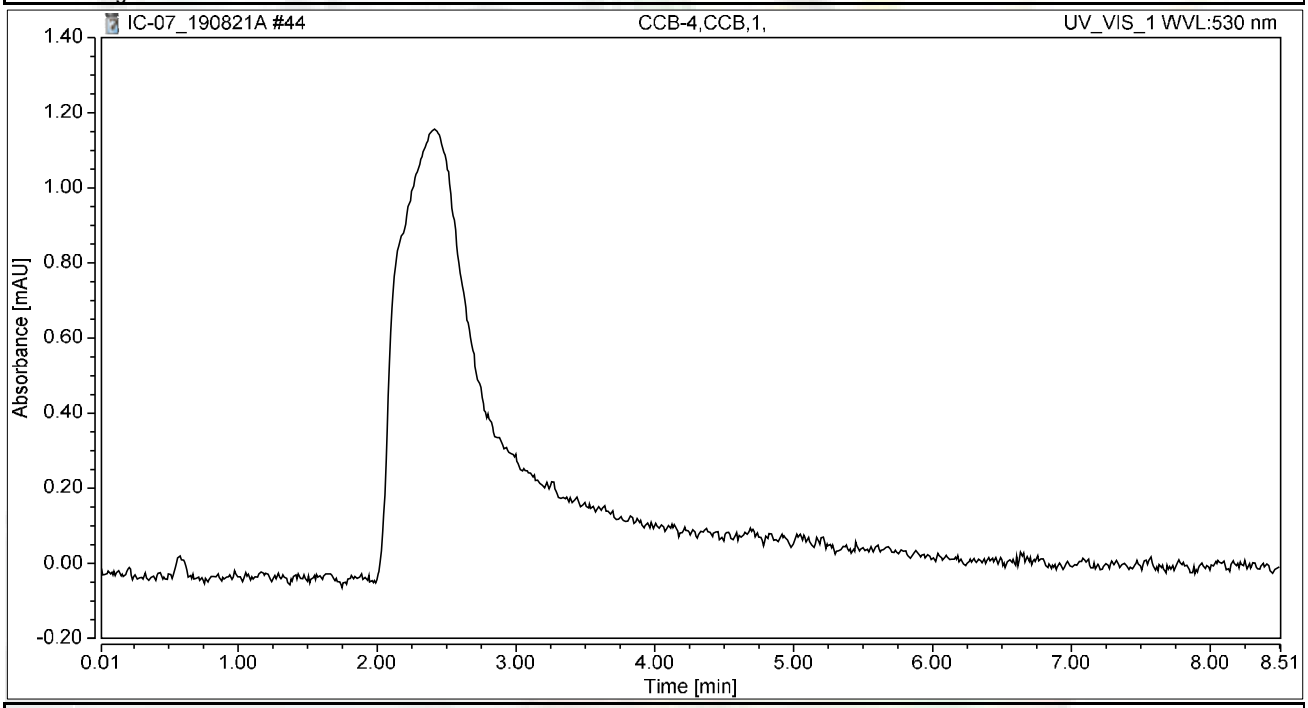
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.547	18.125	100.00	100.00	9.8507
Total:			**2.547**	**18.125**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 15:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

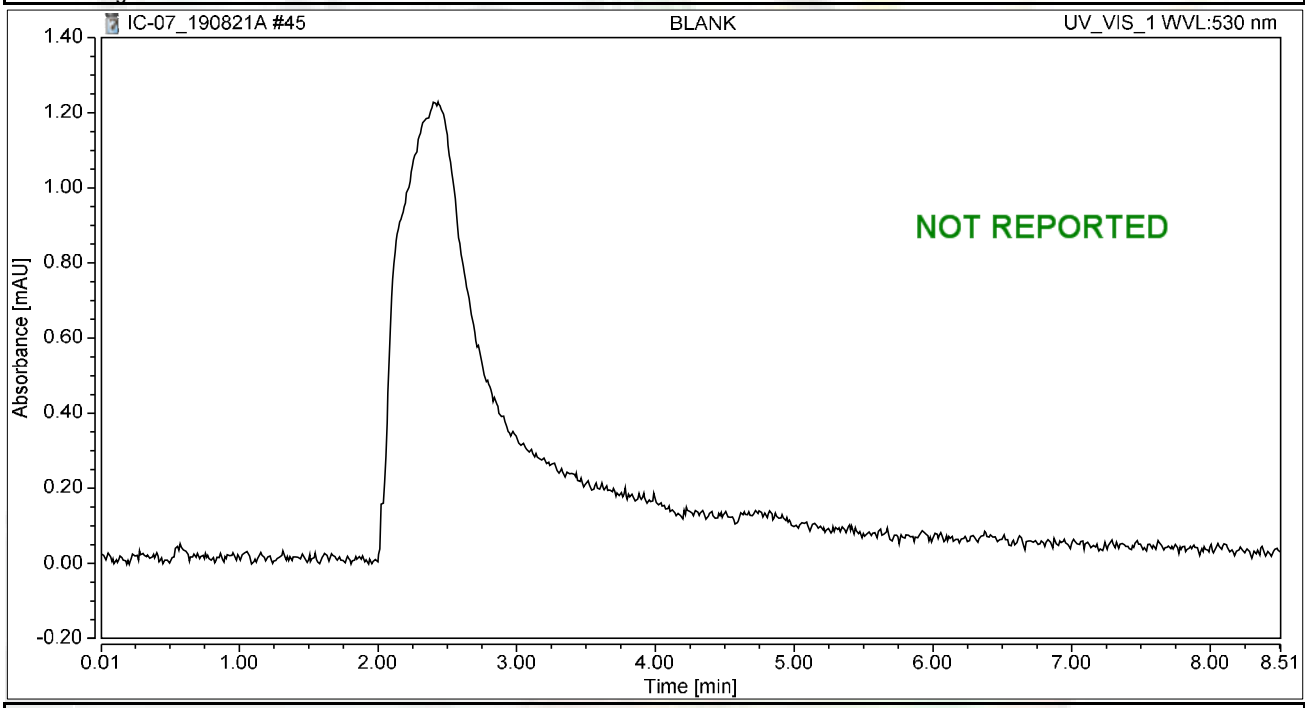
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190731_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/19 15:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136372 **Analyst:** RBA

ASSET #: N037066, N037067 **Date Analyzed:** 9/4/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

~~%Rec of Nitrate/Nitrite as N in CCV-3 failed, low bias. Samples affected are for reanalysis.~~

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer RAB Date: 09/12/2019

2nd Level Reviewer NS Date: 09/12/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037066-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	1.4803	*	1
	=	1.4803	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 1.5 mg/L

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

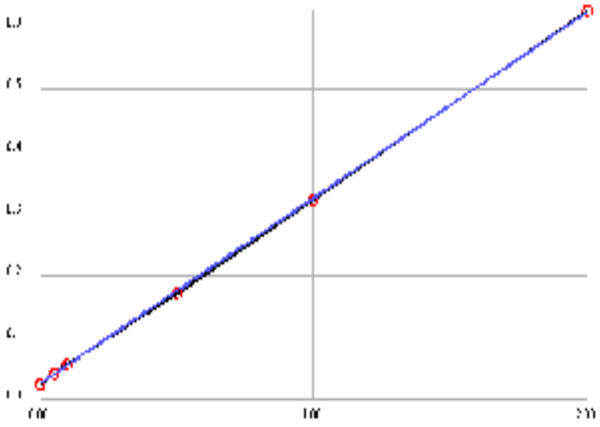
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2995x + 0.0252
Correlation	.999923

Calibrant	Energy	Set	Conc
1	0.0240	0.0000	-0.0040
2	0.0427	0.0500	0.0584
3	0.0582	0.1000	0.1102
4	0.1708	0.5000	0.4862
5	0.3226	1.0000	0.9931
6	0.6260	2.0000	2.0062

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **ICV**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.498	0.050	0.5000	0	99.5	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **CCV**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.482	0.050	0.5000	0	96.4	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **CCV**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.236	0.050	0.5000	0	47.2	90	110				S

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **CCV**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.223	0.050	0.5000	0	44.5	90	110				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ccv-2 and ccv-3 are not reported for NS 09/12/2019

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **ICB**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506789**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **CCB**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **CCB**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136372**
Client ID: **CCB**	Batch ID: **R136372**	TestNo: **SM4500-NO3**		Analysis Date: **9/4/2019**	SeqNo: **3506968**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.035	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ccb-2 and ccb-3 are not reported for NS 09/12/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 09-04-2019 22:14
Time end: 09-05-2019 01:06

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	00:26:23	0.0083		0.0277
2	<BLANK>	00:27:22	0.0006		0.0254
3	<CAL1>	00:28:17	-0.0040	[0]	0.0240
4	<CAL2>	00:29:19	0.0584	[0.05]	0.0427
5	<CAL3>	00:30:13	0.1102	[0.1]	0.0582
6	<CAL4>	00:31:08	0.4862	[0.5]	0.1708
7	<CAL5>	00:32:04	0.9931	[1]	0.3226
8	<CAL6>	00:33:06	2.0062	[2]	0.6260
9	,BLANK,BLANK,1, NOT REPORTED	00:34:00	0.0387		0.0368
10	,ICV,ICV,1,	00:34:55	0.4975		0.1742
11	,ICB,ICB,1,	00:35:57	0.0036		0.0263
12	,MB-H2O,MBLK,1,	00:36:51	-0.0064		0.0233
13	,LCS-H2O,LCS,1,	00:37:46	0.5049		0.1764
14	,N037067-001C,SAMP,1,	00:38:42	0.8047		0.2662
15	,N037067-001CDUP,DUP,1,	00:39:44	0.7663		0.2547
16	,N037036-001D,SAMP,5,	00:40:38	0.5543		0.1912
17	,N037036-001DMS,MS,5,	00:41:34	1.0852		0.3502
18	,N037036-001DMSD,MSD,5,	00:42:35	1.1333		0.3646
19	,N037066-001C,SAMP,1,	00:43:30	1.4803		0.4685
20	,N037066-002C,SAMP,1,	00:44:25	1.4282		0.4529
21	,BLANK, NOT REPORTED	00:45:21	0.0223		0.0319
22	,CCV-1,CCV,1,	00:46:22	0.4818		0.1695
23	,CCB-1,CCB,1,	00:47:17	0.0010		0.0255
24	,N036994-001D,SAMP,1, NOT REPORTED	00:48:18	0.2394		0.0969
25	,N037080-001D,SAMP,1, NOT REPORTED	00:49:14	0.2381		0.0965

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N037081-001D,SAMP,1,	00:50:08	0.2367		0.0961
27	,N037082-001D,SAMP,1,	00:50:57	0.2498		0.1000
28	,N037083-001D,SAMP,1,	00:51:41	0.1356		0.0658
29	,N037084-001D,SAMP,1,	00:52:29	0.2321		0.0947
30	,N037086-001C,SAMP,1,	00:53:12	0.2210		0.0914
31	,N037087-001D,SAMP,100,	00:53:54	0.0557		0.0419
32	,N037088-001D,SAMP,100,	00:54:37	0.0417		0.0377
33	,BLANK,BLANK,1,	00:55:25	0.0190		0.0309
34	,CCV-2,CCV,1,	00:56:09	0.2361		0.0959
35	,CCB-2,CCB,1,	00:56:52	0.0010		0.0255
36	,N037089-001D,SAMP,100,	00:57:40	0.0203		0.0313
37	,N037090-001D,SAMP,50,	00:58:23	0.0197		0.0311
38	,N037091-001D,SAMP,100,	00:59:05	0.0207		0.0314
39	,N037092-001D,SAMP,100,	00:59:55	0.0234		0.0322
40	,N037093-001D,SAMP,100,	01:00:37	0.0264		0.0331
41	,N037094-001D,SAMP,100,	01:01:20	0.0223		0.0319
42	,N037067-002C,SAMP,1,	01:02:09	0.4481		0.1594
43	,BLANK,	01:02:51	-0.0040		0.0240
44	,CCV-3,CCV,1,	01:03:35	0.2227		0.0919
45	,CCB-3,CCB,1,	01:04:17	0.0347		0.0356

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/4/2019
Time Analyzed: 10:14 PM
Analyzed By: RBA

Reagent ID #
Ammonium Chloride reagent/Buffer: R190904A
Color reagent R190904C
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037036-001D		8.83							
N037067-001C		8.09							
N037067-002C		8.01							
N037066-001C		8.13							
N037066-002C		7.58							
N036994-001D		8.78							
N037080-001D		8.09							
N037081-001D		7.50							
N037082-001D		7.46							
N037083-001D		7.93							
N037084-001D		7.89							
N037086-001C		8.49							
N037087-001D		8.19							
N037088-001D		8.39							
N037089-001D		9.02							
N037090-001D		7.52							
N037091-001D		7.87							
N037092-001D		8.65							
N037093-001D		8.22							
N037094-001D		7.54							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75122
ASSET #: N037066

Instrument ID: ICPMS-02
Analyst: CEI

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Date Analyzed: 9/5/2019

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)		X			X	
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?		X			X	
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

IS of Sb and Cd in CCV7 / CCV8 / CCV9 / CCV12 / CCV13 failed. However, samples are enclosed by CCV4, thus unaffected.
% Rec of Se in CCV6 / CCV9 / CCV11 / CCV12 failed, low bias. However, samples are enclosed by CCV4, thus unaffected
% Rec of Sb in CCV5 / CCV7 / CCV8 / CCV9 / CCV10 / CCV11 /CCV12 / CCV13 failed, low bias.However, samples are enclos
by CCV4.
% Rec of Cd in CCV5 / CCV7 / CCV8 / CCV9 / CCV10 / CCV12 / CCV13 failed, low bias. However, Samples are enclosed by CCV4
IS of Se in CCV5/CCV7/CCV9/CCV10/CCV12/CCB12/CCV13/CCB13/ICSAB4 failed. However, samples are enclosed by
CCV4 and ICSAB2, thus unaffected.
% RSD OF Se in LLICV failed. However, % Recovery passed criteria.
% Rec of Cr in N037066-001D-MS/MSD failed, low bias. However, LCS passed criteria.
Dilution test for Cr failed. However, PS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 09/12/19

2nd Level Reviewer for NS Date: 09/12/19

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037066-001D** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 46.1794 * 5 *(25 / 25)

Manganese , ug/L = 230.897

Reporting results in two significant figures,

Manganese , ug/L = 230

% RSD SUMMARY

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	107 Ag [3]				111 Cd [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.094	8.35	15	PASS	0.11	11.45	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.49	2.77	15	PASS	0.52	7.57	15	PASS
Std3-5/50 ppb	ICAL	1	5.3	9.14	15	PASS	5.01	1.97	15	PASS
Std4-10/100 ppb	ICAL	1	9.91	1.37	15	PASS	9.88	0.88	15	PASS
Std5-20/200 ppb	ICAL	1	19.96	0.57	15	PASS	20	0.36	15	PASS
Std6-40/400 ppb	ICAL	1	40.0038	0.73	15	PASS	39.78	0.48	15	PASS
Std7-100/1000 ppb	ICAL	1	100.25	0.44	15	PASS	100.1	0.73	15	PASS
Std8-200/2000 ppb	ICAL	1	210.42	2.68	15	PASS	199.5	0.11	15	PASS
ICV	ICV	1	10.024	3.84	15	PASS	10.25	3.28	15	PASS
ICB	ICB	1	0.0092	30.86	15	<PQL	0.0028	3.56	15	PASS
LLICV	CCV1	1	0.51	4.92	20	PASS	0.54	2.65	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.0032	86.27	15	<PQL
ICSAB1	ICSAB	1	19.082	0.78	15	PASS	21.54	5.12	15	PASS
LLICV	CCV1	1	0.5	1.7	20	PASS	0.52	3.89	20	PASS
MB-75122	MBLK	1	0.0029	127.62	15	<PQL	<0.000	N/A	15	<PQL
LCS-75122	LCS	1	9.73	1.26	15	PASS	10.8	7.1	15	PASS
N037066-001D	SAMP	1	<0.000	N/A	15	<PQL	0.044	9.79	15	PASS
N037066-001D	SAMP	5	<0.000	N/A	15	<PQL	0.0037	87.099	15	<PQL
N037066-001D	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037066-001D-PS	PS	1	9.18	0.87	15	PASS	9.83	2.018	15	PASS
N037066-001D-PS	PS	5	1.98	2.51	15	PASS	2.21	5.31	15	PASS
N037066-001D-MS	MS	1	9.21	1.32	15	PASS	9.95	2.44	15	PASS
N037066-001D-MS	MS	5	1.96	4.17	15	PASS	2.17	8.32	15	PASS
N037066-001D-MSD	MSD	1	9.2	1.29	15	PASS	10.044	1.32	15	PASS
CCV1	CCV	1	18.96	3.24	15	PASS	19.51	4.57	15	PASS
CCB1	CCB	1	0.017	24.22	15	<PQL	0.016	30.46	15	<PQL
N037066-001D-MSD	MSD	5	2.00032	1.34	15	PASS	2.2	3.62	15	PASS
N037066-002D	SAMP	1	<0.000	N/A	15	<PQL	0.039	46.69	15	<PQL
N037066-002D	SAMP	5	<0.000	N/A	15	<PQL	0.0044	2.89	15	PASS
N037067-001F	SAMP	1	<0.000	N/A	15	<PQL	0.014	5.61	15	PASS
N037067-001F	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	<0.000	N/A	15	<PQL	0.043	27.98	15	<PQL
N037067-002F	SAMP	5	<0.000	N/A	15	<PQL	0.007	34.26	15	<PQL
N037104-001A	SAMP	1	<0.000	N/A	15	<PQL	0.011	39.77	15	<PQL
N037105-001B	SAMP	1	<0.000	N/A	15	<PQL	0.066	14.092	15	PASS
N037107-001D	SAMP	1	<0.000	N/A	15	<PQL	0.012	24.14	15	<PQL
CCV2	CCV	1	18.47	2.23	15	PASS	18.23	0.57	15	PASS
CCB2	CCB	1	0.014	29.35	15	<PQL	0.0025	46.83	15	<PQL
N037107-001D	SAMP	5	<0.000	N/A	15	<PQL	0.0029	144.65	15	<PQL
N037107-002D	SAMP	1	<0.000	N/A	15	<PQL	0.021	46.7	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	107 Ag [3]				111 Cd [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	<0.000	N/A	15	<PQL	0.0048	38.07	15	<PQL
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	0.022	17.95	15	<PQL
N037107-003D	SAMP	5	<0.000	N/A	15	<PQL	0.0005	1211.46	15	<PQL
N037107-004D	SAMP	1	<0.000	N/A	15	<PQL	0.05	7.077	15	PASS
N037107-004D	SAMP	5	<0.000	N/A	15	<PQL	0.011	6.98	15	PASS
N037107-005D	SAMP	1	<0.000	N/A	15	<PQL	0.013	17.35	15	<PQL
N037107-005D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	<0.000	N/A	15	<PQL	0.0079	41.28	15	<PQL
CCV3	CCV	1	18.92	2.93	15	PASS	18.43	2.28	15	PASS
CCB3	CCB	1	0.016	38.68	15	<PQL	0.0023	200.052	15	<PQL
N037107-006D	SAMP	5	<0.000	N/A	15	<PQL	0.00097	173.62	15	<PQL
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	0.025	18.12	15	<PQL
N037107-007D	SAMP	5	<0.000	N/A	15	<PQL	0.0018	146.39	15	<PQL
N037107-008D	SAMP	1	<0.000	N/A	15	<PQL	0.04	11.45	15	PASS
N037107-008D	SAMP	5	<0.000	N/A	15	<PQL	0.0072	134.75	15	<PQL
N037066-001D	SAMP	1	<0.000	N/A	15	<PQL	0.041	22.79	15	<PQL
N037067-001F	SAMP	1	<0.000	N/A	15	<PQL	0.024	10.33	15	PASS
N037067-002F	SAMP	1	<0.000	N/A	15	<PQL	0.043	22.56	15	<PQL
N037067-002F	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037105-001B	SAMP	5	<0.000	N/A	15	<PQL	0.0099	68.51	15	<PQL
CCV4	CCV	1	18.57	1.86	15	PASS	18.1	2.18	15	PASS
CCB4	CCB	1	0.011	43.23	15	<PQL	0.0017	294.94	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.0047	151.87	15	<PQL
ICSAB2	ICSAB	1	18.91	4.98	15	PASS	20.22	0.99	15	PASS
N037113-001A	SAMP	1	<0.000	N/A	15	<PQL	0.0081	29.028	15	<PQL
N037113-001A	SAMP	5	<0.000	N/A	15	<PQL	0.0062	63.91	15	<PQL
N037115-001A	SAMP	1	<0.000	N/A	15	<PQL	0.051	28.52	15	<PQL
N037115-001A	SAMP	5	<0.000	N/A	15	<PQL	0.0067	11.64	15	PASS
N037107-002D	SAMP	1	<0.000	N/A	15	<PQL	0.028	57.034	15	<PQL
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	0.028	39.34	15	<PQL
N037107-006D	SAMP	1	<0.000	N/A	15	<PQL	0.0078	16.0089	15	<PQL
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	0.026	36.11	15	<PQL
CCV5	CCV	1	18.24	2.69	15	PASS	17.95	1.91	15	PASS
CCB5	CCB	1	0.014	28.9	15	<PQL	0.0053	92.7	15	<PQL
CCV6	CCV	1	18.4	0.48	15	PASS	18.084	1.73	15	PASS
CCB6	CCB	1	0.02	39.25	15	<PQL	0.01	110.33	15	<PQL
CCV7	CCV	1	18.46	2.31	15	PASS	17.84	2.38	15	PASS
CCB7	CCB	1	0.019	15.58	15	<PQL	0.0048	193.2	15	<PQL
CCV8	CCV	1	18.23	1.22	15	PASS	17.58	1.27	15	PASS
CCB8	CCB	1	0.019	34.68	15	<PQL	0.0039	187.16	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.0037	151.28	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	107 Ag [3]				111 Cd [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	20.22	5.25	15	PASS	18.98	3.95	15	PASS
CCV9	CCV	1	18.22	1.25	15	PASS	17.89	1.5	15	PASS
CCB9	CCB	1	0.015	10.11	15	PASS	0.0071	15.49	15	<PQL
CCV10	CCV	1	18.35	1.77	15	PASS	17.76	2.0053	15	PASS
CCB10	CCB	1	0.018	2.7	15	PASS	0.0068	57.92	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	0.0022	264.85	15	<PQL
ICSAB4	ICSAB	1	18.76	5.037	15	PASS	20.37	10.92	15	PASS
CCV11	CCV	1	18.39	0.53	15	PASS	18.076	1.25	15	PASS
CCB11	CCB	1	0.028	27.29	15	<PQL	0.0057	17.81	15	<PQL
CCV12	CCV	1	18.22	0.65	15	PASS	17.66	2.55	15	PASS
CCB12	CCB	1	0.028	11.13	15	PASS	0.0043	45.92	15	<PQL
CCV13	CCV	1	18.078	0.63	15	PASS	17.52	1.95	15	PASS
CCB13	CCB	1	0.026	39.5	15	<PQL	0.0055	69.97	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	0.0073	85.32	15	<PQL
ICSAB5	ICSAB	1	18.51	5.91	15	PASS	17.79	1.77	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	121 Sb [3]				137 Ba [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	7.65	15	PASS	0.099	15.016	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.51	6.012	15	PASS	0.48	2.64	15	PASS
Std3-5/50 ppb	ICAL	1	4.91	0.59	15	PASS	4.92	1.81	15	PASS
Std4-10/100 ppb	ICAL	1	9.9	0.7	15	PASS	9.99	1.41	15	PASS
Std5-20/200 ppb	ICAL	1	19.99	0.8	15	PASS	20.14	1.66	15	PASS
Std6-40/400 ppb	ICAL	1	40.043	0.97	15	PASS	40.42	1.32	15	PASS
Std7-100/1000 ppb	ICAL	1	100.58	0.3	15	PASS	100.23	0.7	15	PASS
Std8-200/2000 ppb	ICAL	1	220.77	1.38	15	PASS	199.79	0.37	15	PASS
ICV	ICV	1	10.54	1.079	15	PASS	9.96	1.27	15	PASS
ICB	ICB	1	0.036	13.097	15	PASS	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.59	1.065	20	PASS	1.041	6.83	20	PASS
ICSA1	ICSA	1	0.025	15.82	15	<PQL	0.29	10.73	15	PASS
ICSAB1	ICSAB	1	21.93	4.94	15	PASS	21.15	0.8	15	PASS
LLICV	CCV1	1	0.74	8.69	20	PASS	1.063	3	20	PASS
MB-75122	MBLK	1	0.023	30.73	15	<PQL	<0.000	N/A	15	<PQL
LCS-75122	LCS	1	11.12	7.29	15	PASS	9.93	1.72	15	PASS
N037066-001D	SAMP	1	0.11	3.99	15	PASS	102.95	0.71	15	PASS
N037066-001D	SAMP	5	0.026	22.53	15	<PQL	22.059	0.3	15	PASS
N037066-001D	SAMP	25	0.0051	47.2	15	<PQL	4.44	1.6	15	PASS
N037066-001D-PS	PS	1	10.8	0.67	15	PASS	111.64	0.9	15	PASS
N037066-001D-PS	PS	5	2.3	3.42	15	PASS	24.55	0.6	15	PASS
N037066-001D-MS	MS	1	10.89	0.88	15	PASS	109.77	0.52	15	PASS
N037066-001D-MS	MS	5	2.33	1.23	15	PASS	23.52	0.74	15	PASS
N037066-001D-MSD	MSD	1	10.82	1.66	15	PASS	108.93	1.095	15	PASS
CCV1	CCV	1	19.33	4.8	15	PASS	20.56	0.75	15	PASS
CCB1	CCB	1	0.11	10.11	15	PASS	0.019	32.23	15	<PQL
N037066-001D-MSD	MSD	5	2.41	1.49	15	PASS	23.011	0.45	15	PASS
N037066-002D	SAMP	1	0.12	1.65	15	PASS	102.28	0.36	15	PASS
N037066-002D	SAMP	5	0.028	12.71	15	PASS	21.66	2.061	15	PASS
N037067-001F	SAMP	1	0.028	17.27	15	<PQL	87.9	1.027	15	PASS
N037067-001F	SAMP	5	0.0077	35.0024	15	<PQL	18.65	0.64	15	PASS
N037067-002F	SAMP	1	0.043	6.24	15	PASS	104.91	0.56	15	PASS
N037067-002F	SAMP	5	0.0041	16.086	15	<PQL	22.072	1.24	15	PASS
N037104-001A	SAMP	1	0.041	16.8	15	<PQL	127.28	1.36	15	PASS
N037105-001B	SAMP	1	0.059	6.69	15	PASS	293.38	1.0054	15	PASS
N037107-001D	SAMP	1	0.061	10.052	15	PASS	60.1	0.56	15	PASS
CCV2	CCV	1	18.064	2.19	15	PASS	20.9	1.57	15	PASS
CCB2	CCB	1	0.12	7.21	15	PASS	0.012	33.8	15	<PQL
N037107-001D	SAMP	5	0.051	5.95	15	PASS	12.36	0.26	15	PASS
N037107-002D	SAMP	1	0.046	8.26	15	PASS	296.79	1.031	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	121 Sb [3]				137 Ba [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	0.016	45.79	15	<PQL	62.24	1.32	15	PASS
N037107-003D	SAMP	1	0.049	5.81	15	PASS	169.42	0.2	15	PASS
N037107-003D	SAMP	5	0.0068	39.81	15	<PQL	35.81	0.92	15	PASS
N037107-004D	SAMP	1	0.055	18.054	15	<PQL	165.66	0.59	15	PASS
N037107-004D	SAMP	5	0.009	41.2	15	<PQL	35.42	1.46	15	PASS
N037107-005D	SAMP	1	0.015	23.94	15	<PQL	44.059	0.52	15	PASS
N037107-005D	SAMP	5	<0.000	N/A	15	<PQL	9.46	1.15	15	PASS
N037107-006D	SAMP	1	0.1	6.28	15	PASS	249.72	1.28	15	PASS
CCV3	CCV	1	18.5	4.17	15	PASS	20.75	0.94	15	PASS
CCB3	CCB	1	0.11	9.7	15	PASS	0.031	22.36	15	<PQL
N037107-006D	SAMP	5	0.062	6.48	15	PASS	52.15	0.85	15	PASS
N037107-007D	SAMP	1	0.1	7.29	15	PASS	155.39	0.41	15	PASS
N037107-007D	SAMP	5	0.022	7.26	15	PASS	32.41	0.26	15	PASS
N037107-008D	SAMP	1	0.066	16.074	15	<PQL	85.98	1.27	15	PASS
N037107-008D	SAMP	5	0.011	34.074	15	<PQL	18.1	1.47	15	PASS
N037066-001D	SAMP	1	0.087	9.21	15	PASS	104.22	1.9	15	PASS
N037067-001F	SAMP	1	0.019	14.71	15	PASS	90.04	1.018	15	PASS
N037067-002F	SAMP	1	0.043	20.033	15	<PQL	105.64	0.54	15	PASS
N037067-002F	SAMP	25	<0.000	N/A	15	<PQL	4.5	0.83	15	PASS
N037105-001B	SAMP	5	0.0099	22.78	15	<PQL	62.029	0.54	15	PASS
CCV4	CCV	1	18.3	3.51	15	PASS	21.28	2.69	15	PASS
CCB4	CCB	1	0.11	2.47	15	PASS	0.012	18.96	15	<PQL
ICSA2	ICSA	1	0.039	12.95	15	PASS	0.33	6.12	15	PASS
ICSAB2	ICSAB	1	21.17	0.74	15	PASS	21.83	1.49	15	PASS
N037113-001A	SAMP	1	0.2	14.011	15	PASS	94.59	0.74	15	PASS
N037113-001A	SAMP	5	0.046	11.29	15	PASS	20.34	0.81	15	PASS
N037115-001A	SAMP	1	0.083	8.78	15	PASS	132.95	1.13	15	PASS
N037115-001A	SAMP	5	0.017	12.51	15	PASS	28.43	1.7	15	PASS
N037107-002D	SAMP	1	0.029	27.14	15	<PQL	299.87	1.11	15	PASS
N037107-003D	SAMP	1	0.044	10.89	15	PASS	172.57	1.51	15	PASS
N037107-006D	SAMP	1	0.094	12.43	15	PASS	255.47	0.43	15	PASS
N037107-007D	SAMP	1	0.081	14.62	15	PASS	155.081	0.48	15	PASS
CCV5	CCV	1	17.72	2.055	15	PASS	21.58	1.66	15	PASS
CCB5	CCB	1	0.11	8.56	15	PASS	0.037	32.61	15	<PQL
CCV6	CCV	1	18.079	1.73	15	PASS	21.28	0.85	15	PASS
CCB6	CCB	1	0.11	10.84	15	PASS	0.029	29.7	15	<PQL
CCV7	CCV	1	17.95	1.77	15	PASS	21.28	0.8	15	PASS
CCB7	CCB	1	0.11	5.6	15	PASS	0.04	28.16	15	<PQL
CCV8	CCV	1	17.54	0.86	15	PASS	21.39	1.32	15	PASS
CCB8	CCB	1	0.13	5.69	15	PASS	0.02	33.99	15	<PQL
ICSA3	ICSA	1	0.035	20.62	15	<PQL	0.31	4.43	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	121 Sb [3]				137 Ba [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	19.7	2.77	15	PASS	21.8	0.63	15	PASS
CCV9	CCV	1	17.67	0.56	15	PASS	21.53	0.45	15	PASS
CCB9	CCB	1	0.13	1.95	15	PASS	0.035	16.24	15	<PQL
CCV10	CCV	1	17.61	0.38	15	PASS	21.58	0.42	15	PASS
CCB10	CCB	1	0.13	5.58	15	PASS	0.027	23.077	15	<PQL
ICSA4	ICSA	1	0.039	7.36	15	PASS	0.34	2.76	15	PASS
ICSAB4	ICSAB	1	21.13	10.38	15	PASS	22.28	0.36	15	PASS
CCV11	CCV	1	17.94	1.08	15	PASS	21.94	0.85	15	PASS
CCB11	CCB	1	0.13	1.64	15	PASS	0.035	27.51	15	<PQL
CCV12	CCV	1	17.44	1.11	15	PASS	21.9	1.099	15	PASS
CCB12	CCB	1	0.12	5.87	15	PASS	0.054	19.7	15	<PQL
CCV13	CCV	1	17.48	0.77	15	PASS	21.97	0.42	15	PASS
CCB13	CCB	1	0.12	4.98	15	PASS	0.052	5.85	15	PASS
ICSA5	ICSA	1	0.033	32.83	15	<PQL	0.32	3.11	15	PASS
ICSAB5	ICSAB	1	18.6	0.78	15	PASS	22.59	0.78	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	205 Tl [3]				208 Pb [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.096	6.68	15	PASS	0.099	3.029	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.49	0.84	15	PASS	0.51	1.14	15	PASS
Std3-5/50 ppb	ICAL	1	5.01	0.16	15	PASS	5.051	0.36	15	PASS
Std4-10/100 ppb	ICAL	1	9.97	1.16	15	PASS	10.016	0.091	15	PASS
Std5-20/200 ppb	ICAL	1	19.93	0.42	15	PASS	20.029	0.36	15	PASS
Std6-40/400 ppb	ICAL	1	40.043	0.25	15	PASS	39.98	0.13	15	PASS
Std7-100/1000 ppb	ICAL	1	108.84	1.088	15	PASS	107.98	0.23	15	PASS
Std8-200/2000 ppb	ICAL	1	212.25	0.79	15	PASS	214.1	0.14	15	PASS
ICV	ICV	1	9.33	8.63	15	PASS	9.65	9.11	15	PASS
ICB	ICB	1	0.045	3.84	15	PASS	0.0022	26.99	15	<PQL
LLICV	CCV1	1	0.46	1.57	20	PASS	1.063	1.92	20	PASS
ICSA1	ICSA	1	0.018	14.32	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.4	0.45	15	PASS	18.83	0.87	15	PASS
LLICV	CCV1	1	0.47	3.19	20	PASS	1.058	0.93	20	PASS
MB-75122	MBLK	1	0.004	84.84	15	<PQL	<0.000	N/A	15	<PQL
LCS-75122	LCS	1	9.88	0.98	15	PASS	10.15	1.096	15	PASS
N037066-001D	SAMP	1	0.84	0.89	15	PASS	<0.000	N/A	15	<PQL
N037066-001D	SAMP	5	0.18	0.74	15	PASS	<0.000	N/A	15	<PQL
N037066-001D	SAMP	25	0.037	14.18	15	PASS	<0.000	N/A	15	<PQL
N037066-001D-PS	PS	1	10.82	0.36	15	PASS	9.53	0.37	15	PASS
N037066-001D-PS	PS	5	2.31	0.14	15	PASS	2.065	0.83	15	PASS
N037066-001D-MS	MS	1	10.75	0.47	15	PASS	9.57	0.47	15	PASS
N037066-001D-MS	MS	5	2.26	0.029	15	PASS	2.039	0.5	15	PASS
N037066-001D-MSD	MSD	1	10.85	0.42	15	PASS	9.59	0.53	15	PASS
CCV1	CCV	1	19.93	0.025	15	PASS	19.94	0.46	15	PASS
CCB1	CCB	1	0.024	18.13	15	<PQL	0.00025	818.013	15	<PQL
N037066-001D-MSD	MSD	5	2.27	0.45	15	PASS	2.038	1.7	15	PASS
N037066-002D	SAMP	1	0.79	2.59	15	PASS	<0.000	N/A	15	<PQL
N037066-002D	SAMP	5	0.17	4.64	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	1	0.11	1.77	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	5	0.02	14.61	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	0.051	3.71	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	5	0.0073	48.2	15	<PQL	<0.000	N/A	15	<PQL
N037104-001A	SAMP	1	0.00065	470.5	15	<PQL	<0.000	N/A	15	<PQL
N037105-001B	SAMP	1	0.021	15.74	15	<PQL	<0.000	N/A	15	<PQL
N037107-001D	SAMP	1	0.018	16.41	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	19.57	9.64	15	PASS	19.55	9.36	15	PASS
CCB2	CCB	1	0.0048	16.15	15	<PQL	<0.000	N/A	15	<PQL
N037107-001D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-002D	SAMP	1	0.075	6.51	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	205 Tl [3]				208 Pb [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	0.008	39.54	15	<PQL	<0.000	N/A	15	<PQL
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-003D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-004D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-004D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-005D	SAMP	1	0.025	12.93	15	PASS	<0.000	N/A	15	<PQL
N037107-005D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.041	0.64	15	PASS	20.06	0.21	15	PASS
CCB3	CCB	1	0.00082	214.65	15	<PQL	<0.000	N/A	15	<PQL
N037107-006D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-007D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-008D	SAMP	1	0.00094	154.72	15	<PQL	<0.000	N/A	15	<PQL
N037107-008D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037066-001D	SAMP	1	0.78	1.095	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	1	0.11	0.88	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	0.041	7.67	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037105-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV4	CCV	1	19.42	11.77	15	PASS	19.33	11.48	15	PASS
CCB4	CCB	1	0.00055	189.19	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.5	0.17	15	PASS	18.89	0.32	15	PASS
N037113-001A	SAMP	1	0.0087	12.75	15	PASS	<0.000	N/A	15	<PQL
N037113-001A	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037115-001A	SAMP	1	0.29	2.51	15	PASS	<0.000	N/A	15	<PQL
N037115-001A	SAMP	5	0.049	4.97	15	PASS	<0.000	N/A	15	<PQL
N037107-002D	SAMP	1	0.076	8.14	15	PASS	<0.000	N/A	15	<PQL
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV5	CCV	1	19.85	13.48	15	PASS	19.89	13.27	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	19.73	1.68	15	PASS	19.86	1.28	15	PASS
CCB6	CCB	1	0.012	4.78	15	PASS	0.0022	60.78	15	<PQL
CCV7	CCV	1	19.7	14.21	15	PASS	19.72	13.065	15	PASS
CCB7	CCB	1	0.00096	348.22	15	<PQL	<0.000	N/A	15	<PQL
CCV8	CCV	1	20.28	3.24	15	PASS	20.23	2.51	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	205 Tl [3]				208 Pb [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	21.18	0.41	15	PASS	18.6	0.19	15	PASS
CCV9	CCV	1	20.3	4.43	15	PASS	20.42	4.046	15	PASS
CCB9	CCB	1	0.0029	92.64	15	<PQL	<0.000	N/A	15	<PQL
CCV10	CCV	1	19.38	4.24	15	PASS	19.51	4.053	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	21.42	0.3	15	PASS	18.64	0.0098	15	PASS
CCV11	CCV	1	19.5	2.61	15	PASS	19.64	3.092	15	PASS
CCB11	CCB	1	0.0075	5.27	15	PASS	0.0058	57.073	15	<PQL
CCV12	CCV	1	19.26	5.37	15	PASS	19.3	5.19	15	PASS
CCB12	CCB	1	0.0035	84.26	15	<PQL	<0.000	N/A	15	<PQL
CCV13	CCV	1	17.96	9.75	15	PASS	18	9.56	15	PASS
CCB13	CCB	1	0.0052	81.29	15	<PQL	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	21.35	0.91	15	PASS	18.71	0.27	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	51 V [2]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.099	16.58	15	<PQL	0.092	13.32	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	7.34	15	PASS	0.54	7.27	15	PASS
Std3-5/50 ppb	ICAL	1	5.034	0.95	15	PASS	5.025	2.14	15	PASS
Std4-10/100 ppb	ICAL	1	10.16	1.45	15	PASS	10.12	1.33	15	PASS
Std5-20/200 ppb	ICAL	1	20.0024	0.54	15	PASS	19.96	1.82	15	PASS
Std6-40/400 ppb	ICAL	1	40.0066	0.63	15	PASS	40.27	1.0042	15	PASS
Std7-100/1000 ppb	ICAL	1	101.046	1.29	15	PASS	101.57	1.22	15	PASS
Std8-200/2000 ppb	ICAL	1	199.47	1.32	15	PASS	199.16	1.16	15	PASS
ICV	ICV	1	10.31	1.82	15	PASS	10.19	0.24	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.0039	301.67	15	<PQL
LLICV	CCV1	1	1.084	1.73	20	PASS	1.054	2.73	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.79	0.27	15	PASS	20.3	1.33	15	PASS
LLICV	CCV1	1	1.038	5.91	20	PASS	1.051	2.16	20	PASS
MB-75122	MBLK	1	0.002	190.4	15	<PQL	0.0022	140.16	15	<PQL
LCS-75122	LCS	1	9.98	0.33	15	PASS	10.085	1.23	15	PASS
N037066-001D	SAMP	1	3.67	4.015	15	PASS	88.47	1.64	15	PASS
N037066-001D	SAMP	5	0.76	6.93	15	PASS	19.48	0.56	15	PASS
N037066-001D	SAMP	25	0.15	7.47	15	PASS	4.085	1.041	15	PASS
N037066-001D-PS	PS	1	13.7	1.17	15	PASS	97.88	0.44	15	PASS
N037066-001D-PS	PS	5	2.88	1.86	15	PASS	21.67	2.26	15	PASS
N037066-001D-MS	MS	1	13.7	0.8	15	PASS	95.46	1.26	15	PASS
N037066-001D-MS	MS	5	2.92	1.0039	15	PASS	20.75	1.00032	15	PASS
N037066-001D-MSD	MSD	1	13.41	1.33	15	PASS	93.71	0.67	15	PASS
CCV1	CCV	1	19.75	0.98	15	PASS	19.66	2.07	15	PASS
CCB1	CCB	1	0.014	75.53	15	<PQL	0.018	90.017	15	<PQL
N037066-001D-MSD	MSD	5	3.0098	1.24	15	PASS	21.2	1.018	15	PASS
N037066-002D	SAMP	1	3.62	1.58	15	PASS	89.066	0.9	15	PASS
N037066-002D	SAMP	5	0.79	2.57	15	PASS	19.71	0.77	15	PASS
N037067-001F	SAMP	1	1.73	1.05	15	PASS	4.94	2.62	15	PASS
N037067-001F	SAMP	5	0.37	2.44	15	PASS	1.05	1.17	15	PASS
N037067-002F	SAMP	1	0.76	1.91	15	PASS	0.98	4.74	15	PASS
N037067-002F	SAMP	5	0.14	4.5	15	PASS	0.21	11.24	15	PASS
N037104-001A	SAMP	1	4.48	0.27	15	PASS	0.01	121.23	15	<PQL
N037105-001B	SAMP	1	0.45	5.35	15	PASS	259.78	1.93	15	PASS
N037107-001D	SAMP	1	3.00019	2.16	15	PASS	17.64	0.3	15	PASS
CCV2	CCV	1	20	0.72	15	PASS	19.76	0.92	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0026	261.84	15	<PQL
N037107-001D	SAMP	5	0.61	3.8	15	PASS	3.78	3.36	15	PASS
N037107-002D	SAMP	1	1.9	3.78	15	PASS	0.85	4.37	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	51 V [2]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	0.39	3.71	15	PASS	0.2	14.77	15	PASS
N037107-003D	SAMP	1	1.64	2.59	15	PASS	<0.000	N/A	15	<PQL
N037107-003D	SAMP	5	0.3	11.065	15	PASS	<0.000	N/A	15	<PQL
N037107-004D	SAMP	1	0.97	1.79	15	PASS	<0.000	N/A	15	<PQL
N037107-004D	SAMP	5	0.18	7.69	15	PASS	<0.000	N/A	15	<PQL
N037107-005D	SAMP	1	6.2	3.62	15	PASS	17.28	1.28	15	PASS
N037107-005D	SAMP	5	1.3	2.34	15	PASS	3.61	3.062	15	PASS
N037107-006D	SAMP	1	2.22	1.45	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	19.9	0.52	15	PASS	19.79	1.38	15	PASS
CCB3	CCB	1	0.013	127.17	15	<PQL	0.0087	124.75	15	<PQL
N037107-006D	SAMP	5	0.46	8.33	15	PASS	<0.000	N/A	15	<PQL
N037107-007D	SAMP	1	1.028	2.25	15	PASS	0.07	12.04	15	PASS
N037107-007D	SAMP	5	0.21	11.7	15	PASS	0.02	81.74	15	<PQL
N037107-008D	SAMP	1	4.91	2.088	15	PASS	0.51	11.25	15	PASS
N037107-008D	SAMP	5	1.048	6.074	15	PASS	0.099	14.56	15	PASS
N037066-001D	SAMP	1	3.67	0.68	15	PASS	88.78	0.84	15	PASS
N037067-001F	SAMP	1	1.74	1.11	15	PASS	4.83	1.89	15	PASS
N037067-002F	SAMP	1	0.83	3.89	15	PASS	1.0055	4.87	15	PASS
N037067-002F	SAMP	25	0.016	74.93	15	<PQL	0.048	18.45	15	<PQL
N037105-001B	SAMP	5	0.079	4.72	15	PASS	56.59	0.35	15	PASS
CCV4	CCV	1	20.12	1.76	15	PASS	19.72	2.23	15	PASS
CCB4	CCB	1	0.0088	145.97	15	<PQL	0.00073	10.067	15	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.59	1.78	15	PASS	19.6	0.55	15	PASS
N037113-001A	SAMP	1	2.46	1.31	15	PASS	0.38	7.29	15	PASS
N037113-001A	SAMP	5	0.55	11.42	15	PASS	0.091	16.58	15	<PQL
N037115-001A	SAMP	1	0.23	11.74	15	PASS	<0.000	N/A	15	<PQL
N037115-001A	SAMP	5	0.015	112.91	15	<PQL	<0.000	N/A	15	<PQL
N037107-002D	SAMP	1	1.88	3.3	15	PASS	0.88	2.86	15	PASS
N037107-003D	SAMP	1	1.6	3.56	15	PASS	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	2.19	1.98	15	PASS	<0.000	N/A	15	<PQL
N037107-007D	SAMP	1	1.042	6.93	15	PASS	0.064	56.005	15	<PQL
CCV5	CCV	1	19.62	1.64	15	PASS	19.29	0.78	15	PASS
CCB5	CCB	1	0.0008	762.35	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	19.79	2.71	15	PASS	19.49	1.73	15	PASS
CCB6	CCB	1	0.0099	117.16	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	19.58	0.48	15	PASS	19.2	0.45	15	PASS
CCB7	CCB	1	0.01	236.55	15	<PQL	0.0064	78.52	15	<PQL
CCV8	CCV	1	19.73	0.74	15	PASS	19.52	0.61	15	PASS
CCB8	CCB	1	0.01	151.48	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	51 V [2]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	20.63	1.53	15	PASS	19.58	1.39	15	PASS
CCV9	CCV	1	19.83	0.91	15	PASS	19.32	0.42	15	PASS
CCB9	CCB	1	0.0062	142.19	15	<PQL	<0.000	N/A	15	<PQL
CCV10	CCV	1	19.63	0.97	15	PASS	19.25	1.6	15	PASS
CCB10	CCB	1	0.0071	291.82	15	<PQL	0.02	15.27	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	20.42	1.64	15	PASS	19.51	1.1	15	PASS
CCV11	CCV	1	19.77	1.88	15	PASS	19.37	1.14	15	PASS
CCB11	CCB	1	0.0035	363.074	15	<PQL	0.0021	244.0003	15	<PQL
CCV12	CCV	1	19.53	1.36	15	PASS	19.0011	0.33	15	PASS
CCB12	CCB	1	0.0073	203.9	15	<PQL	<0.000	N/A	15	<PQL
CCV13	CCV	1	19.42	0.58	15	PASS	19.22	1.12	15	PASS
CCB13	CCB	1	0.0083	134.59	15	<PQL	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	20.65	1.34	15	PASS	19.47	0.38	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				59 Co [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	6.19	15	PASS	0.11	12.24	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.51	3.48	15	PASS	0.5	4.22	15	PASS
Std3-5/50 ppb	ICAL	1	5.053	1.91	15	PASS	4.98	0.9	15	PASS
Std4-10/100 ppb	ICAL	1	10.07	1.018	15	PASS	10.3	1.28	15	PASS
Std5-20/200 ppb	ICAL	1	20.055	0.19	15	PASS	19.94	0.17	15	PASS
Std6-40/400 ppb	ICAL	1	40.23	1.097	15	PASS	39.6	0.52	15	PASS
Std7-100/1000 ppb	ICAL	1	101.11	1.57	15	PASS	100.15	1.14	15	PASS
Std8-200/2000 ppb	ICAL	1	199.39	1.066	15	PASS	212.83	2.15	15	PASS
ICV	ICV	1	102.42	0.82	15	PASS	9.97	1.19	15	PASS
ICB	ICB	1	0.01	106.91	15	<PQL	0.0004	641.19	15	<PQL
LLICV	CCV1	1	0.52	6.097	20	PASS	0.52	4.75	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.2	1	15	PASS	19.69	0.95	15	PASS
LLICV	CCV1	1	0.57	2.72	20	PASS	0.54	4.92	20	PASS
MB-75122	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-75122	LCS	1	102.92	0.62	15	PASS	9.68	0.32	15	PASS
N037066-001D	SAMP	1	210.31	1.36	15	PASS	<0.000	N/A	15	<PQL
N037066-001D	SAMP	5	46.18	0.71	15	PASS	<0.000	N/A	15	<PQL
N037066-001D	SAMP	25	9.53	2.39	15	PASS	<0.000	N/A	15	<PQL
N037066-001D-PS	PS	1	307.27	0.43	15	PASS	8.93	1.28	15	PASS
N037066-001D-PS	PS	5	66.94	1.56	15	PASS	1.97	2.37	15	PASS
N037066-001D-MS	MS	1	306.79	0.97	15	PASS	8.96	0.13	15	PASS
N037066-001D-MS	MS	5	65.32	0.58	15	PASS	1.98	1.61	15	PASS
N037066-001D-MSD	MSD	1	300.077	0.7	15	PASS	8.8	0.59	15	PASS
CCV1	CCV	1	19.86	1.51	15	PASS	19.45	0.44	15	PASS
CCB1	CCB	1	0.002	618.23	15	<PQL	0.00053	414.53	15	<PQL
N037066-001D-MSD	MSD	5	65.85	0.95	15	PASS	2	2.95	15	PASS
N037066-002D	SAMP	1	209.55	0.56	15	PASS	<0.000	N/A	15	<PQL
N037066-002D	SAMP	5	44.97	1.64	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	1	240.24	0.4	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	5	52.22	0.83	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	1252.34	0.8	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	5	245.75	1.5	15	PASS	<0.000	N/A	15	<PQL
N037104-001A	SAMP	1	25.69	0.39	15	PASS	<0.000	N/A	15	<PQL
N037105-001B	SAMP	1	980.58	1.69	15	PASS	<0.000	N/A	15	<PQL
N037107-001D	SAMP	1	34.31	1.47	15	PASS	0.02	37.58	15	<PQL
CCV2	CCV	1	20.4	1.28	15	PASS	19.42	0.3	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-001D	SAMP	5	7.089	3.14	15	PASS	<0.000	N/A	15	<PQL
N037107-002D	SAMP	1	277.18	1.45	15	PASS	0.091	22.29	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				59 Co [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	58.72	0.69	15	PASS	0.018	22.69	15	<PQL
N037107-003D	SAMP	1	399.96	0.7	15	PASS	<0.000	N/A	15	<PQL
N037107-003D	SAMP	5	86.5	0.78	15	PASS	<0.000	N/A	15	<PQL
N037107-004D	SAMP	1	434.27	0.94	15	PASS	<0.000	N/A	15	<PQL
N037107-004D	SAMP	5	93.1	1.054	15	PASS	<0.000	N/A	15	<PQL
N037107-005D	SAMP	1	59.46	2.094	15	PASS	0.0027	176.8	15	<PQL
N037107-005D	SAMP	5	12.57	0.3	15	PASS	0.00083	561.55	15	<PQL
N037107-006D	SAMP	1	960.17	0.9	15	PASS	0.12	9.21	15	PASS
CCV3	CCV	1	20.44	2.28	15	PASS	19.45	1.19	15	PASS
CCB3	CCB	1	0.0076	155.28	15	<PQL	0.0013	147.8	15	<PQL
N037107-006D	SAMP	5	188.25	1.37	15	PASS	0.02	28.5	15	<PQL
N037107-007D	SAMP	1	626.18	1.29	15	PASS	<0.000	N/A	15	<PQL
N037107-007D	SAMP	5	123.49	0.52	15	PASS	<0.000	N/A	15	<PQL
N037107-008D	SAMP	1	191.54	2.33	15	PASS	<0.000	N/A	15	<PQL
N037107-008D	SAMP	5	40.76	0.77	15	PASS	<0.000	N/A	15	<PQL
N037066-001D	SAMP	1	214.8	1.15	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	1	241.95	0.91	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	1259.7	0.63	15	PASS	<0.000	N/A	15	<PQL
N037067-002F	SAMP	25	50.97	1.62	15	PASS	<0.000	N/A	15	<PQL
N037105-001B	SAMP	5	190.63	0.55	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	19.98	1.56	15	PASS	19.46	2.21	15	PASS
CCB4	CCB	1	0.0048	128.7	15	<PQL	0.00063	351.16	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	18.79	0.14	15	PASS	18.99	1.69	15	PASS
N037113-001A	SAMP	1	16.74	2.066	15	PASS	<0.000	N/A	15	<PQL
N037113-001A	SAMP	5	3.59	2.82	15	PASS	<0.000	N/A	15	<PQL
N037115-001A	SAMP	1	631.85	1.28	15	PASS	<0.000	N/A	15	<PQL
N037115-001A	SAMP	5	123.67	0.69	15	PASS	<0.000	N/A	15	<PQL
N037107-002D	SAMP	1	276.35	0.79	15	PASS	0.1	11.81	15	PASS
N037107-003D	SAMP	1	404.62	1.024	15	PASS	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	981.84	0.39	15	PASS	0.11	13.37	15	PASS
N037107-007D	SAMP	1	630.075	0.81	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	20.36	1.81	15	PASS	19.25	0.44	15	PASS
CCB5	CCB	1	0.011	132.76	15	<PQL	0.0019	193.86	15	<PQL
CCV6	CCV	1	20.4	1.5	15	PASS	19.19	1.43	15	PASS
CCB6	CCB	1	0.03	28.93	15	<PQL	0.0032	88.1	15	<PQL
CCV7	CCV	1	20.18	1.29	15	PASS	19.095	1.18	15	PASS
CCB7	CCB	1	0.024	58.95	15	<PQL	0.004	29.094	15	<PQL
CCV8	CCV	1	20.55	0.81	15	PASS	19.2	0.83	15	PASS
CCB8	CCB	1	0.15	17.55	15	<PQL	0.0038	25.61	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				59 Co [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	19.43	2.25	15	PASS	18.93	1.19	15	PASS
CCV9	CCV	1	20.56	2.51	15	PASS	19.0084	0.82	15	PASS
CCB9	CCB	1	0.12	18.99	15	<PQL	0.0053	32.89	15	<PQL
CCV10	CCV	1	20.24	1.19	15	PASS	19.058	0.59	15	PASS
CCB10	CCB	1	0.039	45.94	15	<PQL	0.0039	49.8	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.18	1.52	15	PASS	18.65	1.11	15	PASS
CCV11	CCV	1	20.29	0.24	15	PASS	19.17	0.75	15	PASS
CCB11	CCB	1	0.025	66.44	15	<PQL	0.0025	94.81	15	<PQL
CCV12	CCV	1	19.94	1.52	15	PASS	18.73	0.63	15	PASS
CCB12	CCB	1	0.022	15.2	15	<PQL	0.0033	42.46	15	<PQL
CCV13	CCV	1	20.11	1.85	15	PASS	18.78	1.085	15	PASS
CCB13	CCB	1	0.04	52.54	15	<PQL	0.0021	31.29	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	19.45	1.84	15	PASS	18.71	0.85	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.084	19.65	15	<PQL	0.1	14.91	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.46	1.83	15	PASS	0.52	6.77	15	PASS
Std3-5/50 ppb	ICAL	1	5.1	2.2	15	PASS	5.14	1.97	15	PASS
Std4-10/100 ppb	ICAL	1	10.11	2.046	15	PASS	10.19	0.28	15	PASS
Std5-20/200 ppb	ICAL	1	20.1	1.052	15	PASS	20.19	1.43	15	PASS
Std6-40/400 ppb	ICAL	1	40.1	1.23	15	PASS	40.044	1.15	15	PASS
Std7-100/1000 ppb	ICAL	1	101.18	1.096	15	PASS	101.29	1.36	15	PASS
Std8-200/2000 ppb	ICAL	1	199.37	1.51	15	PASS	199.32	1.8	15	PASS
ICV	ICV	1	10.42	2.23	15	PASS	10.037	1.46	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.0052	38.7	15	<PQL
LLICV	CCV1	1	1.0037	7.65	20	PASS	1.044	3.007	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.5	2.48	15	PASS	17.69	2.16	15	PASS
LLICV	CCV1	1	0.96	7.85	20	PASS	1.073	3.59	20	PASS
MB-75122	MBLK	1	<0.000	N/A	15	<PQL	0.0017	302.72	15	<PQL
LCS-75122	LCS	1	10.07	1.5	15	PASS	9.67	0.91	15	PASS
N037066-001D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037066-001D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037066-001D	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037066-001D-PS	PS	1	9.33	1.87	15	PASS	3.016	6.71	15	PASS
N037066-001D-PS	PS	5	2.19	3.93	15	PASS	0.68	16.21	15	<PQL
N037066-001D-MS	MS	1	9.4	1.41	15	PASS	2.62	4.82	15	PASS
N037066-001D-MS	MS	5	1.94	5.14	15	PASS	0.62	4.53	15	PASS
N037066-001D-MSD	MSD	1	9.28	1.45	15	PASS	2.48	3.82	15	PASS
CCV1	CCV	1	19.68	1.84	15	PASS	19.82	0.59	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0017	421.57	15	<PQL
N037066-001D-MSD	MSD	5	2.11	1.089	15	PASS	0.61	14.98	15	PASS
N037066-002D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037066-002D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037067-001F	SAMP	1	0.099	5.62	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	5	0.07	34.64	15	<PQL	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037067-002F	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037104-001A	SAMP	1	0.12	3.79	15	PASS	<0.000	N/A	15	<PQL
N037105-001B	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-001D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	19.53	1.061	15	PASS	19.5	0.58	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-001D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-002D	SAMP	1	1.052	6.72	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	0.23	26.32	15	<PQL	<0.000	N/A	15	<PQL
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-003D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-004D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-004D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-005D	SAMP	1	0.064	22.17	15	<PQL	<0.000	N/A	15	<PQL
N037107-005D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	0.26	13.07	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	19.7	2.24	15	PASS	19.6	1.68	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-006D	SAMP	5	0.005	1126.4	15	<PQL	<0.000	N/A	15	<PQL
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-007D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-008D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-008D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037066-001D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037067-001F	SAMP	1	0.11	53.78	15	<PQL	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037067-002F	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037105-001B	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV4	CCV	1	19.39	1.86	15	PASS	19.32	1.18	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	18.92	3.59	15	PASS	17.38	3.51	15	PASS
N037113-001A	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037113-001A	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037115-001A	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037115-001A	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-002D	SAMP	1	0.89	9.51	15	PASS	<0.000	N/A	15	<PQL
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	0.21	29.95	15	<PQL	<0.000	N/A	15	<PQL
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV5	CCV	1	18.84	1.64	15	PASS	19.17	0.59	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	19.57	0.73	15	PASS	19.43	2.51	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	18.84	1.22	15	PASS	18.83	1.74	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV8	CCV	1	18.84	1.059	15	PASS	18.89	0.077	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	18.67	2.13	15	PASS	16.93	0.97	15	PASS
CCV9	CCV	1	18.47	1.59	15	PASS	18.54	1.11	15	PASS
CCB9	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV10	CCV	1	18.59	1.36	15	PASS	18.61	1.39	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	18.58	1.66	15	PASS	16.47	1.34	15	PASS
CCV11	CCV	1	18.87	0.77	15	PASS	18.68	1.42	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV12	CCV	1	18.32	1.18	15	PASS	18.25	1.011	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV13	CCV	1	18.59	1.25	15	PASS	18.34	1.073	15	PASS
CCB13	CCB	1	0.0043	275.56	15	<PQL	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	18.08	3.57	15	PASS	16.38	1.76	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	66 Zn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.07	52.23	15	<PQL	0.12	15.24	15	NR!
Std2-0.5/5 ppb	ICAL	1	0.5	12.58	15	PASS	0.5	16.062	15	NR!
Std3-5/50 ppb	ICAL	1	5.37	2.67	15	PASS	5.13	4.23	15	PASS
Std4-10/100 ppb	ICAL	1	9.86	2.92	15	PASS	10.24	1.81	15	PASS
Std5-20/200 ppb	ICAL	1	19.92	1.21	15	PASS	20.015	0.53	15	PASS
Std6-40/400 ppb	ICAL	1	39.96	0.48	15	PASS	39.8	2.005	15	PASS
Std7-100/1000 ppb	ICAL	1	100.97	1.35	15	PASS	100.68	2.27	15	PASS
Std8-200/2000 ppb	ICAL	1	199.53	2.69	15	PASS	199.68	2.095	15	PASS
ICV	ICV	1	10.42	1.36	15	PASS	10.24	4.67	15	PASS
ICB	ICB	1	0.029	95.39	15	<PQL	0.014	45.089	15	<PQL
LLICV	CCV1	1	10.45	2.56	20	PASS	0.12	9.72	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	18.089	2.92	15	PASS	20.94	2.85	15	PASS
LLICV	CCV1	1	10.55	3.37	20	PASS	0.12	19.52	20	PASS
MB-75122	MBLK	1	0.035	75.6	15	<PQL	0.029	22.14	15	<PQL
LCS-75122	LCS	1	10.29	0.28	15	PASS	10.4	3.22	15	PASS
N037066-001D	SAMP	1	34.94	1.45	15	PASS	1.87	1.43	15	PASS
N037066-001D	SAMP	5	7.93	4.014	15	PASS	0.41	7.6	15	PASS
N037066-001D	SAMP	25	1.91	5.52	15	PASS	0.071	15.76	15	<PQL
N037066-001D-PS	PS	1	44.65	0.098	15	PASS	12.52	1.82	15	PASS
N037066-001D-PS	PS	5	9.95	2.65	15	PASS	2.85	0.93	15	PASS
N037066-001D-MS	MS	1	43.52	0.21	15	PASS	12.52	1.22	15	PASS
N037066-001D-MS	MS	5	9.68	1.057	15	PASS	2.69	2.74	15	PASS
N037066-001D-MSD	MSD	1	41.89	1.32	15	PASS	12.25	1.52	15	PASS
CCV1	CCV	1	20.14	0.13	15	PASS	20.29	1.87	15	PASS
CCB1	CCB	1	0.034	83.012	15	<PQL	0.028	16.31	15	<PQL
N037066-001D-MSD	MSD	5	9.69	2.93	15	PASS	2.69	1.35	15	PASS
N037066-002D	SAMP	1	34.37	1.8	15	PASS	1.89	4.41	15	PASS
N037066-002D	SAMP	5	7.42	2.64	15	PASS	0.46	9.51	15	PASS
N037067-001F	SAMP	1	<0.000	N/A	15	<PQL	2.51	1.95	15	PASS
N037067-001F	SAMP	5	<0.000	N/A	15	<PQL	0.51	5.21	15	PASS
N037067-002F	SAMP	1	<0.000	N/A	15	<PQL	1.57	1.56	15	PASS
N037067-002F	SAMP	5	<0.000	N/A	15	<PQL	0.35	10.53	15	PASS
N037104-001A	SAMP	1	1.89	2.11	15	PASS	6.16	1.053	15	PASS
N037105-001B	SAMP	1	<0.000	N/A	15	<PQL	2.57	3.23	15	PASS
N037107-001D	SAMP	1	0.43	9.14	15	PASS	1.5	5.8	15	PASS
CCV2	CCV	1	19.76	3.13	15	PASS	20.29	0.93	15	PASS
CCB2	CCB	1	0.0026	928.54	15	<PQL	0.028	76.55	15	<PQL
N037107-001D	SAMP	5	<0.000	N/A	15	<PQL	0.28	7.13	15	PASS
N037107-002D	SAMP	1	<0.000	N/A	15	<PQL	0.78	8.35	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	66 Zn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	<0.000	N/A	15	<PQL	0.18	10.43	15	PASS
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	1.86	2.78	15	PASS
N037107-003D	SAMP	5	<0.000	N/A	15	<PQL	0.37	10.18	15	PASS
N037107-004D	SAMP	1	<0.000	N/A	15	<PQL	2.92	3.25	15	PASS
N037107-004D	SAMP	5	<0.000	N/A	15	<PQL	0.63	18.44	15	NR!
N037107-005D	SAMP	1	<0.000	N/A	15	<PQL	1.38	6.49	15	PASS
N037107-005D	SAMP	5	0.0033	521.33	15	<PQL	0.32	13.86	15	PASS
N037107-006D	SAMP	1	<0.000	N/A	15	<PQL	1.14	7.7	15	PASS
CCV3	CCV	1	19.46	1.98	15	PASS	20.53	2.38	15	PASS
CCB3	CCB	1	0.0011	2280.11	15	<PQL	0.022	72.95	15	<PQL
N037107-006D	SAMP	5	<0.000	N/A	15	<PQL	0.22	11.19	15	PASS
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	1.93	4.0095	15	PASS
N037107-007D	SAMP	5	<0.000	N/A	15	<PQL	0.42	14.89	15	PASS
N037107-008D	SAMP	1	<0.000	N/A	15	<PQL	3.43	2.25	15	PASS
N037107-008D	SAMP	5	<0.000	N/A	15	<PQL	0.72	0.2	15	PASS
N037066-001D	SAMP	1	33.69	0.79	15	PASS	1.81	4.1	15	PASS
N037067-001F	SAMP	1	<0.000	N/A	15	<PQL	2.29	6.71	15	PASS
N037067-002F	SAMP	1	<0.000	N/A	15	<PQL	1.59	3.037	15	PASS
N037067-002F	SAMP	25	0.033	169.26	15	<PQL	0.086	13.093	15	PASS
N037105-001B	SAMP	5	<0.000	N/A	15	<PQL	0.59	4.42	15	PASS
CCV4	CCV	1	19.44	0.47	15	PASS	20.26	1.063	15	PASS
CCB4	CCB	1	0.013	175.54	15	<PQL	0.038	9.64	15	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	17.71	3.82	15	PASS	21.31	1.44	15	PASS
N037113-001A	SAMP	1	<0.000	N/A	15	<PQL	18.18	1.13	15	PASS
N037113-001A	SAMP	5	<0.000	N/A	15	<PQL	3.94	0.85	15	PASS
N037115-001A	SAMP	1	15.33	1.57	15	PASS	0.71	20.97	15	NR!
N037115-001A	SAMP	5	3.41	3.86	15	PASS	0.14	28.76	15	NR!
N037107-002D	SAMP	1	<0.000	N/A	15	<PQL	0.75	7.13	15	PASS
N037107-003D	SAMP	1	<0.000	N/A	15	<PQL	1.87	4.075	15	PASS
N037107-006D	SAMP	1	<0.000	N/A	15	<PQL	1.12	6.5	15	PASS
N037107-007D	SAMP	1	<0.000	N/A	15	<PQL	1.86	1.63	15	PASS
CCV5	CCV	1	19.22	1.34	15	PASS	20.16	2.45	15	PASS
CCB5	CCB	1	0.015	159.22	15	<PQL	0.024	63.67	15	<PQL
CCV6	CCV	1	20.015	0.62	15	PASS	20.69	1.36	15	PASS
CCB6	CCB	1	0.0081	546.13	15	<PQL	0.03	18.42	15	<PQL
CCV7	CCV	1	19.088	0.63	15	PASS	20.084	2.35	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.049	32.53	15	<PQL
CCV8	CCV	1	19.39	1.63	15	PASS	19.81	1.56	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.025	29.62	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	66 Zn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	17.75	1.32	15	PASS	21.065	2.16	15	PASS
CCV9	CCV	1	18.72	2.48	15	PASS	19.88	2.21	15	PASS
CCB9	CCB	1	0.026	136.52	15	<PQL	0.017	41.43	15	<PQL
CCV10	CCV	1	18.71	2.12	15	PASS	19.78	1.58	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	0.046	41.52	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	16.63	2.35	15	PASS	20.69	0.96	15	PASS
CCV11	CCV	1	19.083	1.23	15	PASS	19.86	0.81	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	0.017	75.16	15	<PQL
CCV12	CCV	1	18.68	3.43	15	PASS	19.93	2.37	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	0.034	30.012	15	<PQL
CCV13	CCV	1	18.72	2.61	15	PASS	20.0029	0.85	15	PASS
CCB13	CCB	1	<0.000	N/A	15	<PQL	0.032	15.85	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	16.56	2.66	15	PASS	20.64	2.42	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				9 Be [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.17	94.21	15	<PQL	0.097	17.51	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.42	26.27	15	<PQL	0.5	5.6	15	PASS
Std3-5/50 ppb	ICAL	1	4.73	5.28	15	PASS	4.96	1.33	15	PASS
Std4-10/100 ppb	ICAL	1	9.49	10.34	15	PASS	9.83	0.42	15	PASS
Std5-20/200 ppb	ICAL	1	18.25	7.93	15	PASS	19.98	0.65	15	PASS
Std6-40/400 ppb	ICAL	1	41.036	7.42	15	PASS	39.099	1.37	15	PASS
Std7-100/1000 ppb	ICAL	1	98.39	1.37	15	PASS	100.38	2.069	15	PASS
Std8-200/2000 ppb	ICAL	1	188.53	2.75	15	PASS	206.84	1.18	15	PASS
ICV	ICV	1	9.97	7.008	15	PASS	9.95	1.98	15	PASS
ICB	ICB	1	0.037	99.91	15	<PQL	0.0041	25.16	15	<PQL
LLICV	CCV1	1	0.59	59.063	20	~~NR!~~ Failed	0.53	6.65	20	PASS
ICSA1	ICSA	1	0	N/A	15	<PQL	0.00074	316.6	15	<PQL
ICSAB1	ICSAB	1	19.83	2.73	15	PASS	21.17	0.99	15	PASS
LLICV	CCV1	1	0.48	61.071	20	<PQL	0.56	1.95	20	PASS
MB-75122	MBLK	1	0.011	173.21	15	<PQL	<0.000	N/A	15	<PQL
LCS-75122	LCS	1	9.62	5.36	15	PASS	9.99	0.6	15	PASS
N037066-001D	SAMP	1	2.62	18.1	15	NR!	0.00089	390.93	15	<PQL
N037066-001D	SAMP	5	0.65	22.23	15	NR!	<0.000	N/A	15	<PQL
N037066-001D	SAMP	25	0.14	23.74	15	<PQL	<0.000	N/A	15	<PQL
N037066-001D-PS	PS	1	12.05	10.41	15	PASS	14.086	0.31	15	PASS
N037066-001D-PS	PS	5	2.66	18.89	15	NR!	2.44	1.64	15	PASS
N037066-001D-MS	MS	1	12.61	2.038	15	PASS	14	1.14	15	PASS
N037066-001D-MS	MS	5	2.41	19.54	15	NR!	2.43	1.94	15	PASS
N037066-001D-MSD	MSD	1	12.37	4.38	15	PASS	14.27	1.32	15	PASS
CCV1	CCV	1	20.23	3.89	15	PASS	19.81	0.16	15	PASS
CCB1	CCB	1	0.037	99.49	15	<PQL	0.011	63.017	15	<PQL
N037066-001D-MSD	MSD	5	2.88	0.92	15	PASS	2.35	1.46	15	PASS
N037066-002D	SAMP	1	2.64	12.0061	15	PASS	<0.000	N/A	15	<PQL
N037066-002D	SAMP	5	0.57	11.013	15	PASS	<0.000	N/A	15	<PQL
N037067-001F	SAMP	1	0.81	22.27	15	NR!	<0.000	N/A	15	<PQL
N037067-001F	SAMP	5	0.11	66.12	15	<PQL	<0.000	N/A	15	<PQL
N037067-002F	SAMP	1	1.17	37.54	15	NR!	0.0018	121.2	15	<PQL
N037067-002F	SAMP	5	0.23	42.6	15	<PQL	0.0023	70.064	15	<PQL
N037104-001A	SAMP	1	0.067	50.75	15	<PQL	0.011	37.81	15	<PQL
N037105-001B	SAMP	1	2.063	16.064	15	NR!	0.0069	20.97	15	<PQL
N037107-001D	SAMP	1	4.17	8.82	15	PASS	0.0087	44.11	15	<PQL
CCV2	CCV	1	18.73	2.58	15	PASS	19.9	0.86	15	PASS
CCB2	CCB	1	0.089	21.11	15	<PQL	0.0068	37.15	15	<PQL
N037107-001D	SAMP	5	1.2	13.33	15	PASS	0.0039	52.9	15	<PQL
N037107-002D	SAMP	1	0.82	18.3	15	NR!	0.0028	106.99	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				9 Be [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	0.14	108.51	15	<PQL	<0.000	N/A	15	<PQL
N037107-003D	SAMP	1	0.58	28.7	15	NR!	0.0076	64.49	15	<PQL
N037107-003D	SAMP	5	0.077	89.072	15	<PQL	0.0015	273.77	15	<PQL
N037107-004D	SAMP	1	0.34	40.65	15	<PQL	0.0082	69.64	15	<PQL
N037107-004D	SAMP	5	0.087	76.74	15	<PQL	0.0042	26.53	15	<PQL
N037107-005D	SAMP	1	3.38	13.1	15	PASS	<0.000	N/A	15	<PQL
N037107-005D	SAMP	5	0.65	49.65	15	NR!	<0.000	N/A	15	<PQL
N037107-006D	SAMP	1	1.13	25.99	15	NR!	0.0023	19.29	15	<PQL
CCV3	CCV	1	19.73	1.63	15	PASS	19.7	1.11	15	PASS
CCB3	CCB	1	0.024	173.21	15	<PQL	0.003	37.85	15	<PQL
N037107-006D	SAMP	5	0.099	76.11	15	<PQL	<0.000	N/A	15	<PQL
N037107-007D	SAMP	1	0.5	44.86	15	NR!	0.0027	168.68	15	<PQL
N037107-007D	SAMP	5	0.056	34.2	15	<PQL	<0.000	N/A	15	<PQL
N037107-008D	SAMP	1	0.81	11.69	15	PASS	0.01	73.038	15	<PQL
N037107-008D	SAMP	5	0.19	40.31	15	<PQL	0.0065	32.82	15	<PQL
N037066-001D	SAMP	1	2.69	5.81	15	PASS	0.0082	36.36	15	<PQL
N037067-001F	SAMP	1	0.8	23.76	15	NR!	0.0075	81.21	15	<PQL
N037067-002F	SAMP	1	0.89	15.69	15	NR!	0.0087	46.94	15	<PQL
N037067-002F	SAMP	25	0.073	25.84	15	<PQL	0.0018	15.37	15	<PQL
N037105-001B	SAMP	5	0.33	15.93	15	<PQL	0.0054	62.75	15	<PQL
CCV4	CCV	1	19.23	1.66	15	PASS	19.77	1.14	15	PASS
CCB4	CCB	1	0.044	114.64	15	<PQL	0.0062	92.91	15	<PQL
ICSA2	ICSA	1	0	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.27	3.74	15	PASS	20.67	0.49	15	PASS
N037113-001A	SAMP	1	0.13	0.53	15	PASS	0.0089	58.45	15	<PQL
N037113-001A	SAMP	5	0.034	100.023	15	<PQL	0.0025	157.25	15	<PQL
N037115-001A	SAMP	1	0.76	21.8	15	NR!	0.0099	35.11	15	<PQL
N037115-001A	SAMP	5	0.14	26.39	15	<PQL	0.0091	13.92	15	PASS
N037107-002D	SAMP	1	0.68	30.81	15	NR!	0.0075	58.6	15	<PQL
N037107-003D	SAMP	1	0.47	43.43	15	<PQL	0.0097	47.32	15	<PQL
N037107-006D	SAMP	1	0.62	14.68	15	PASS	0.0076	39.35	15	<PQL
N037107-007D	SAMP	1	0.42	12.95	15	PASS	0.011	4.8	15	PASS
CCV5	CCV	1	18.84	3.64	15	PASS	19.7	1.12	15	PASS
CCB5	CCB	1	0.054	91.077	15	<PQL	0.014	12.96	15	PASS
CCV6	CCV	1	17.68	5.65	15	PASS	19.59	1.84	15	PASS
CCB6	CCB	1	0	N/A	15	<PQL	0.014	24.052	15	<PQL
CCV7	CCV	1	18.59	5.46	15	PASS	19.4	1.8	15	PASS
CCB7	CCB	1	0.021	173.21	15	<PQL	0.013	21.51	15	<PQL
CCV8	CCV	1	18.84	1.52	15	PASS	19.77	1.36	15	PASS
CCB8	CCB	1	0.011	173.21	15	<PQL	0.01	4.17	15	PASS
ICSA3	ICSA	1	0.023	173.21	15	<PQL	0.00066	841.96	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				9 Be [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	18.81	0.32	15	PASS	20.38	0.87	15	PASS
CCV9	CCV	1	16.41	4.36	15	PASS	19.74	0.6	15	PASS
CCB9	CCB	1	0	N/A	15	<PQL	0.014	8.73	15	PASS
CCV10	CCV	1	18.18	5.8	15	PASS	19.79	1.1	15	PASS
CCB10	CCB	1	0.042	86.61	15	<PQL	0.016	26.25	15	<PQL
ICSA4	ICSA	1	0.096	59.44	15	<PQL	0.0043	50.72	15	<PQL
ICSAB4	ICSAB	1	18.14	7.61	15	PASS	20.73	1.98	15	PASS
CCV11	CCV	1	17.83	1.58	15	PASS	20.42	1.85	15	PASS
CCB11	CCB	1	0	N/A	15	<PQL	0.0056	111.59	15	<PQL
CCV12	CCV	1	17.29	5.88	15	PASS	20.3	0.43	15	PASS
CCB12	CCB	1	0.02	173.21	15	<PQL	0.02	10.96	15	PASS
CCV13	CCV	1	18.44	0.67	15	PASS	20.1	0.53	15	PASS
CCB13	CCB	1	0	N/A	15	<PQL	0.02	32.81	15	<PQL
ICSA5	ICSA	1	0.11	128.079	15	<PQL	0.0048	35.26	15	<PQL
ICSAB5	ICSAB	1	18.36	4.6	15	PASS	20.99	0.76	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	17.81	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	4.97	15	PASS
Std3-5/50 ppb	ICAL	1	4.94	3.11	15	PASS
Std4-10/100 ppb	ICAL	1	9.88	3.14	15	PASS
Std5-20/200 ppb	ICAL	1	19.87	1.55	15	PASS
Std6-40/400 ppb	ICAL	1	39.95	0.15	15	PASS
Std7-100/1000 ppb	ICAL	1	99.46	0.16	15	PASS
Std8-200/2000 ppb	ICAL	1	200.3	0.25	15	PASS
ICV	ICV	1	9.89	0.59	15	PASS
ICB	ICB	1	0.058	18.84	15	<PQL
LLICV	CCV1	1	0.55	7.88	20	PASS
ICSA1	ICSA	1	0.03	34.3	15	<PQL
ICSAB1	ICSAB	1	21.77	0.91	15	PASS
LLICV	CCV1	1	0.63	8.21	20	PASS
MB-75122	MBLK	1	0.02	34.026	15	<PQL
LCS-75122	LCS	1	9.77	1.11	15	PASS
N037066-001D	SAMP	1	22.43	1.02	15	PASS
N037066-001D	SAMP	5	4.75	1.84	15	PASS
N037066-001D	SAMP	25	0.89	1.46	15	PASS
N037066-001D-PS	PS	1	33.48	0.58	15	PASS
N037066-001D-PS	PS	5	7.25	0.86	15	PASS
N037066-001D-MS	MS	1	33.25	0.64	15	PASS
N037066-001D-MS	MS	5	6.93	1.13	15	PASS
N037066-001D-MSD	MSD	1	33.02	1.088	15	PASS
CCV1	CCV	1	20.51	0.97	15	PASS
CCB1	CCB	1	0.14	9.74	15	PASS
N037066-001D-MSD	MSD	5	6.96	2.46	15	PASS
N037066-002D	SAMP	1	22.57	1.023	15	PASS
N037066-002D	SAMP	5	4.67	1.53	15	PASS
N037067-001F	SAMP	1	11.53	1.24	15	PASS
N037067-001F	SAMP	5	2.4	0.92	15	PASS
N037067-002F	SAMP	1	42.86	0.068	15	PASS
N037067-002F	SAMP	5	8.67	1.55	15	PASS
N037104-001A	SAMP	1	25.25	1.093	15	PASS
N037105-001B	SAMP	1	49.25	0.88	15	PASS
N037107-001D	SAMP	1	12.51	2.077	15	PASS
CCV2	CCV	1	20.42	0.55	15	PASS
CCB2	CCB	1	0.1	11.38	15	PASS
N037107-001D	SAMP	5	2.56	2.22	15	PASS
N037107-002D	SAMP	1	7.12	1.84	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N037107-002D	SAMP	5	1.53	1.75	15	PASS
N037107-003D	SAMP	1	26.99	1.47	15	PASS
N037107-003D	SAMP	5	5.53	3.58	15	PASS
N037107-004D	SAMP	1	48.68	0.73	15	PASS
N037107-004D	SAMP	5	10.16	0.44	15	PASS
N037107-005D	SAMP	1	18.088	1.077	15	PASS
N037107-005D	SAMP	5	3.85	5.61	15	PASS
N037107-006D	SAMP	1	9.016	0.44	15	PASS
CCV3	CCV	1	20.38	0.95	15	PASS
CCB3	CCB	1	0.11	14.2	15	PASS
N037107-006D	SAMP	5	1.93	3.72	15	PASS
N037107-007D	SAMP	1	25.089	1.066	15	PASS
N037107-007D	SAMP	5	5.33	2.43	15	PASS
N037107-008D	SAMP	1	49.54	0.64	15	PASS
N037107-008D	SAMP	5	10.54	1.67	15	PASS
N037066-001D	SAMP	1	22.64	1.00063	15	PASS
N037067-001F	SAMP	1	11.61	1.12	15	PASS
N037067-002F	SAMP	1	42.056	1.5	15	PASS
N037067-002F	SAMP	25	1.88	3.98	15	PASS
N037105-001B	SAMP	5	9.92	0.7	15	PASS
CCV4	CCV	1	20.15	0.86	15	PASS
CCB4	CCB	1	0.12	20.98	15	<PQL
ICSA2	ICSA	1	0.042	31.99	15	<PQL
ICSAB2	ICSAB	1	21.94	1.82	15	PASS
N037113-001A	SAMP	1	19.64	0.76	15	PASS
N037113-001A	SAMP	5	4.17	4.4	15	PASS
N037115-001A	SAMP	1	27.69	1.52	15	PASS
N037115-001A	SAMP	5	5.68	0.49	15	PASS
N037107-002D	SAMP	1	7.19	1.15	15	PASS
N037107-003D	SAMP	1	26.85	0.19	15	PASS
N037107-006D	SAMP	1	9.19	0.9	15	PASS
N037107-007D	SAMP	1	25.4	0.14	15	PASS
CCV5	CCV	1	20.29	1.74	15	PASS
CCB5	CCB	1	0.12	15.91	15	<PQL
CCV6	CCV	1	20.22	1.043	15	PASS
CCB6	CCB	1	0.11	13.8	15	PASS
CCV7	CCV	1	20.42	1.011	15	PASS
CCB7	CCB	1	0.17	7.45	15	PASS
CCV8	CCV	1	20.2	1.027	15	PASS
CCB8	CCB	1	0.13	12.98	15	PASS
ICSA3	ICSA	1	0.052	9.25	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
ICSAB3	ICSAB	1	22.27	0.75	15	PASS
CCV9	CCV	1	20.14	0.3	15	PASS
CCB9	CCB	1	0.17	8.26	15	PASS
CCV10	CCV	1	20.4	1.0038	15	PASS
CCB10	CCB	1	0.15	14.99	15	PASS
ICSA4	ICSA	1	0.073	18.33	15	<PQL
ICSAB4	ICSAB	1	22.39	1.21	15	PASS
CCV11	CCV	1	20.069	1.72	15	PASS
CCB11	CCB	1	0.13	10.021	15	PASS
CCV12	CCV	1	20.29	2.16	15	PASS
CCB12	CCB	1	0.14	8.38	15	PASS
CCV13	CCV	1	20.11	0.63	15	PASS
CCB13	CCB	1	0.12	8.67	15	PASS
ICSA5	ICSA	1	0.053	16.85	15	<PQL
ICSAB5	ICSAB	1	22.28	2.012	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905001.D	RINSE	RINSE	1	09/05/19 3:41 PM
C0905002.D	Cal Blank	IBLK	1	09/05/19 3:46 PM
C0905003.D	Std1-0.1/1 ppb	ICAL	1	09/05/19 3:51 PM
C0905004.D	Std2-0.5/5 ppb	ICAL	1	09/05/19 3:55 PM
C0905005.D	Std3-5/50 ppb	ICAL	1	09/05/19 4:00 PM
C0905006.D	Std4-10/100 ppb	ICAL	1	09/05/19 4:04 PM
C0905007.D	Std5-20/200 ppb	ICAL	1	09/05/19 4:09 PM
C0905008.D	Std6-40/400 ppb	ICAL	1	09/05/19 4:14 PM
C0905009.D	Std7-100/1000 ppb	ICAL	1	09/05/19 4:19 PM
C0905010.D	Std8-200/2000 ppb	ICAL	1	09/05/19 4:24 PM
C0905011.D	ICV	ICV	1	09/05/19 4:31 PM
C0905012.D	ICB	ICB	1	09/05/19 4:36 PM
C0905013.D	LLICV	CCV1	1	09/05/19 4:41 PM
C0905014.D	ICSA1	ICSA	1	09/05/19 4:46 PM
C0905015.D	ICSAB1	ICSAB	1	09/05/19 4:51 PM
C0905016.D	LLICV	CCV1	1	09/05/19 4:55 PM
C0905017.D	MB-75122	MBLK	1	09/05/19 5:03 PM
C0905018.D	LCS-75122	LCS	1	09/05/19 5:08 PM
C0905019.D	N037066-001D	SAMP	1	09/05/19 5:12 PM
C0905020.D	N037066-001D	SAMP	5	09/05/19 5:18 PM
C0905021.D	N037066-001D	SAMP	25	09/05/19 5:23 PM
C0905022.D	N037066-001D-PS	PS	1	09/05/19 5:28 PM
C0905023.D	N037066-001D-PS	PS	5	09/05/19 5:33 PM
C0905024.D	N037066-001D-MS	MS	1	09/05/19 5:38 PM
C0905025.D	N037066-001D-MS	MS	5	09/05/19 5:43 PM
C0905026.D	N037066-001D-MSD	MSD	1	09/05/19 5:48 PM
C0905027.D	CCV1	CCV	1	09/05/19 5:53 PM
C0905028.D	CCB1	CCB	1	09/05/19 5:58 PM
C0905029.D	N037066-001D-MSD	MSD	5	09/05/19 6:02 PM
C0905030.D	N037066-002D	SAMP	1	09/05/19 6:07 PM
C0905031.D	N037066-002D	SAMP	5	09/05/19 6:12 PM
C0905032.D	N037067-001F	SAMP	1	09/05/19 6:17 PM
C0905033.D	N037067-001F	SAMP	5	09/05/19 6:22 PM
C0905034.D	N037067-002F	SAMP	1	09/05/19 6:27 PM
C0905035.D	N037067-002F	SAMP	5	09/05/19 6:32 PM
C0905036.D	N037104-001A	SAMP	1	09/05/19 6:37 PM
C0905037.D	N037105-001B	SAMP	1	09/05/19 6:42 PM
C0905038.D	N037107-001D	SAMP	1	09/05/19 6:47 PM
C0905039.D	CCV2	CCV	1	09/05/19 6:52 PM
C0905040.D	CCB2	CCB	1	09/05/19 6:57 PM
C0905041.D	N037107-001D	SAMP	5	09/05/19 7:02 PM
C0905042.D	N037107-002D	SAMP	1	09/05/19 7:07 PM

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905043.D	N037107-002D	SAMP	5	09/05/19 7:12 PM
C0905044.D	N037107-003D	SAMP	1	09/05/19 7:19 PM
C0905045.D	N037107-003D	SAMP	5	09/05/19 7:24 PM
C0905046.D	N037107-004D	SAMP	1	09/05/19 7:29 PM
C0905047.D	N037107-004D	SAMP	5	09/05/19 7:34 PM
C0905048.D	N037107-005D	SAMP	1	09/05/19 7:39 PM
C0905049.D	N037107-005D	SAMP	5	09/05/19 7:44 PM
C0905050.D	N037107-006D	SAMP	1	09/05/19 7:49 PM
C0905051.D	CCV3	CCV	1	09/05/19 7:54 PM
C0905052.D	CCB3	CCB	1	09/05/19 7:59 PM
C0905053.D	N037107-006D	SAMP	5	09/05/19 8:03 PM
C0905054.D	N037107-007D	SAMP	1	09/05/19 8:08 PM
C0905055.D	N037107-007D	SAMP	5	09/05/19 8:13 PM
C0905056.D	N037107-008D	SAMP	1	09/05/19 8:19 PM
C0905057.D	N037107-008D	SAMP	5	09/05/19 8:24 PM
C0905058.D	N037066-001D	SAMP	1	09/05/19 8:29 PM
C0905059.D	N037067-001F	SAMP	1	09/05/19 8:34 PM
C0905060.D	N037067-002F	SAMP	1	09/05/19 8:39 PM
C0905061.D	N037067-002F	SAMP	25	09/05/19 8:44 PM
C0905062.D	N037105-001B	SAMP	5	09/05/19 8:48 PM
C0905063.D	CCV4	CCV	1	09/05/19 8:53 PM
C0905064.D	CCB4	CCB	1	09/05/19 8:58 PM
C0905065.D	ICSA2	ICSA	1	09/05/19 9:03 PM
C0905066.D	ICSAB2	ICSAB	1	09/05/19 9:08 PM
C0905067.D	N037113-001A	SAMP	1	09/05/19 9:12 PM
C0905068.D	N037113-001A	SAMP	5	09/05/19 9:18 PM
C0905069.D	N037115-001A	SAMP	1	09/05/19 9:22 PM
C0905070.D	N037115-001A	SAMP	5	09/05/19 9:27 PM
C0905071.D	N037107-002D	SAMP	1	09/05/19 9:32 PM
C0905072.D	N037107-003D	SAMP	1	09/05/19 9:37 PM
C0905073.D	N037107-006D	SAMP	1	09/05/19 9:42 PM
C0905074.D	N037107-007D	SAMP	1	09/05/19 9:47 PM
C0905075.D	CCV5	CCV	1	09/05/19 9:52 PM
C0905076.D	CCB5	CCB	1	09/05/19 9:57 PM
C0905077.D	MB-75124	MBLK	1	09/05/19 10:02 PM
C0905078.D	LCS-75124	LCS	1	09/05/19 10:07 PM
C0905079.D	N037067-001E	SAMP	1	09/05/19 10:12 PM
C0905080.D	N037067-001E	SAMP	5	09/05/19 10:17 PM
C0905081.D	N037067-001E	SAMP	25	09/05/19 10:22 PM
C0905082.D	N037067-001E-PS	PS	1	09/05/19 10:27 PM
C0905083.D	N037067-001E-PS	PS	5	09/05/19 10:32 PM
C0905084.D	N037067-001E-MS	MS	1	09/05/19 10:37 PM

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905085.D	N037067-001E-MS	MS	5	09/05/19 10:42 PM
C0905086.D	N037067-001E-MSD	MSD	1	09/05/19 10:47 PM
C0905087.D	CCV6	CCV	1	09/05/19 10:52 PM
C0905088.D	CCB6	CCB	1	09/05/19 10:57 PM
C0905089.D	N037067-001E-MSD	MSD	5	09/05/19 11:02 PM
C0905090.D	N037067-002E	SAMP	1	09/05/19 11:07 PM
C0905091.D	N037067-002E	SAMP	5	09/05/19 11:13 PM
C0905092.D	N037107-001E	SAMP	1	09/05/19 11:18 PM
C0905093.D	N037107-001E	SAMP	5	09/05/19 11:22 PM
C0905094.D	N037107-002E	SAMP	1	09/05/19 11:28 PM
C0905095.D	N037107-002E	SAMP	5	09/05/19 11:33 PM
C0905096.D	N037107-003E	SAMP	1	09/05/19 11:38 PM
C0905097.D	N037107-003E	SAMP	5	09/05/19 11:43 PM
C0905098.D	N037107-004E	SAMP	1	09/05/19 11:48 PM
C0905099.D	CCV7	CCV	1	09/05/19 11:53 PM
C0905100.D	CCB7	CCB	1	09/05/19 11:58 PM
C0905101.D	N037107-004E	SAMP	5	09/06/19 12:03 AM
C0905102.D	N037107-005E	SAMP	1	09/06/19 12:08 AM
C0905103.D	N037107-005E	SAMP	5	09/06/19 12:13 AM
C0905104.D	N037107-006E	SAMP	1	09/06/19 12:17 AM
C0905105.D	N037107-006E	SAMP	5	09/06/19 12:22 AM
C0905106.D	N037107-007E	SAMP	1	09/06/19 12:27 AM
C0905107.D	N037107-007E	SAMP	5	09/06/19 12:33 AM
C0905108.D	N037107-008E	SAMP	1	09/06/19 12:38 AM
C0905109.D	N037107-008E	SAMP	5	09/06/19 12:43 AM
C0905110.D	N037117-001E	SAMP	1	09/06/19 12:48 AM
C0905111.D	CCV8	CCV	1	09/06/19 12:53 AM
C0905112.D	CCB8	CCB	1	09/06/19 12:58 AM
C0905113.D	ICSA3	ICSA	1	09/06/19 1:03 AM
C0905114.D	ICSAB3	ICSAB	1	09/06/19 1:07 AM
C0905115.D	N037117-001E	SAMP	5	09/06/19 1:12 AM
C0905116.D	N037117-002E	SAMP	1	09/06/19 1:17 AM
C0905117.D	N037117-002E	SAMP	5	09/06/19 1:22 AM
C0905118.D	N037117-003E	SAMP	1	09/06/19 1:27 AM
C0905119.D	N037117-003E	SAMP	5	09/06/19 1:32 AM
C0905120.D	N037117-004E	SAMP	1	09/06/19 1:37 AM
C0905121.D	N037117-004E	SAMP	5	09/06/19 1:42 AM
C0905122.D	N037117-005E	SAMP	1	09/06/19 1:47 AM
C0905123.D	N037117-005E	SAMP	5	09/06/19 1:52 AM
C0905124.D	N037117-008E	SAMP	1	09/06/19 1:57 AM
C0905125.D	CCV9	CCV	1	09/06/19 2:02 AM
C0905126.D	CCB9	CCB	1	09/06/19 2:07 AM

N037107-008E
N037107-008E
N037117-001E
N037117-001E
~~N037117-001E~~
N037117-002E

N037117-002E
N037117-003E
N037117-003E
N037117-004E
N037117-004E
N037117-005E
N037117-005E
N037107-007E
N037107-007E

NS 9/17/2019
for CEI

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905127.D	N037117-008E	SAMP	5	09/06/19 2:12 AM
C0905128.D	N037147-001E	SAMP	1	09/06/19 2:17 AM
C0905129.D	N037147-001E	SAMP	5	09/06/19 2:22 AM
C0905130.D	N037147-002E	SAMP	1	09/06/19 2:27 AM
C0905131.D	N037147-002E	SAMP	5	09/06/19 2:32 AM
C0905132.D	CCV10	CCV	1	09/06/19 2:37 AM
C0905133.D	CCB10	CCB	1	09/06/19 2:43 AM
C0905134.D	ICSA4	ICSA	1	09/06/19 2:48 AM
C0905135.D	ICSAB4	ICSAB	1	09/06/19 2:52 AM
C0905136.D	MB-75129	MBLK	1	09/06/19 2:58 AM
C0905137.D	LCS-75129	LCS	1	09/06/19 3:03 AM
C0905138.D	N037118-001B	SAMP	1	09/06/19 3:08 AM
C0905139.D	N037118-001B	SAMP	5	09/06/19 3:13 AM
C0905140.D	N037118-001B-PS	PS	1	09/06/19 3:18 AM
C0905141.D	N037118-001B-MS	MS	1	09/06/19 3:23 AM
C0905142.D	N037118-001B-MSD	MSD	1	09/06/19 3:28 AM
C0905143.D	N037118-002B	SAMP	1	09/06/19 3:33 AM
C0905144.D	N037118-003B	SAMP	1	09/06/19 3:39 AM
C0905145.D	N037118-004B	SAMP	1	09/06/19 3:44 AM
C0905146.D	CCV11	CCV	1	09/06/19 3:49 AM
C0905147.D	CCB11	CCB	1	09/06/19 3:54 AM
C0905148.D	N037118-005B	SAMP	1	09/06/19 3:59 AM
C0905149.D	N037118-006B	SAMP	1	09/06/19 4:04 AM
C0905150.D	N037118-007B	SAMP	1	09/06/19 4:09 AM
C0905151.D	N037118-008B	SAMP	1	09/06/19 4:14 AM
C0905152.D	N037118-009B	SAMP	1	09/06/19 4:19 AM
C0905153.D	N037118-010B	SAMP	1	09/06/19 4:24 AM
C0905154.D	N037118-011B	SAMP	1	09/06/19 4:29 AM
C0905155.D	N037118-012B	SAMP	1	09/06/19 4:34 AM
C0905156.D	N037118-013B	SAMP	1	09/06/19 4:39 AM
C0905157.D	N037118-014B	SAMP	1	09/06/19 4:44 AM
C0905158.D	CCV12	CCV	1	09/06/19 4:49 AM
C0905159.D	CCB12	CCB	1	09/06/19 4:54 AM
C0905160.D	N037118-015B	SAMP	1	09/06/19 4:59 AM
C0905161.D	N037140-001A	SAMP	1	09/06/19 5:04 AM
C0905162.D	N037140-003A	SAMP	1	09/06/19 5:09 AM
C0905163.D	N037142-001A	SAMP	1	09/06/19 5:14 AM
C0905164.D	N037143-001B	SAMP	1	09/06/19 5:19 AM
C0905165.D	CCV13	CCV	1	09/06/19 5:24 AM
C0905166.D	CCB13	CCB	1	09/06/19 5:29 AM
C0905167.D	ICSA5	ICSA	1	09/06/19 5:34 AM
C0905168.D	ICSAB5	ICSAB	1	09/06/19 5:39 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 8:59:46 A**
Prep End Date: **8/23/2019 1:00:00 P**
Reviewed/ Date: NS 9/17/2019
Initials/ Date: for

Prep Batch **75122** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-14**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75122	Aqueous		25	☐	25	1.000		
MB-75122	Aqueous		25	☐	25	1.000		
N037066-001D	Groundwater	<2	25	☐	25	1.000		
N037066-001D-MS	Groundwater	<2	25	☐	25	1.000		
N037066-001D-MS	Groundwater	<2	25	☐	25	1.000		
N037066-002D	Groundwater	<2	25	☐	25	1.000		
N037067-001F	Groundwater	<2	25	☐	25	1.000		
N037067-002F	Groundwater	<2	25	☐	25	1.000		
N037104-001A	Groundwater	<2	25	☐	25	1.000		
N037105-001B	Groundwater	<2	25	☐	25	1.000		
N037107-001D	Groundwater	<2	25	☐	25	1.000		
N037107-002D	Groundwater	<2	25	☐	25	1.000		
N037107-003D	Groundwater	<2	25	☐	25	1.000		
N037107-004D	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 8:59:46 A**
Prep End Date: **8/23/2019 1:00:00 P**
Reviewed/ Date: NS 9/17/2019
Initials/ Date: for
Prep Batch **75122** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-14**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037107-005D	Groundwater	<2	25	☐	25	1.000		
N037107-006D	Groundwater	<2	25	☐	25	1.000		
N037107-007D	Groundwater	<2	25	☐	25	1.000		
N037107-008D	Groundwater	<2	25	☐	25	1.000		
N037113-001A	Groundwater	<2	25	☐	25	1.000		
N037115-001A	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 5 Sep 2019 09:58:14 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	109251.00	0.00	
24 Mg	240768.00	0.00	
25 Mg	31078.80	0.00	
26 Mg	36574.80	0.00	
59 Co	223022.00	0.00	
115 In	334278.00	0.00	
206 Pb	98030.40	0.00	
207 Pb	84672.30	0.00	
208 Pb	209481.00	0.00	

RSD (%)

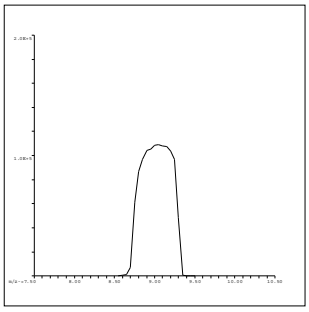
Element	Actual	Required	Flag
9 Be	2.07	5.00	
24 Mg	1.45	5.00	
25 Mg	1.11	5.00	
26 Mg	2.05	5.00	
59 Co	0.72	5.00	
115 In	0.83	5.00	
206 Pb	1.37	5.00	
207 Pb	1.62	5.00	
208 Pb	0.94	5.00	

Ion Ratio

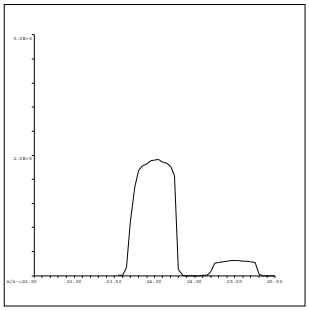
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

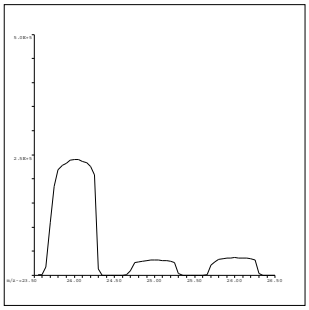
Element	Actual	Required	Flag



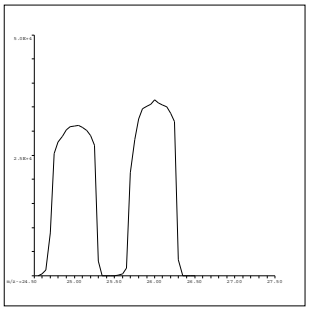
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



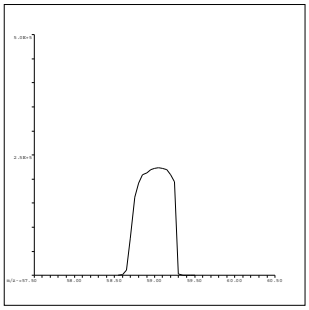
24 Mg
Mass Calib.
Actual: 24.05
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



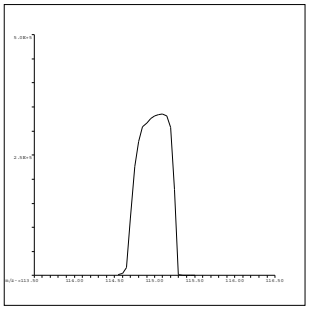
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



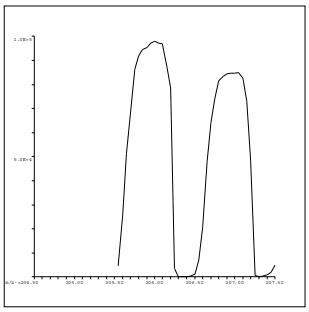
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



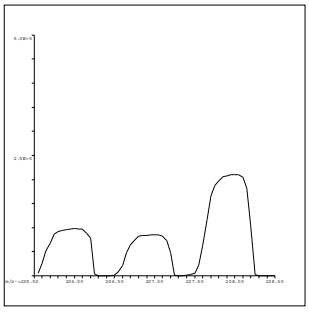
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



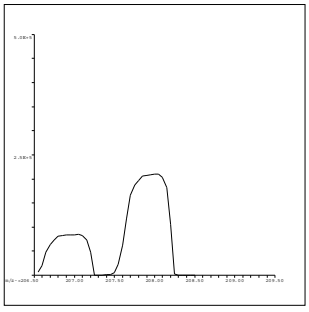
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190905C

Instrument ID: ICPMS-02

Analyte	Data File	C0905002.D	C0905003.D	C0905004.D	C0905005.D	C0905006.D	C0905007.D	C0905008.D	C0905009.D	C0905010.D	
	Acq. Date-Time	09/05/2019 03:46 PM	09/05/2019 03:51 PM	09/05/2019 03:55 PM	09/05/2019 04:00 PM	09/05/2019 04:04 PM	09/05/2019 04:09 PM	09/05/2019 04:14 PM	09/05/2019 04:19 PM	09/05/2019 04:24 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
6 Li (ISTD) [3]	CPS	1231036.1		1217834.8	1202967.1	1216671.8	1218570	1245246.4	1193069.1	1179161	
9 Be [3]	CPS	120		4365.2	41880.9	83866.7	170625.5	340983.3	838448.7	1707591	0.9999
45 Sc (ISTD) [2]	CPS	60530		60408.4	61289.3	59849.9	61840.4	62082.3	59590	61430.2	
59 Co [2]	CPS	32.1		3564.9	36049.2	72668.4	145388.5	289800.8	703426.6	1540592.7	1.0000
55 Mn [2]	CPS	80.5		1139.7	10669.9	20684.4	42487.6	85481.6	206071.3	418785.6	1.0000
52 Cr [2]	CPS	188.8		2488	21766.8	42632.9	86690.8	175336	424150.1	857095.3	1.0000
51 V [2]	CPS	315.6		2032.4	17808	34763.2	70432.3	141096	341585.9	694676.8	1.0000
72 Ge (ISTD) [1]	CPS	21637.4		21742	21606.2	21951.2	22104.7	21600.7	21112.2	21984.5	
78 Se [1]	CPS	0		36.7	407.8	831.2	1607.9	3533.9	8285.8	16537.9	0.9985
72 Ge (ISTD) [2]	CPS	35277	35488.5	34985.3	34870.6	35343.8	35832.6	36120.9	34710.2	35701.2	
75 As [2]	CPS	17.3	89.8	306.2	2965.2	5976.3	11830.6	23701.8	57572.4	117445.7	1.0000
66 Zn [2]	CPS	90.1		500.1	4528	8351.3	17016.6	34321.2	83193.7	169020	1.0000
63 Cu [2]	CPS	161.6		2916.4	27430.2	55006.6	110303.4	220448.8	535506.9	1083829.5	1.0000
60 Ni [2]	CPS	218.7		1095.4	9870.3	19615.4	39318.2	78849	190823.9	386581.8	1.0000
103 Rh (ISTD) [2]	CPS	869884		874249.4	881319.6	876849.2	892693.1	890282.1	866279.9	882762.6	
95 Mo [2]	CPS	17.8		1033.4	10785.2	21463.1	43931.5	88048.3	213258.2	437599.6	1.0000
103 Rh (ISTD) [3]	CPS	1335292.2		1328832.6	1267120.7	1348492.7	1355410.1	1358471.1	1338468.5	1329626.1	
107 Ag [3]	CPS	269.7		6012.7	58610.8	116997.5	236746.7	475159.5	1172808	2444798.1	1.0000
115 In (ISTD) [3]	CPS	1311898.1		1310871.6	1330586.1	1341088.1	1354464	1361538.9	1348756.2	1338190	
121 Sb [3]	CPS	276.7		5714.6	53475.4	108252.3	220484.2	443791.7	1103790.2	2403126.9	1.0000
111 Cd [3]	CPS	18.9		1340.1	12931.4	25694	52475.7	104916.4	261506.1	517099.7	1.0000
159 Tb (ISTD) [3]	CPS	2207926.7		2195904.8	2234275.2	2247294.5	2265316.1	2237522.9	2243925.3	2239185.7	
137 Ba [3]	CPS	83.3		1694.6	16776.4	34212.1	69414.7	137544.5	341915.4	679989.9	1.0000
209 Bi (ISTD) [3]	CPS	1364094.3		1369235.5	1374163.2	1394560.5	1421758.8	1431713.3	1409295.8	1414561	
208 Pb [3]	CPS	278.8		16803	165321.5	332396.4	677320.4	1361064.3	3618256.8	7201099.8	1.0000
205 Tl [3]	CPS	525.6		11796.4	116465.6	234648.1	477659.4	966018.7	2583312.6	5056668.5	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.236	0.10	10.00	0	102	90	110				
Manganese	102.420	0.50	100.0	0	102	90	110				
Molybdenum	9.888	0.50	10.00	0	98.9	90	110				
Selenium	9.968	0.50	10.00	0	99.7	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ZZZZZZ** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.119	0.10	0.1000	0	119	80	120				
Manganese	0.523	0.50	0.5000	0	105	80	120				
Molybdenum	0.552	0.50	0.5000	0	110	80	120				
Selenium	0.593	0.50	0.5000	0	119	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.286	0.10	20.00	0	101	90	110				
Manganese	19.855	0.50	20.00	0	99.3	90	110				
Molybdenum	20.512	0.50	20.00	0	103	90	110				
Selenium	20.232	0.50	20.00	0	101	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.292	0.10	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.400	0.50	20.00	0	102	90	110				
Molybdenum	20.416	0.50	20.00	0	102	90	110				
Selenium	18.728	0.50	20.00	0	93.6	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.534	0.10	20.00	0	103	90	110				
Manganese	20.442	0.50	20.00	0	102	90	110				
Molybdenum	20.375	0.50	20.00	0	102	90	110				
Selenium	19.729	0.50	20.00	0	98.6	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.261	0.10	20.00	0	101	90	110				
Manganese	19.975	0.50	20.00	0	99.9	90	110				
Molybdenum	20.149	0.50	20.00	0	101	90	110				
Selenium	19.227	0.50	20.00	0	96.1	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.165	0.10	20.00	0	101	90	110				
Manganese	20.359	0.50	20.00	0	102	90	110				
Molybdenum	20.285	0.50	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.840	0.50	20.00	0	94.2	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.691	0.10	20.00	0	103	90	110				
Manganese	20.397	0.50	20.00	0	102	90	110				
Molybdenum	20.219	0.50	20.00	0	101	90	110				
Selenium	17.684	0.50	20.00	0	88.4	90	110				S

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.084	0.10	20.00	0	100	90	110				
Manganese	20.181	0.50	20.00	0	101	90	110				
Molybdenum	20.415	0.50	20.00	0	102	90	110				
Selenium	18.592	0.50	20.00	0	93.0	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504285**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.806	0.10	20.00	0	99.0	90	110				
Manganese	20.550	0.50	20.00	0	103	90	110				
Molybdenum	20.204	0.50	20.00	0	101	90	110				
Selenium	18.837	0.50	20.00	0	94.2	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

% Rec of Se in CCV6 failed, low bias. However, samples are enclosed by CCV4

for NS 091219

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.877	0.10	20.00	0	99.4	90	110				
Manganese	20.555	0.50	20.00	0	103	90	110				
Molybdenum	20.143	0.50	20.00	0	101	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.782	0.10	20.00	0	98.9	90	110				
Manganese	20.242	0.50	20.00	0	101	90	110				
Molybdenum	20.402	0.50	20.00	0	102	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.861	0.10	20.00	0	99.3	90	110				
Manganese	20.287	0.50	20.00	0	101	90	110				
Molybdenum	20.069	0.50	20.00	0	100	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.927	0.10	20.00	0	99.6	90	110				
Manganese	19.944	0.50	20.00	0	99.7	90	110				
Molybdenum	20.292	0.50	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV13** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/6/2019** SeqNo: **3504339**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.003	0.10	20.00	0	100	90	110				
Manganese	20.115	0.50	20.00	0	101	90	110				
Molybdenum	20.111	0.50	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.188	1.0	10.00	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ZZZZZZ**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.054	1.0	1.000	0	105	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.658	1.0	20.00	0	98.3	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.760	1.0	20.00	0	98.8	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.790	1.0	20.00	0	98.9	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.722	1.0	20.00	0	98.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.288	1.0	20.00	0	96.4	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.492	1.0	20.00	0	97.5	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.196	1.0	20.00	0	96.0	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.517	1.0	20.00	0	97.6	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.318	1.0	20.00	0	96.6	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.251	1.0	20.00	0	96.3	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.373	1.0	20.00	0	96.9	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.001	1.0	20.00	0	95.0	90	110				

Sample ID **CCV13**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.223	1.0	20.00	0	96.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB** SampType: **ICB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504321**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **CCB13**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504340**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504068**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB13**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICSA** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICSAB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.936	0.10	20.00	0	105	80	120				
Manganese	19.204	0.50	20.00	0	96.0	80	120				
Molybdenum	21.774	0.50	20.00	0	109	80	120				
Selenium	19.835	0.50	20.00	0	99.2	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICSA** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICSAB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.306	0.10	20.00	0	107	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.794	0.50	20.00	0	94.0	80	120				
Molybdenum	21.942	0.50	20.00	0	110	80	120				
Selenium	20.272	0.50	20.00	0	101	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSA**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.065	0.10	20.00	0	105	80	120				
Manganese	19.425	0.50	20.00	0	97.1	80	120				
Molybdenum	22.273	0.50	20.00	0	111	80	120				
Selenium	18.812	0.50	20.00	0	94.1	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSA**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.689	0.10	20.00	0	103	80	120				
Manganese	19.181	0.50	20.00	0	95.9	80	120				
Molybdenum	22.391	0.50	20.00	0	112	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSA**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.643	0.10	20.00	0	103	80	120				
Manganese	19.449	0.50	20.00	0	97.2	80	120				
Molybdenum	22.276	0.50	20.00	0	111	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504031**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.302	1.0	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504081**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.605	1.0	20.00	0	98.0	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.584	1.0	20.00	0	97.9	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.507	1.0	20.00	0	97.5	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.473	1.0	20.00	0	97.4	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [3]					115 In (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	1335292.2	1335292.2	100	PASS	70-125	1311898.1	1311898.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	1340165.4	1335292.2	100.36	PASS	70-125	1317727.6	1311898.1	100.44	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	1328832.6	1335292.2	99.52	PASS	70-125	1310871.6	1311898.1	99.92	PASS	70-125
Std3-5/50 ppb	ICAL	1	1267120.7	1335292.2	94.89	PASS	70-125	1330586.1	1311898.1	101.42	PASS	70-125
Std4-10/100 ppb	ICAL	1	1348492.7	1335292.2	100.99	PASS	70-125	1341088.1	1311898.1	102.23	PASS	70-125
Std5-20/200 ppb	ICAL	1	1355410.1	1335292.2	101.51	PASS	70-125	1354464	1311898.1	103.24	PASS	70-125
Std6-40/400 ppb	ICAL	1	1358471.1	1335292.2	101.74	PASS	70-125	1361538.9	1311898.1	103.78	PASS	70-125
Std7-100/1000 ppb	ICAL	1	1338468.5	1335292.2	100.24	PASS	70-125	1348756.2	1311898.1	102.81	PASS	70-125
Std8-200/2000 ppb	ICAL	1	1329626.1	1335292.2	99.58	PASS	70-125	1338190	1311898.1	102	PASS	70-125
ICV	ICV	1	1424040.3	1335292.2	106.65	PASS	70-125	1354737.7	1311898.1	103.27	PASS	70-125
ICB	ICB	1	1407790.8	1335292.2	105.43	PASS	70-125	1343825.3	1311898.1	102.43	PASS	70-125
LLICV	CCV1	1	1425905.3	1335292.2	106.79	PASS	70-125	1357525.7	1311898.1	103.48	PASS	70-125
ICSA1	ICSA	1	1354648.6	1335292.2	101.45	PASS	70-125	1354542.5	1311898.1	103.25	PASS	70-125
ICSAB1	ICSAB	1	1356242.7	1335292.2	101.57	PASS	70-125	1320531.8	1311898.1	100.66	PASS	70-125
LLICV	CCV1	1	1562853.9	1335292.2	117.04	PASS	70-125	1435797	1311898.1	109.44	PASS	70-125
MB-75122	MBLK	1	1585319.6	1335292.2	118.72	PASS	70-125	1549207.9	1311898.1	118.09	PASS	70-125
LCS-75122	LCS	1	1515641.7	1335292.2	113.51	PASS	70-125	1331892	1311898.1	101.52	PASS	70-125
N037066-001D	SAMP	1	1252461.2	1335292.2	93.8	PASS	70-125	1274130.1	1311898.1	97.12	PASS	70-125
N037066-001D	SAMP	5	1309714.5	1335292.2	98.084	PASS	70-125	1337380.9	1311898.1	101.94	PASS	70-125
N037066-001D	SAMP	25	1349378.4	1335292.2	101.06	PASS	70-125	1349549.8	1311898.1	102.87	PASS	70-125
N037066-001D-PS	PS	1	1306577.9	1335292.2	97.85	PASS	70-125	1337314.9	1311898.1	101.94	PASS	70-125
N037066-001D-PS	PS	5	1319743.9	1335292.2	98.84	PASS	70-125	1380126	1311898.1	105.2	PASS	70-125
N037066-001D-MS	MS	1	1297855.3	1335292.2	97.2	PASS	70-125	1323953	1311898.1	100.92	PASS	70-125
N037066-001D-MS	MS	5	1345908.9	1335292.2	100.8	PASS	70-125	1343833	1311898.1	102.43	PASS	70-125
N037066-001D-MSD	MSD	1	1285824.1	1335292.2	96.3	PASS	70-125	1321260	1311898.1	100.71	PASS	70-125
CCV1	CCV	1	1490942.3	1335292.2	111.66	PASS	70-125	1453032.7	1311898.1	110.76	PASS	70-125
CCB1	CCB	1	1376443.1	1335292.2	103.08	PASS	70-125	1403997.1	1311898.1	107.02	PASS	70-125
N037066-001D-MSD	MSD	5	1276809.4	1335292.2	95.62	PASS	70-125	1299836.1	1311898.1	99.081	PASS	70-125
N037066-002D	SAMP	1	1238859.9	1335292.2	92.78	PASS	70-125	1265947.8	1311898.1	96.5	PASS	70-125
N037066-002D	SAMP	5	1278667.1	1335292.2	95.76	PASS	70-125	1304780.2	1311898.1	99.46	PASS	70-125
N037067-001F	SAMP	1	1312943.5	1335292.2	98.33	PASS	70-125	1347507	1311898.1	102.71	PASS	70-125
N037067-001F	SAMP	5	1297368.2	1335292.2	97.16	PASS	70-125	1328075.5	1311898.1	101.23	PASS	70-125
N037067-002F	SAMP	1	1256407.5	1335292.2	94.092	PASS	70-125	1283972.9	1311898.1	97.87	PASS	70-125
N037067-002F	SAMP	5	1344756.4	1335292.2	100.71	PASS	70-125	1425915	1311898.1	108.69	PASS	70-125
N037104-001A	SAMP	1	1313050.3	1335292.2	98.33	PASS	70-125	1533855.4	1311898.1	116.92	PASS	70-125
N037105-001B	SAMP	1	1178604.4	1335292.2	88.27	PASS	70-125	1202168.4	1311898.1	91.64	PASS	70-125
N037107-001D	SAMP	1	1389067.5	1335292.2	104.03	PASS	70-125	1502526.4	1311898.1	114.53	PASS	70-125
CCV2	CCV	1	1600410.8	1335292.2	119.85	PASS	70-125	1612017	1311898.1	122.88	PASS	70-125
CCB2	CCB	1	1540710.2	1335292.2	115.38	PASS	70-125	1500904.5	1311898.1	114.41	PASS	70-125
N037107-001D	SAMP	5	1289720.7	1335292.2	96.59	PASS	70-125	1386193.1	1311898.1	105.66	PASS	70-125
N037107-002D	SAMP	1	1271596.2	1335292.2	95.23	PASS	70-125	1305239.3	1311898.1	99.49	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [3]					115 In (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037107-002D	SAMP	5	1314786.5	1335292.2	98.46	PASS	70-125	1319698.9	1311898.1	100.59	PASS	70-125
N037107-003D	SAMP	1	1296367.7	1335292.2	97.085	PASS	70-125	1327428.6	1311898.1	101.18	PASS	70-125
N037107-003D	SAMP	5	1305171.5	1335292.2	97.74	PASS	70-125	1363751.6	1311898.1	103.95	PASS	70-125
N037107-004D	SAMP	1	1265329.6	1335292.2	94.76	PASS	70-125	1296237.8	1311898.1	98.81	PASS	70-125
N037107-004D	SAMP	5	1328249.2	1335292.2	99.47	PASS	70-125	1407277.8	1311898.1	107.27	PASS	70-125
N037107-005D	SAMP	1	1365213.1	1335292.2	102.24	PASS	70-125	1529296.9	1311898.1	116.57	PASS	70-125
N037107-005D	SAMP	5	1410209.6	1335292.2	105.61	PASS	70-125	1475756.5	1311898.1	112.49	PASS	70-125
N037107-006D	SAMP	1	1306521.3	1335292.2	97.85	PASS	70-125	1343188.6	1311898.1	102.39	PASS	70-125
CCV3	CCV	1	1504818.4	1335292.2	112.7	PASS	70-125	1546977.8	1311898.1	117.92	PASS	70-125
CCB3	CCB	1	1435154.7	1335292.2	107.48	PASS	70-125	1406533.3	1311898.1	107.21	PASS	70-125
N037107-006D	SAMP	5	1299138.2	1335292.2	97.29	PASS	70-125	1289997.9	1311898.1	98.33	PASS	70-125
N037107-007D	SAMP	1	1279540.8	1335292.2	95.82	PASS	70-125	1298524.7	1311898.1	98.98	PASS	70-125
N037107-007D	SAMP	5	1333310	1335292.2	99.85	PASS	70-125	1362411.8	1311898.1	103.85	PASS	70-125
N037107-008D	SAMP	1	1235460.9	1335292.2	92.52	PASS	70-125	1268810.2	1311898.1	96.72	PASS	70-125
N037107-008D	SAMP	5	1335654.2	1335292.2	100.03	PASS	70-125	1295117.6	1311898.1	98.72	PASS	70-125
N037066-001D	SAMP	1	1279610.8	1335292.2	95.83	PASS	70-125	1323307	1311898.1	100.87	PASS	70-125
N037067-001F	SAMP	1	1350568.1	1335292.2	101.14	PASS	70-125	1403322.8	1311898.1	106.97	PASS	70-125
N037067-002F	SAMP	1	1273860.6	1335292.2	95.4	PASS	70-125	1306130.8	1311898.1	99.56	PASS	70-125
N037067-002F	SAMP	25	1469807.6	1335292.2	110.07	PASS	70-125	1541666	1311898.1	117.51	PASS	70-125
N037105-001B	SAMP	5	1307937.3	1335292.2	97.95	PASS	70-125	1349601.4	1311898.1	102.87	PASS	70-125
CCV4	CCV	1	1592125	1335292.2	119.23	PASS	70-125	1611247.5	1311898.1	122.82	PASS	70-125
CCB4	CCB	1	1561984.1	1335292.2	116.98	PASS	70-125	1573086.2	1311898.1	119.91	PASS	70-125
ICSA2	ICSA	1	1316810.4	1335292.2	98.62	PASS	70-125	1438047.2	1311898.1	109.62	PASS	70-125
ICSAB2	ICSAB	1	1384426.6	1335292.2	103.68	PASS	70-125	1389981.3	1311898.1	105.95	PASS	70-125
N037113-001A	SAMP	1	1408269.7	1335292.2	105.47	PASS	70-125	1510614.9	1311898.1	115.15	PASS	70-125
N037113-001A	SAMP	5	1392773.6	1335292.2	104.3	PASS	70-125	1411893.5	1311898.1	107.62	PASS	70-125
N037115-001A	SAMP	1	1193158	1335292.2	89.36	PASS	70-125	1221662.4	1311898.1	93.12	PASS	70-125
N037115-001A	SAMP	5	1320783.5	1335292.2	98.91	PASS	70-125	1419451.2	1311898.1	108.2	PASS	70-125
N037107-002D	SAMP	1	1261369.5	1335292.2	94.46	PASS	70-125	1354316	1311898.1	103.23	PASS	70-125
N037107-003D	SAMP	1	1320370.9	1335292.2	98.88	PASS	70-125	1368590	1311898.1	104.32	PASS	70-125
N037107-006D	SAMP	1	1278994.7	1335292.2	95.78	PASS	70-125	1471625.6	1311898.1	112.18	PASS	70-125
N037107-007D	SAMP	1	1337907.9	1335292.2	100.2	PASS	70-125	1417839.9	1311898.1	108.08	PASS	70-125
CCV5	CCV	1	1596481.2	1335292.2	119.56	PASS	70-125	1633704.1	1311898.1	124.53	PASS	70-125
CCB5	CCB	1	1580006	1335292.2	118.33	PASS	70-125	1574110.4	1311898.1	119.99	PASS	70-125
CCV6	CCV	1	1586479.5	1335292.2	118.81	PASS	70-125	1612491.9	1311898.1	122.91	PASS	70-125
CCB6	CCB	1	1568197.8	1335292.2	117.44	PASS	70-125	1550748.4	1311898.1	118.21	PASS	70-125
CCV7	CCV	1	1606581.1	1335292.2	120.32	PASS	70-125	1646118.9	1311898.1	125.48	NR!	70-125
CCB7	CCB	1	1586232	1335292.2	118.79	PASS	70-125	1603841.6	1311898.1	122.25	PASS	70-125
CCV8	CCV	1	1597599.4	1335292.2	119.64	PASS	70-125	1642770.4	1311898.1	125.22	NR!	70-125
CCB8	CCB	1	1548573.5	1335292.2	115.97	PASS	70-125	1567979.3	1311898.1	119.52	PASS	70-125
ICSA3	ICSA	1	1394457.5	1335292.2	104.43	PASS	70-125	1458787.9	1311898.1	111.2	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [3]					115 In (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSAB3	ICSAB	1	1310482.2	1335292.2	98.14	PASS	70-125	1508300.7	1311898.1	114.97	PASS	70-125
CCV9	CCV	1	1608047	1335292.2	120.43	PASS	70-125	1641662.9	1311898.1	125.14	NR!	70-125
CCB9	CCB	1	1585065.3	1335292.2	118.71	PASS	70-125	1577362.8	1311898.1	120.24	PASS	70-125
CCV10	CCV	1	1586172.2	1335292.2	118.79	PASS	70-125	1637360.4	1311898.1	124.81	PASS	70-125
CCB10	CCB	1	1572600.7	1335292.2	117.77	PASS	70-125	1571625.5	1311898.1	119.8	PASS	70-125
ICSA4	ICSA	1	1501016.1	1335292.2	112.41	PASS	70-125	1395285.1	1311898.1	106.36	PASS	70-125
ICSAB4	ICSAB	1	1385307.9	1335292.2	103.75	PASS	70-125	1391339.2	1311898.1	106.06	PASS	70-125
CCV11	CCV	1	1593576.7	1335292.2	119.34	PASS	70-125	1595712.1	1311898.1	121.63	PASS	70-125
CCB11	CCB	1	1554428.8	1335292.2	116.41	PASS	70-125	1530023.5	1311898.1	116.63	PASS	70-125
CCV12	CCV	1	1619343.4	1335292.2	121.27	PASS	70-125	1668193.5	1311898.1	127.16	NR!	70-125
CCB12	CCB	1	1603302.2	1335292.2	120.07	PASS	70-125	1604733.3	1311898.1	122.32	PASS	70-125
CCV13	CCV	1	1653082.2	1335292.2	123.8	PASS	70-125	1708658.4	1311898.1	130.24	NR!	70-125
CCB13	CCB	1	1601008.9	1335292.2	119.9	PASS	70-125	1637919.7	1311898.1	124.85	PASS	70-125
ICSA5	ICSA	1	1389906.5	1335292.2	104.09	PASS	70-125	1463567.8	1311898.1	111.56	PASS	70-125
ICSAB5	ICSAB	1	1419461.1	1335292.2	106.3	PASS	70-125	1586219	1311898.1	120.91	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					209 Bi (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	2207926.7	2207926.7	100	PASS	70-125	1364094.3	1364094.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	2226833.4	2207926.7	100.86	PASS	70-125	1372478.3	1364094.3	100.61	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	2195904.8	2207926.7	99.46	PASS	70-125	1369235.5	1364094.3	100.38	PASS	70-125
Std3-5/50 ppb	ICAL	1	2234275.2	2207926.7	101.19	PASS	70-125	1374163.2	1364094.3	100.74	PASS	70-125
Std4-10/100 ppb	ICAL	1	2247294.5	2207926.7	101.78	PASS	70-125	1394560.5	1364094.3	102.23	PASS	70-125
Std5-20/200 ppb	ICAL	1	2265316.1	2207926.7	102.6	PASS	70-125	1421758.8	1364094.3	104.23	PASS	70-125
Std6-40/400 ppb	ICAL	1	2237522.9	2207926.7	101.34	PASS	70-125	1431713.3	1364094.3	104.96	PASS	70-125
Std7-100/1000 ppb	ICAL	1	2243925.3	2207926.7	101.63	PASS	70-125	1409295.8	1364094.3	103.31	PASS	70-125
Std8-200/2000 ppb	ICAL	1	2239185.7	2207926.7	101.42	PASS	70-125	1414561	1364094.3	103.7	PASS	70-125
ICV	ICV	1	2270702.7	2207926.7	102.84	PASS	70-125	1474650.2	1364094.3	108.1	PASS	70-125
ICB	ICB	1	2297210.5	2207926.7	104.04	PASS	70-125	1409052.8	1364094.3	103.3	PASS	70-125
LLICV	CCV1	1	2267049.5	2207926.7	102.68	PASS	70-125	1404895.9	1364094.3	102.99	PASS	70-125
ICSA1	ICSA	1	2297077.1	2207926.7	104.04	PASS	70-125	1304686.4	1364094.3	95.64	PASS	70-125
ICSAB1	ICSAB	1	2299312.4	2207926.7	104.14	PASS	70-125	1309764.9	1364094.3	96.017	PASS	70-125
LLICV	CCV1	1	2334270.6	2207926.7	105.72	PASS	70-125	1448063.6	1364094.3	106.16	PASS	70-125
MB-75122	MBLK	1	2353496.5	2207926.7	106.59	PASS	70-125	1588566.6	1364094.3	116.46	PASS	70-125
LCS-75122	LCS	1	2345154.7	2207926.7	106.22	PASS	70-125	1421832.8	1364094.3	104.23	PASS	70-125
N037066-001D	SAMP	1	2130034.5	2207926.7	96.47	PASS	70-125	1185625.2	1364094.3	86.92	PASS	70-125
N037066-001D	SAMP	5	2223508.4	2207926.7	100.71	PASS	70-125	1283802.7	1364094.3	94.11	PASS	70-125
N037066-001D	SAMP	25	2272103.8	2207926.7	102.91	PASS	70-125	1367999.3	1364094.3	100.29	PASS	70-125
N037066-001D-PS	PS	1	2234598	2207926.7	101.21	PASS	70-125	1232741.4	1364094.3	90.37	PASS	70-125
N037066-001D-PS	PS	5	2227943.4	2207926.7	100.91	PASS	70-125	1289423.9	1364094.3	94.53	PASS	70-125
N037066-001D-MS	MS	1	2183657.7	2207926.7	98.9	PASS	70-125	1218081.8	1364094.3	89.3	PASS	70-125
N037066-001D-MS	MS	5	2222870.2	2207926.7	100.68	PASS	70-125	1275951.4	1364094.3	93.54	PASS	70-125
N037066-001D-MSD	MSD	1	2179995.1	2207926.7	98.73	PASS	70-125	1208943.9	1364094.3	88.63	PASS	70-125
CCV1	CCV	1	2280570.8	2207926.7	103.29	PASS	70-125	1402821.6	1364094.3	102.84	PASS	70-125
CCB1	CCB	1	2264674.9	2207926.7	102.57	PASS	70-125	1364883.2	1364094.3	100.06	PASS	70-125
N037066-001D-MSD	MSD	5	2211134.2	2207926.7	100.15	PASS	70-125	1283813.5	1364094.3	94.11	PASS	70-125
N037066-002D	SAMP	1	2103762.6	2207926.7	95.28	PASS	70-125	1172352.4	1364094.3	85.94	PASS	70-125
N037066-002D	SAMP	5	2173264.1	2207926.7	98.43	PASS	70-125	1247069.6	1364094.3	91.42	PASS	70-125
N037067-001F	SAMP	1	2260436.7	2207926.7	102.38	PASS	70-125	1259902	1364094.3	92.36	PASS	70-125
N037067-001F	SAMP	5	2209534.4	2207926.7	100.07	PASS	70-125	1282348.4	1364094.3	94.007	PASS	70-125
N037067-002F	SAMP	1	2107298.4	2207926.7	95.44	PASS	70-125	1149932.9	1364094.3	84.3	PASS	70-125
N037067-002F	SAMP	5	2263573.8	2207926.7	102.52	PASS	70-125	1275056.9	1364094.3	93.47	PASS	70-125
N037104-001A	SAMP	1	2336159	2207926.7	105.81	PASS	70-125	1326774.1	1364094.3	97.26	PASS	70-125
N037105-001B	SAMP	1	1982552.9	2207926.7	89.79	PASS	70-125	1058005	1364094.3	77.56	PASS	70-125
N037107-001D	SAMP	1	2320148.1	2207926.7	105.08	PASS	70-125	1316295.5	1364094.3	96.5	PASS	70-125
CCV2	CCV	1	2393216.6	2207926.7	108.39	PASS	70-125	1488238.1	1364094.3	109.1	PASS	70-125
CCB2	CCB	1	2329546.3	2207926.7	105.51	PASS	70-125	1385895.5	1364094.3	101.6	PASS	70-125
N037107-001D	SAMP	5	2243181.2	2207926.7	101.6	PASS	70-125	1337020	1364094.3	98.015	PASS	70-125
N037107-002D	SAMP	1	2154546	2207926.7	97.58	PASS	70-125	1197765.4	1364094.3	87.81	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					209 Bi (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037107-002D	SAMP	5	2230330.6	2207926.7	101.02	PASS	70-125	1268081.5	1364094.3	92.96	PASS	70-125
N037107-003D	SAMP	1	2162501.3	2207926.7	97.94	PASS	70-125	1184856.4	1364094.3	86.86	PASS	70-125
N037107-003D	SAMP	5	2270779.7	2207926.7	102.85	PASS	70-125	1277804.8	1364094.3	93.67	PASS	70-125
N037107-004D	SAMP	1	2116932.5	2207926.7	95.88	PASS	70-125	1155209.2	1364094.3	84.69	PASS	70-125
N037107-004D	SAMP	5	2238105.5	2207926.7	101.37	PASS	70-125	1268935.8	1364094.3	93.024	PASS	70-125
N037107-005D	SAMP	1	2398556.5	2207926.7	108.63	PASS	70-125	1335513.6	1364094.3	97.9	PASS	70-125
N037107-005D	SAMP	5	2344713.8	2207926.7	106.2	PASS	70-125	1368754.7	1364094.3	100.34	PASS	70-125
N037107-006D	SAMP	1	2222446.8	2207926.7	100.66	PASS	70-125	1224570.4	1364094.3	89.77	PASS	70-125
CCV3	CCV	1	2339980.8	2207926.7	105.98	PASS	70-125	1404563.8	1364094.3	102.97	PASS	70-125
CCB3	CCB	1	2298262.4	2207926.7	104.09	PASS	70-125	1373019.7	1364094.3	100.65	PASS	70-125
N037107-006D	SAMP	5	2234305.2	2207926.7	101.19	PASS	70-125	1306702.2	1364094.3	95.79	PASS	70-125
N037107-007D	SAMP	1	2136872.2	2207926.7	96.78	PASS	70-125	1184340.5	1364094.3	86.82	PASS	70-125
N037107-007D	SAMP	5	2246270.7	2207926.7	101.74	PASS	70-125	1269583.6	1364094.3	93.072	PASS	70-125
N037107-008D	SAMP	1	2063435.5	2207926.7	93.46	PASS	70-125	1131103.9	1364094.3	82.92	PASS	70-125
N037107-008D	SAMP	5	2260807.4	2207926.7	102.4	PASS	70-125	1259080.5	1364094.3	92.3	PASS	70-125
N037066-001D	SAMP	1	2196957.8	2207926.7	99.5	PASS	70-125	1179879.8	1364094.3	86.5	PASS	70-125
N037067-001F	SAMP	1	2310997.4	2207926.7	104.67	PASS	70-125	1270222.6	1364094.3	93.12	PASS	70-125
N037067-002F	SAMP	1	2146003.4	2207926.7	97.2	PASS	70-125	1153030.9	1364094.3	84.53	PASS	70-125
N037067-002F	SAMP	25	2338531.2	2207926.7	105.92	PASS	70-125	1348972.9	1364094.3	98.89	PASS	70-125
N037105-001B	SAMP	5	2226357.9	2207926.7	100.83	PASS	70-125	1228193.7	1364094.3	90.037	PASS	70-125
CCV4	CCV	1	2390919.7	2207926.7	108.29	PASS	70-125	1502675.8	1364094.3	110.16	PASS	70-125
CCB4	CCB	1	2381530.8	2207926.7	107.86	PASS	70-125	1386238.2	1364094.3	101.62	PASS	70-125
ICSA2	ICSA	1	2310828.3	2207926.7	104.66	PASS	70-125	1277759.1	1364094.3	93.67	PASS	70-125
ICSAB2	ICSAB	1	2317466.1	2207926.7	104.96	PASS	70-125	1278596	1364094.3	93.73	PASS	70-125
N037113-001A	SAMP	1	2367932.3	2207926.7	107.25	PASS	70-125	1330833.6	1364094.3	97.56	PASS	70-125
N037113-001A	SAMP	5	2307126.1	2207926.7	104.49	PASS	70-125	1357888.7	1364094.3	99.55	PASS	70-125
N037115-001A	SAMP	1	2003882.2	2207926.7	90.76	PASS	70-125	1064013.9	1364094.3	78.002	PASS	70-125
N037115-001A	SAMP	5	2233535.1	2207926.7	101.16	PASS	70-125	1233532.7	1364094.3	90.43	PASS	70-125
N037107-002D	SAMP	1	2250978.8	2207926.7	101.95	PASS	70-125	1223261.6	1364094.3	89.68	PASS	70-125
N037107-003D	SAMP	1	2197527.5	2207926.7	99.53	PASS	70-125	1205691.1	1364094.3	88.39	PASS	70-125
N037107-006D	SAMP	1	2270949.8	2207926.7	102.85	PASS	70-125	1249829.9	1364094.3	91.62	PASS	70-125
N037107-007D	SAMP	1	2234261	2207926.7	101.19	PASS	70-125	1204307.1	1364094.3	88.29	PASS	70-125
CCV5	CCV	1	2395975.2	2207926.7	108.52	PASS	70-125	1472432	1364094.3	107.94	PASS	70-125
CCB5	CCB	1	2385948.7	2207926.7	108.06	PASS	70-125	1329058.8	1364094.3	97.43	PASS	70-125
CCV6	CCV	1	2375308.1	2207926.7	107.58	PASS	70-125	1461275.1	1364094.3	107.12	PASS	70-125
CCB6	CCB	1	2368828.1	2207926.7	107.29	PASS	70-125	1402075.7	1364094.3	102.78	PASS	70-125
CCV7	CCV	1	2402562.4	2207926.7	108.82	PASS	70-125	1471612.5	1364094.3	107.88	PASS	70-125
CCB7	CCB	1	2362149.2	2207926.7	106.98	PASS	70-125	1376105.5	1364094.3	100.88	PASS	70-125
CCV8	CCV	1	2392511	2207926.7	108.36	PASS	70-125	1434800.4	1364094.3	105.18	PASS	70-125
CCB8	CCB	1	2354420.4	2207926.7	106.63	PASS	70-125	1431159.2	1364094.3	104.92	PASS	70-125
ICSA3	ICSA	1	2322167.2	2207926.7	105.17	PASS	70-125	1273709.7	1364094.3	93.37	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					209 Bi (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSAB3	ICSAB	1	2362053.3	2207926.7	106.98	PASS	70-125	1307181.9	1364094.3	95.83	PASS	70-125
CCV9	CCV	1	2423423.5	2207926.7	109.76	PASS	70-125	1413849.9	1364094.3	103.65	PASS	70-125
CCB9	CCB	1	2382471.9	2207926.7	107.91	PASS	70-125	1474737.4	1364094.3	108.11	PASS	70-125
CCV10	CCV	1	2397226.2	2207926.7	108.57	PASS	70-125	1481653.5	1364094.3	108.62	PASS	70-125
CCB10	CCB	1	2379429.5	2207926.7	107.77	PASS	70-125	1397781.9	1364094.3	102.47	PASS	70-125
ICSA4	ICSA	1	2305453.8	2207926.7	104.42	PASS	70-125	1240522.6	1364094.3	90.94	PASS	70-125
ICSAB4	ICSAB	1	2284233.6	2207926.7	103.46	PASS	70-125	1237558	1364094.3	90.72	PASS	70-125
CCV11	CCV	1	2349004.3	2207926.7	106.39	PASS	70-125	1439696.2	1364094.3	105.54	PASS	70-125
CCB11	CCB	1	2349934	2207926.7	106.43	PASS	70-125	1388410	1364094.3	101.78	PASS	70-125
CCV12	CCV	1	2378209	2207926.7	107.71	PASS	70-125	1455433.7	1364094.3	106.7	PASS	70-125
CCB12	CCB	1	2351295.6	2207926.7	106.49	PASS	70-125	1352881	1364094.3	99.18	PASS	70-125
CCV13	CCV	1	2423084.2	2207926.7	109.74	PASS	70-125	1582094.2	1364094.3	115.98	PASS	70-125
CCB13	CCB	1	2363225.9	2207926.7	107.03	PASS	70-125	1411291.8	1364094.3	103.46	PASS	70-125
ICSA5	ICSA	1	2284820.5	2207926.7	103.48	PASS	70-125	1226165.6	1364094.3	89.89	PASS	70-125
ICSAB5	ICSAB	1	2317681.5	2207926.7	104.97	PASS	70-125	1257258.2	1364094.3	92.17	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	60530	60530	100	PASS	70-125	35277	35277	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	61197.9	60530	101.1	PASS	70-125	35488.5	35277	100.6	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	60408.4	60530	99.8	PASS	70-125	34985.3	35277	99.17	PASS	70-125
Std3-5/50 ppb	ICAL	1	61289.3	60530	101.25	PASS	70-125	34870.6	35277	98.85	PASS	70-125
Std4-10/100 ppb	ICAL	1	59849.9	60530	98.88	PASS	70-125	35343.8	35277	100.19	PASS	70-125
Std5-20/200 ppb	ICAL	1	61840.4	60530	102.16	PASS	70-125	35832.6	35277	101.57	PASS	70-125
Std6-40/400 ppb	ICAL	1	62082.3	60530	102.56	PASS	70-125	36120.9	35277	102.39	PASS	70-125
Std7-100/1000 ppb	ICAL	1	59590	60530	98.45	PASS	70-125	34710.2	35277	98.39	PASS	70-125
Std8-200/2000 ppb	ICAL	1	61430.2	60530	101.49	PASS	70-125	35701.2	35277	101.2	PASS	70-125
ICV	ICV	1	57188	60530	94.48	PASS	70-125	33091.2	35277	93.8	PASS	70-125
ICB	ICB	1	61624	60530	101.81	PASS	70-125	35258.2	35277	99.95	PASS	70-125
LLICV	CCV1	1	60718.3	60530	100.31	PASS	70-125	35211.2	35277	99.81	PASS	70-125
ICSA1	ICSA	1	64361.1	60530	106.33	PASS	70-125	36475.2	35277	103.4	PASS	70-125
ICSAB1	ICSAB	1	63287.8	60530	104.56	PASS	70-125	36784.9	35277	104.27	PASS	70-125
LLICV	CCV1	1	63670.5	60530	105.19	PASS	70-125	37166.7	35277	105.36	PASS	70-125
MB-75122	MBLK	1	65113.6	60530	107.57	PASS	70-125	37851.5	35277	107.3	PASS	70-125
LCS-75122	LCS	1	62199.6	60530	102.76	PASS	70-125	36258.1	35277	102.78	PASS	70-125
N037066-001D	SAMP	1	64230.2	60530	106.11	PASS	70-125	36056.5	35277	102.21	PASS	70-125
N037066-001D	SAMP	5	65147.4	60530	107.63	PASS	70-125	38126.6	35277	108.08	PASS	70-125
N037066-001D	SAMP	25	65382.7	60530	108.02	PASS	70-125	38423.1	35277	108.92	PASS	70-125
N037066-001D-PS	PS	1	66458.2	60530	109.79	PASS	70-125	37326.9	35277	105.81	PASS	70-125
N037066-001D-PS	PS	5	67265.7	60530	111.13	PASS	70-125	38161.3	35277	108.18	PASS	70-125
N037066-001D-MS	MS	1	65830.2	60530	108.76	PASS	70-125	37282.5	35277	105.69	PASS	70-125
N037066-001D-MS	MS	5	67456.6	60530	111.44	PASS	70-125	39007.7	35277	110.58	PASS	70-125
N037066-001D-MSD	MSD	1	66765.7	60530	110.3	PASS	70-125	38279.4	35277	108.51	PASS	70-125
CCV1	CCV	1	69610.8	60530	115	PASS	70-125	39915.6	35277	113.15	PASS	70-125
CCB1	CCB	1	66406.9	60530	109.71	PASS	70-125	38308.2	35277	108.59	PASS	70-125
N037066-001D-MSD	MSD	5	62279.6	60530	102.89	PASS	70-125	36244.7	35277	102.74	PASS	70-125
N037066-002D	SAMP	1	63739.6	60530	105.3	PASS	70-125	35990.8	35277	102.02	PASS	70-125
N037066-002D	SAMP	5	64688.7	60530	106.87	PASS	70-125	37294.8	35277	105.72	PASS	70-125
N037067-001F	SAMP	1	66117.7	60530	109.23	PASS	70-125	37499.7	35277	106.3	PASS	70-125
N037067-001F	SAMP	5	66037.7	60530	109.1	PASS	70-125	38194.9	35277	108.27	PASS	70-125
N037067-002F	SAMP	1	63860.1	60530	105.5	PASS	70-125	36068.7	35277	102.24	PASS	70-125
N037067-002F	SAMP	5	66647.6	60530	110.11	PASS	70-125	38534.5	35277	109.23	PASS	70-125
N037104-001A	SAMP	1	66024.2	60530	109.08	PASS	70-125	38212.7	35277	108.32	PASS	70-125
N037105-001B	SAMP	1	61824.8	60530	102.14	PASS	70-125	34568.7	35277	97.99	PASS	70-125
N037107-001D	SAMP	1	64663.1	60530	106.83	PASS	70-125	37873.9	35277	107.36	PASS	70-125
CCV2	CCV	1	65982.5	60530	109.01	PASS	70-125	38382.8	35277	108.8	PASS	70-125
CCB2	CCB	1	65432.7	60530	108.1	PASS	70-125	38097.9	35277	108	PASS	70-125
N037107-001D	SAMP	5	63583.5	60530	105.05	PASS	70-125	36859.3	35277	104.49	PASS	70-125
N037107-002D	SAMP	1	63217.6	60530	104.44	PASS	70-125	35867.3	35277	101.67	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037107-002D	SAMP	5	65833.1	60530	108.76	PASS	70-125	37860.7	35277	107.32	PASS	70-125
N037107-003D	SAMP	1	67268.1	60530	111.13	PASS	70-125	37762.5	35277	107.05	PASS	70-125
N037107-003D	SAMP	5	66694.5	60530	110.18	PASS	70-125	38117.8	35277	108.05	PASS	70-125
N037107-004D	SAMP	1	63990.8	60530	105.72	PASS	70-125	36161.1	35277	102.51	PASS	70-125
N037107-004D	SAMP	5	65935.9	60530	108.93	PASS	70-125	37997.7	35277	107.71	PASS	70-125
N037107-005D	SAMP	1	66116.5	60530	109.23	PASS	70-125	38535.5	35277	109.24	PASS	70-125
N037107-005D	SAMP	5	65402.7	60530	108.05	PASS	70-125	38100.1	35277	108	PASS	70-125
N037107-006D	SAMP	1	63027.1	60530	104.13	PASS	70-125	35898.3	35277	101.76	PASS	70-125
CCV3	CCV	1	66035.4	60530	109.1	PASS	70-125	38071	35277	107.92	PASS	70-125
CCB3	CCB	1	64344.4	60530	106.3	PASS	70-125	36685.6	35277	103.99	PASS	70-125
N037107-006D	SAMP	5	62169.2	60530	102.71	PASS	70-125	35854.8	35277	101.64	PASS	70-125
N037107-007D	SAMP	1	63838.8	60530	105.47	PASS	70-125	35981.7	35277	102	PASS	70-125
N037107-007D	SAMP	5	64104.6	60530	105.91	PASS	70-125	37466.3	35277	106.21	PASS	70-125
N037107-008D	SAMP	1	62292	60530	102.91	PASS	70-125	35324.8	35277	100.14	PASS	70-125
N037107-008D	SAMP	5	63671.6	60530	105.19	PASS	70-125	37127.9	35277	105.25	PASS	70-125
N037066-001D	SAMP	1	62565.4	60530	103.36	PASS	70-125	36313.6	35277	102.94	PASS	70-125
N037067-001F	SAMP	1	64383	60530	106.37	PASS	70-125	37385	35277	105.98	PASS	70-125
N037067-002F	SAMP	1	61739.9	60530	102	PASS	70-125	35095.4	35277	99.49	PASS	70-125
N037067-002F	SAMP	25	65054.6	60530	107.47	PASS	70-125	38751.6	35277	109.85	PASS	70-125
N037105-001B	SAMP	5	61899.4	60530	102.26	PASS	70-125	35679	35277	101.14	PASS	70-125
CCV4	CCV	1	65977	60530	109	PASS	70-125	38324	35277	108.64	PASS	70-125
CCB4	CCB	1	63183.2	60530	104.38	PASS	70-125	37171.2	35277	105.37	PASS	70-125
ICSA2	ICSA	1	62635.8	60530	103.48	PASS	70-125	36543.1	35277	103.59	PASS	70-125
ICSAB2	ICSAB	1	63621.5	60530	105.11	PASS	70-125	35934	35277	101.86	PASS	70-125
N037113-001A	SAMP	1	63131.9	60530	104.3	PASS	70-125	37546.6	35277	106.43	PASS	70-125
N037113-001A	SAMP	5	63533.5	60530	104.96	PASS	70-125	36682.4	35277	103.98	PASS	70-125
N037115-001A	SAMP	1	61095.3	60530	100.93	PASS	70-125	33700.3	35277	95.53	PASS	70-125
N037115-001A	SAMP	5	63966	60530	105.68	PASS	70-125	37137.7	35277	105.27	PASS	70-125
N037107-002D	SAMP	1	64651.8	60530	106.81	PASS	70-125	36686.6	35277	104	PASS	70-125
N037107-003D	SAMP	1	64181.1	60530	106.03	PASS	70-125	36885.1	35277	104.56	PASS	70-125
N037107-006D	SAMP	1	63898.9	60530	105.57	PASS	70-125	36701.2	35277	104.04	PASS	70-125
N037107-007D	SAMP	1	64257.1	60530	106.16	PASS	70-125	36570.7	35277	103.67	PASS	70-125
CCV5	CCV	1	65020.2	60530	107.42	PASS	70-125	38267.1	35277	108.48	PASS	70-125
CCB5	CCB	1	63245.5	60530	104.49	PASS	70-125	36766.8	35277	104.22	PASS	70-125
CCV6	CCV	1	65558.9	60530	108.31	PASS	70-125	37398.5	35277	106.01	PASS	70-125
CCB6	CCB	1	62597.6	60530	103.42	PASS	70-125	37019.8	35277	104.94	PASS	70-125
CCV7	CCV	1	65224.4	60530	107.76	PASS	70-125	38022.2	35277	107.78	PASS	70-125
CCB7	CCB	1	62402.5	60530	103.09	PASS	70-125	37740.2	35277	106.98	PASS	70-125
CCV8	CCV	1	62666.7	60530	103.53	PASS	70-125	37101.1	35277	105.17	PASS	70-125
CCB8	CCB	1	61116.7	60530	100.97	PASS	70-125	35701.3	35277	101.2	PASS	70-125
ICSA3	ICSA	1	60187.9	60530	99.43	PASS	70-125	35535.5	35277	100.73	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSAB3	ICSAB	1	62402.2	60530	103.09	PASS	70-125	36287	35277	102.86	PASS	70-125
CCV9	CCV	1	62022.1	60530	102.47	PASS	70-125	36630	35277	103.84	PASS	70-125
CCB9	CCB	1	60138.6	60530	99.35	PASS	70-125	36105.3	35277	102.35	PASS	70-125
CCV10	CCV	1	61311.8	60530	101.29	PASS	70-125	35966.4	35277	101.95	PASS	70-125
CCB10	CCB	1	59974.6	60530	99.082	PASS	70-125	35685.7	35277	101.16	PASS	70-125
ICSA4	ICSA	1	59628.8	60530	98.51	PASS	70-125	35111.3	35277	99.53	PASS	70-125
ICSAB4	ICSAB	1	63843.6	60530	105.47	PASS	70-125	36908.4	35277	104.62	PASS	70-125
CCV11	CCV	1	64111	60530	105.92	PASS	70-125	37682.6	35277	106.82	PASS	70-125
CCB11	CCB	1	62336.5	60530	102.98	PASS	70-125	36936.2	35277	104.7	PASS	70-125
CCV12	CCV	1	65068	60530	107.5	PASS	70-125	38281.7	35277	108.52	PASS	70-125
CCB12	CCB	1	63401.5	60530	104.74	PASS	70-125	37766	35277	107.06	PASS	70-125
CCV13	CCV	1	66467.1	60530	109.81	PASS	70-125	39056.8	35277	110.71	PASS	70-125
CCB13	CCB	1	64352.4	60530	106.31	PASS	70-125	38532.3	35277	109.23	PASS	70-125
ICSA5	ICSA	1	63242.1	60530	104.48	PASS	70-125	36896.2	35277	104.59	PASS	70-125
ICSAB5	ICSAB	1	62969.2	60530	104.03	PASS	70-125	36846.1	35277	104.45	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					6 Li (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	21637.4	21637.4	100	PASS	70-125	1231036.1	1231036.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	21987.8	21637.4	101.62	PASS	70-125	1212988.3	1231036.1	98.53	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	21742	21637.4	100.48	PASS	70-125	1217834.8	1231036.1	98.93	PASS	70-125
Std3-5/50 ppb	ICAL	1	21606.2	21637.4	99.86	PASS	70-125	1202967.1	1231036.1	97.72	PASS	70-125
Std4-10/100 ppb	ICAL	1	21951.2	21637.4	101.45	PASS	70-125	1216671.8	1231036.1	98.83	PASS	70-125
Std5-20/200 ppb	ICAL	1	22104.7	21637.4	102.16	PASS	70-125	1218570	1231036.1	98.99	PASS	70-125
Std6-40/400 ppb	ICAL	1	21600.7	21637.4	99.83	PASS	70-125	1245246.4	1231036.1	101.15	PASS	70-125
Std7-100/1000 ppb	ICAL	1	21112.2	21637.4	97.57	PASS	70-125	1193069.1	1231036.1	96.92	PASS	70-125
Std8-200/2000 ppb	ICAL	1	21984.5	21637.4	101.6	PASS	70-125	1179161	1231036.1	95.79	PASS	70-125
ICV	ICV	1	19878.4	21637.4	91.87	PASS	70-125	1293014.9	1231036.1	105.04	PASS	70-125
ICB	ICB	1	22567.7	21637.4	104.3	PASS	70-125	1282439.8	1231036.1	104.18	PASS	70-125
LLICV	CCV1	1	22025.7	21637.4	101.79	PASS	70-125	1280764	1231036.1	104.04	PASS	70-125
ICSA1	ICSA	1	22844.7	21637.4	105.58	PASS	70-125	1274849.4	1231036.1	103.56	PASS	70-125
ICSAB1	ICSAB	1	23714.8	21637.4	109.6	PASS	70-125	1285414.3	1231036.1	104.42	PASS	70-125
LLICV	CCV1	1	24361.3	21637.4	112.59	PASS	70-125	1382879.6	1231036.1	112.33	PASS	70-125
MB-75122	MBLK	1	26068.4	21637.4	120.48	PASS	70-125	1392572.7	1231036.1	113.12	PASS	70-125
LCS-75122	LCS	1	24046.4	21637.4	111.13	PASS	70-125	1336418.4	1231036.1	108.56	PASS	70-125
N037066-001D	SAMP	1	22149.2	21637.4	102.37	PASS	70-125	835419.2	1231036.1	67.86	NR!	70-125
N037066-001D	SAMP	5	24113.2	21637.4	111.44	PASS	70-125	1103638.1	1231036.1	89.65	PASS	70-125
N037066-001D	SAMP	25	23590.2	21637.4	109.03	PASS	70-125	1182953.2	1231036.1	96.094	PASS	70-125
N037066-001D-PS	PS	1	22435.1	21637.4	103.69	PASS	70-125	867758.3	1231036.1	70.49	PASS	70-125
N037066-001D-PS	PS	5	24618.4	21637.4	113.78	PASS	70-125	1079264.7	1231036.1	87.67	PASS	70-125
N037066-001D-MS	MS	1	23188.4	21637.4	107.17	PASS	70-125	852768.5	1231036.1	69.27	NR!	70-125
N037066-001D-MS	MS	5	24130.9	21637.4	111.52	PASS	70-125	1086697.7	1231036.1	88.28	PASS	70-125
N037066-001D-MSD	MSD	1	23298.7	21637.4	107.68	PASS	70-125	831015.7	1231036.1	67.51	NR!	70-125
CCV1	CCV	1	25526.4	21637.4	117.97	PASS	70-125	1252636.2	1231036.1	101.75	PASS	70-125
CCB1	CCB	1	22585.3	21637.4	104.38	PASS	70-125	1213646.6	1231036.1	98.59	PASS	70-125
N037066-001D-MSD	MSD	5	21355.8	21637.4	98.7	PASS	70-125	1021483.7	1231036.1	82.98	PASS	70-125
N037066-002D	SAMP	1	22055.7	21637.4	101.93	PASS	70-125	806074.7	1231036.1	65.48	NR!	70-125
N037066-002D	SAMP	5	23182.9	21637.4	107.14	PASS	70-125	1026198.4	1231036.1	83.36	PASS	70-125
N037067-001F	SAMP	1	23291.9	21637.4	107.65	PASS	70-125	1065912.5	1231036.1	86.59	PASS	70-125
N037067-001F	SAMP	5	23737	21637.4	109.7	PASS	70-125	1099125.8	1231036.1	89.28	PASS	70-125
N037067-002F	SAMP	1	22471.9	21637.4	103.86	PASS	70-125	921708.6	1231036.1	74.87	PASS	70-125
N037067-002F	SAMP	5	25509.7	21637.4	117.9	PASS	70-125	1145845.9	1231036.1	93.08	PASS	70-125
N037104-001A	SAMP	1	25019	21637.4	115.63	PASS	70-125	1138076.3	1231036.1	92.45	PASS	70-125
N037105-001B	SAMP	1	21607.3	21637.4	99.86	PASS	70-125	715118.8	1231036.1	58.091	NR!	70-125
N037107-001D	SAMP	1	26524.7	21637.4	122.59	PASS	70-125	1185548.9	1231036.1	96.3	PASS	70-125
CCV2	CCV	1	26333.4	21637.4	121.7	PASS	70-125	1332098.9	1231036.1	108.21	PASS	70-125
CCB2	CCB	1	25125.9	21637.4	116.12	PASS	70-125	1299382.7	1231036.1	105.55	PASS	70-125
N037107-001D	SAMP	5	23527.9	21637.4	108.74	PASS	70-125	1166531.9	1231036.1	94.76	PASS	70-125
N037107-002D	SAMP	1	22165.9	21637.4	102.44	PASS	70-125	975829	1231036.1	79.27	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					6 Li (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037107-002D	SAMP	5	23653.6	21637.4	109.32	PASS	70-125	1115124.6	1231036.1	90.58	PASS	70-125
N037107-003D	SAMP	1	23658.1	21637.4	109.34	PASS	70-125	908336.9	1231036.1	73.79	PASS	70-125
N037107-003D	SAMP	5	24893.2	21637.4	115.05	PASS	70-125	1122809.4	1231036.1	91.21	PASS	70-125
N037107-004D	SAMP	1	22909.3	21637.4	105.88	PASS	70-125	805950.3	1231036.1	65.47	NR!	70-125
N037107-004D	SAMP	5	25536.5	21637.4	118.02	PASS	70-125	1113043.7	1231036.1	90.42	PASS	70-125
N037107-005D	SAMP	1	25755.7	21637.4	119.03	PASS	70-125	1190144.1	1231036.1	96.68	PASS	70-125
N037107-005D	SAMP	5	25050.3	21637.4	115.77	PASS	70-125	1213041.4	1231036.1	98.54	PASS	70-125
N037107-006D	SAMP	1	22876.9	21637.4	105.73	PASS	70-125	1029179.4	1231036.1	83.6	PASS	70-125
CCV3	CCV	1	24877.6	21637.4	114.97	PASS	70-125	1262464.1	1231036.1	102.55	PASS	70-125
CCB3	CCB	1	23550.1	21637.4	108.84	PASS	70-125	1237914.8	1231036.1	100.56	PASS	70-125
N037107-006D	SAMP	5	22254.8	21637.4	102.85	PASS	70-125	1111779	1231036.1	90.31	PASS	70-125
N037107-007D	SAMP	1	22194.8	21637.4	102.58	PASS	70-125	898675.2	1231036.1	73.002	PASS	70-125
N037107-007D	SAMP	5	24613.9	21637.4	113.76	PASS	70-125	1096019.5	1231036.1	89.032	PASS	70-125
N037107-008D	SAMP	1	22662.2	21637.4	104.74	PASS	70-125	745231.7	1231036.1	60.54	NR!	70-125
N037107-008D	SAMP	5	24947.6	21637.4	115.3	PASS	70-125	1089658.9	1231036.1	88.52	PASS	70-125
N037066-001D	SAMP	1	23168.4	21637.4	107.08	PASS	70-125	807109.7	1231036.1	65.56	NR!	70-125
N037067-001F	SAMP	1	25045.7	21637.4	115.75	PASS	70-125	1083217.1	1231036.1	87.99	PASS	70-125
N037067-002F	SAMP	1	23405.4	21637.4	108.17	PASS	70-125	897215.9	1231036.1	72.88	PASS	70-125
N037067-002F	SAMP	25	26690.7	21637.4	123.35	PASS	70-125	1210936.3	1231036.1	98.37	PASS	70-125
N037105-001B	SAMP	5	23654.6	21637.4	109.32	PASS	70-125	1049584.4	1231036.1	85.26	PASS	70-125
CCV4	CCV	1	26127.4	21637.4	120.75	PASS	70-125	1294778.1	1231036.1	105.18	PASS	70-125
CCB4	CCB	1	25274.9	21637.4	116.81	PASS	70-125	1278183.3	1231036.1	103.83	PASS	70-125
ICSA2	ICSA	1	24099.7	21637.4	111.38	PASS	70-125	1202393	1231036.1	97.67	PASS	70-125
ICSAB2	ICSAB	1	24644	21637.4	113.9	PASS	70-125	1209634.3	1231036.1	98.26	PASS	70-125
N037113-001A	SAMP	1	25828	21637.4	119.37	PASS	70-125	1133028.6	1231036.1	92.039	PASS	70-125
N037113-001A	SAMP	5	24590.6	21637.4	113.65	PASS	70-125	1142638.8	1231036.1	92.82	PASS	70-125
N037115-001A	SAMP	1	20586	21637.4	95.14	PASS	70-125	726372.1	1231036.1	59.005	NR!	70-125
N037115-001A	SAMP	5	25277.2	21637.4	116.82	PASS	70-125	1080379.3	1231036.1	87.76	PASS	70-125
N037107-002D	SAMP	1	24551.5	21637.4	113.47	PASS	70-125	1004729.9	1231036.1	81.62	PASS	70-125
N037107-003D	SAMP	1	24508.2	21637.4	113.27	PASS	70-125	885676.7	1231036.1	71.95	PASS	70-125
N037107-006D	SAMP	1	25980.5	21637.4	120.07	PASS	70-125	1037865.5	1231036.1	84.31	PASS	70-125
N037107-007D	SAMP	1	24958.9	21637.4	115.35	PASS	70-125	905672.4	1231036.1	73.57	PASS	70-125
CCV5	CCV	1	27133.5	21637.4	125.4	NR!	70-125	1270027.8	1231036.1	103.17	PASS	70-125
CCB5	CCB	1	25690.1	21637.4	118.73	PASS	70-125	1261109	1231036.1	102.44	PASS	70-125
CCV6	CCV	1	25801.3	21637.4	119.24	PASS	70-125	1222739.6	1231036.1	99.33	PASS	70-125
CCB6	CCB	1	24704.1	21637.4	114.17	PASS	70-125	1200389.3	1231036.1	97.51	PASS	70-125
CCV7	CCV	1	27396.1	21637.4	126.61	NR!	70-125	1256363.6	1231036.1	102.06	PASS	70-125
CCB7	CCB	1	26382.2	21637.4	121.93	PASS	70-125	1211171.4	1231036.1	98.39	PASS	70-125
CCV8	CCV	1	26316.5	21637.4	121.63	PASS	70-125	1215710.7	1231036.1	98.76	PASS	70-125
CCB8	CCB	1	25642.2	21637.4	118.51	PASS	70-125	1210954.3	1231036.1	98.37	PASS	70-125
ICSA3	ICSA	1	25137	21637.4	116.17	PASS	70-125	1143684.8	1231036.1	92.9	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					6 Li (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSAB3	ICSAB	1	26354.4	21637.4	121.8	PASS	70-125	1208786.8	1231036.1	98.19	PASS	70-125
CCV9	CCV	1	27842.6	21637.4	128.68	NR!	70-125	1199118.8	1231036.1	97.41	PASS	70-125
CCB9	CCB	1	26287.6	21637.4	121.49	PASS	70-125	1192370.4	1231036.1	96.86	PASS	70-125
CCV10	CCV	1	27480.8	21637.4	127.01	NR!	70-125	1175917	1231036.1	95.52	PASS	70-125
CCB10	CCB	1	26482.5	21637.4	122.39	PASS	70-125	1170706.5	1231036.1	95.099	PASS	70-125
ICSA4	ICSA	1	26195.2	21637.4	121.06	PASS	70-125	1169133.9	1231036.1	94.97	PASS	70-125
ICSAB4	ICSAB	1	26491.4	21637.4	122.43	PASS	70-125	1171239.2	1231036.1	95.14	PASS	70-125
CCV11	CCV	1	26827.5	21637.4	123.99	PASS	70-125	1104634.8	1231036.1	89.73	PASS	70-125
CCB11	CCB	1	26189.8	21637.4	121.04	PASS	70-125	1105269.9	1231036.1	89.78	PASS	70-125
CCV12	CCV	1	28902.3	21637.4	133.58	NR!	70-125	1157668.9	1231036.1	94.04	PASS	70-125
CCB12	CCB	1	28086.1	21637.4	129.8	NR!	70-125	1117618.6	1231036.1	90.79	PASS	70-125
CCV13	CCV	1	29704.9	21637.4	137.28	NR!	70-125	1172864.4	1231036.1	95.27	PASS	70-125
CCB13	CCB	1	27686.7	21637.4	127.96	NR!	70-125	1132188.2	1231036.1	91.97	PASS	70-125
ICSA5	ICSA	1	26629.2	21637.4	123.07	PASS	70-125	1067342	1231036.1	86.7	PASS	70-125
ICSAB5	ICSAB	1	27169.3	21637.4	125.57	NR!	70-125	1060020.2	1231036.1	86.11	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	869884	869884	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	884506.1	869884	101.68	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	874249.4	869884	100.5	PASS	70-125
Std3-5/50 ppb	ICAL	1	881319.6	869884	101.31	PASS	70-125
Std4-10/100 ppb	ICAL	1	876849.2	869884	100.8	PASS	70-125
Std5-20/200 ppb	ICAL	1	892693.1	869884	102.62	PASS	70-125
Std6-40/400 ppb	ICAL	1	890282.1	869884	102.34	PASS	70-125
Std7-100/1000 ppb	ICAL	1	866279.9	869884	99.59	PASS	70-125
Std8-200/2000 ppb	ICAL	1	882762.6	869884	101.48	PASS	70-125
ICV	ICV	1	842083.5	869884	96.8	PASS	70-125
ICB	ICB	1	889001.4	869884	102.2	PASS	70-125
LLICV	CCV1	1	885445.1	869884	101.79	PASS	70-125
ICSA1	ICSA	1	849806.6	869884	97.69	PASS	70-125
ICSAB1	ICSAB	1	845911.8	869884	97.24	PASS	70-125
LLICV	CCV1	1	921296.7	869884	105.91	PASS	70-125
MB-75122	MBLK	1	925028.7	869884	106.34	PASS	70-125
LCS-75122	LCS	1	892673.2	869884	102.62	PASS	70-125
N037066-001D	SAMP	1	795821.8	869884	91.49	PASS	70-125
N037066-001D	SAMP	5	857966.2	869884	98.63	PASS	70-125
N037066-001D	SAMP	25	885835.1	869884	101.83	PASS	70-125
N037066-001D-PS	PS	1	833793.8	869884	95.85	PASS	70-125
N037066-001D-PS	PS	5	866523	869884	99.61	PASS	70-125
N037066-001D-MS	MS	1	828951.6	869884	95.29	PASS	70-125
N037066-001D-MS	MS	5	877188	869884	100.84	PASS	70-125
N037066-001D-MSD	MSD	1	825095.7	869884	94.85	PASS	70-125
CCV1	CCV	1	957214.1	869884	110.04	PASS	70-125
CCB1	CCB	1	925355.5	869884	106.38	PASS	70-125
N037066-001D-MSD	MSD	5	826519.9	869884	95.015	PASS	70-125
N037066-002D	SAMP	1	791246.3	869884	90.96	PASS	70-125
N037066-002D	SAMP	5	848624.7	869884	97.56	PASS	70-125
N037067-001F	SAMP	1	832116.2	869884	95.66	PASS	70-125
N037067-001F	SAMP	5	865872.8	869884	99.54	PASS	70-125
N037067-002F	SAMP	1	781688.3	869884	89.86	PASS	70-125
N037067-002F	SAMP	5	861729.9	869884	99.063	PASS	70-125
N037104-001A	SAMP	1	866591	869884	99.62	PASS	70-125
N037105-001B	SAMP	1	744387.7	869884	85.57	PASS	70-125
N037107-001D	SAMP	1	841289.4	869884	96.71	PASS	70-125
CCV2	CCV	1	926534.9	869884	106.51	PASS	70-125
CCB2	CCB	1	914098.7	869884	105.08	PASS	70-125
N037107-001D	SAMP	5	856457.1	869884	98.46	PASS	70-125
N037107-002D	SAMP	1	795868.3	869884	91.49	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N037107-002D	SAMP	5	852158.3	869884	97.96	PASS	70-125
N037107-003D	SAMP	1	811803.3	869884	93.32	PASS	70-125
N037107-003D	SAMP	5	856262.9	869884	98.43	PASS	70-125
N037107-004D	SAMP	1	780116	869884	89.68	PASS	70-125
N037107-004D	SAMP	5	848423.9	869884	97.53	PASS	70-125
N037107-005D	SAMP	1	859120.8	869884	98.76	PASS	70-125
N037107-005D	SAMP	5	864613.6	869884	99.39	PASS	70-125
N037107-006D	SAMP	1	797711.2	869884	91.7	PASS	70-125
CCV3	CCV	1	916480.8	869884	105.36	PASS	70-125
CCB3	CCB	1	902626.9	869884	103.76	PASS	70-125
N037107-006D	SAMP	5	827673.4	869884	95.15	PASS	70-125
N037107-007D	SAMP	1	794329.1	869884	91.31	PASS	70-125
N037107-007D	SAMP	5	837124	869884	96.23	PASS	70-125
N037107-008D	SAMP	1	769404.7	869884	88.45	PASS	70-125
N037107-008D	SAMP	5	830209.9	869884	95.44	PASS	70-125
N037066-001D	SAMP	1	787013.7	869884	90.47	PASS	70-125
N037067-001F	SAMP	1	819854	869884	94.25	PASS	70-125
N037067-002F	SAMP	1	768402.8	869884	88.33	PASS	70-125
N037067-002F	SAMP	25	875743.1	869884	100.67	PASS	70-125
N037105-001B	SAMP	5	800680.8	869884	92.045	PASS	70-125
CCV4	CCV	1	923823.6	869884	106.2	PASS	70-125
CCB4	CCB	1	899227.9	869884	103.37	PASS	70-125
ICSA2	ICSA	1	829880.4	869884	95.4	PASS	70-125
ICSAB2	ICSAB	1	830024.1	869884	95.42	PASS	70-125
N037113-001A	SAMP	1	845830.7	869884	97.23	PASS	70-125
N037113-001A	SAMP	5	852520.7	869884	98.004	PASS	70-125
N037115-001A	SAMP	1	726191.9	869884	83.48	PASS	70-125
N037115-001A	SAMP	5	821838.4	869884	94.48	PASS	70-125
N037107-002D	SAMP	1	807759	869884	92.86	PASS	70-125
N037107-003D	SAMP	1	797762.6	869884	91.71	PASS	70-125
N037107-006D	SAMP	1	811273.6	869884	93.26	PASS	70-125
N037107-007D	SAMP	1	802090.9	869884	92.21	PASS	70-125
CCV5	CCV	1	914799.2	869884	105.16	PASS	70-125
CCB5	CCB	1	890494.3	869884	102.37	PASS	70-125
CCV6	CCV	1	915944.3	869884	105.29	PASS	70-125
CCB6	CCB	1	891673.4	869884	102.5	PASS	70-125
CCV7	CCV	1	902815.4	869884	103.79	PASS	70-125
CCB7	CCB	1	891111.6	869884	102.44	PASS	70-125
CCV8	CCV	1	895932.9	869884	102.99	PASS	70-125
CCB8	CCB	1	870075.1	869884	100.02	PASS	70-125
ICSA3	ICSA	1	807388.5	869884	92.82	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
ICSAB3	ICSAB	1	823799.6	869884	94.7	PASS	70-125
CCV9	CCV	1	875799.4	869884	100.68	PASS	70-125
CCB9	CCB	1	863765.4	869884	99.3	PASS	70-125
CCV10	CCV	1	865282.8	869884	99.47	PASS	70-125
CCB10	CCB	1	856206.2	869884	98.43	PASS	70-125
ICSA4	ICSA	1	793354.9	869884	91.2	PASS	70-125
ICSAB4	ICSAB	1	811951.7	869884	93.34	PASS	70-125
CCV11	CCV	1	893108.7	869884	102.67	PASS	70-125
CCB11	CCB	1	877671.8	869884	100.9	PASS	70-125
CCV12	CCV	1	892104.1	869884	102.55	PASS	70-125
CCB12	CCB	1	888777	869884	102.17	PASS	70-125
CCV13	CCV	1	912263.1	869884	104.87	PASS	70-125
CCB13	CCB	1	888175.2	869884	102.1	PASS	70-125
ICSA5	ICSA	1	810976.5	869884	93.23	PASS	70-125
ICSAB5	ICSAB	1	815201.5	869884	93.71	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037066
Test Method: EPA 6020
Analysis Date: 9/5/2019

Matrix: Groundwater
Batch No.: 75122

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Cr failed. However, PS passed criteria.
Dilution test is not applicable to As & Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037066-001D DT 5x	Arsenic	As	µg/L	2.053564	NA	1.868518	9.90%	10
N037066-001D DT 5x	Molybdenum	Mo	µg/L	23.76642	PASS	22.42908	5.96%	10
N037066-001D DT 5x	Selenium	Se	µg/L	3.237283	NA	2.622974	23.42%	10
N037066-001D DT 5x	Chromium	Cr	µg/L	97.4085	FAIL	88.4664	10.11%	10
N037066-001D DT 25x	Manganese	Mn	µg/L	238.1799	PASS	230.8968	3.15%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N037066-001D-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.516	0.10	10.00	1.869	106	80	120				
Molybdenum	33.482	0.50	10.00	22.43	111	80	120				
Selenium	12.050	0.50	10.00	2.623	94.3	80	120				

Sample ID **N037066-001D-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ZZZZZZ**	Batch ID: **75122**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/5/2019**	SeqNo: **3504197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	334.712	2.5	100.0	230.9	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037066
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N037066-001D-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75122	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3504038

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	97.881	1.0	10.00	88.47	94.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

September 13, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037118

RE: PG&E Topock - RMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 21, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ibucao for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Samples N037118-016 (AmbientBlank-1-Q319) and N037118-017 (AmbientBlank-2-Q319) were not analyzed as per COC.

Subcontracted Analyses:

Ammonia was subcontracted to Eurofins CalScience Inc.- Garden Grove, CA.

Analytical Comments for EPA 218.6:

Sample duplicate and matrix spike duplicate were inadvertently not analyzed. All samples were none detect and spiked at 1ppm. Filed a Corrective Action Report CAR 2864.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N037118-001C-MS and N037118-001C-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037118
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037118-001A	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001B	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001C	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001D	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001E	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-002A	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002B	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002C	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002D	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002E	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-003A	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003B	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003C	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003D	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003E	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-004A	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004B	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004C	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004D	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004E	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-005A	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005B	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005C	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005D	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005E	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-006A	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-006B	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-006C	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-006D	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037118
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037118-006E	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-007A	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007B	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007C	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007D	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007E	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-008A	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008B	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008C	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008D	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008E	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-009A	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009B	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009C	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009D	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009E	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-010A	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010B	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010C	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010D	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010E	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-011A	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011B	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011C	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011D	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011E	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-012A	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-012B	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-012C	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-012D	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037118
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037118-012E	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-013A	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013B	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013C	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013D	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013E	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-014A	SW1-Q319	Groundwater	8/21/2019 2:30:00 PM	8/21/2019	9/13/2019
N037118-014B	SW1-Q319	Groundwater	8/21/2019 2:30:00 PM	8/21/2019	9/13/2019
N037118-014C	SW1-Q319	Groundwater	8/21/2019 2:30:00 PM	8/21/2019	9/13/2019
N037118-015A	SW2-Q319	Groundwater	8/21/2019 2:50:00 PM	8/21/2019	9/13/2019
N037118-015B	SW2-Q319	Groundwater	8/21/2019 2:50:00 PM	8/21/2019	9/13/2019
N037118-015C	SW2-Q319	Groundwater	8/21/2019 2:50:00 PM	8/21/2019	9/13/2019
N037118-016A	AmbientBlank-1-Q319	Groundwater	8/21/2019 10:30:00 AM	8/21/2019	9/13/2019
N037118-017A	AmbientBlank-2-Q319	Groundwater	8/21/2019 1:30:00 PM	8/21/2019	9/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:50:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037118-001DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136007**
Client ID:	**ZZZZZZ**	Batch ID:	**R136007**	TestNo:	**EPA 120.1**			Analysis Date:	**8/22/2019**	SeqNo:	**3488302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	894.000	0.10						892.0	0.224	2	

Sample ID	**N037118-015CDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136007**
Client ID:	**ZZZZZZ**	Batch ID:	**R136007**	TestNo:	**EPA 120.1**			Analysis Date:	**8/22/2019**	SeqNo:	**3488318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	963.000	0.10						959.0	0.416	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-004

Client Sample ID: MW-904-Q319
Collection Date: 8/21/2019 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-006

Client Sample ID: R63-Q319
Collection Date: 8/21/2019 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:50:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037118-001DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **135999**
Client ID: **ZZZZZZ**	Batch ID: **R135999**	TestNo: **SM4500-H+B**		Analysis Date: **8/22/2019**	SeqNo: **3487828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.030	0.10						7.980	0.625	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID **N037118-011DUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **135999**
Client ID: **ZZZZZZ**	Batch ID: **R135999**	TestNo: **SM4500-H+B**		Analysis Date: **8/22/2019**	SeqNo: **3487839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.010	0.10						7.970	0.501	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate: **8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A** QC Batch: **75150**				PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-75150	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136099
Client ID:	LCSW	Batch ID:	75150	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492127

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	950.000	10	1000	0	95.0	80	120				

Sample ID	MB-75150	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136099
Client ID:	PBW	Batch ID:	75150	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492128

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N037118-001DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136099
Client ID:	ZZZZZZ	Batch ID:	75150	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492130

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-75151	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	LCSW	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492140

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	947.000	10	1000	0	94.7	80	120				

Sample ID	MB-75151	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	PBW	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492141

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N037148-001DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	ZZZZZZ	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492150

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:30 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190829A** QC Batch: **R136212**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:40 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190905A** QC Batch: **75129**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:49 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190829A** QC Batch: **R136212**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:58 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190905A** QC Batch: **75129**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 01:08 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 01:17 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 01:55 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190829A** QC Batch: **R136212**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 02:14 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190905A** QC Batch: **75129**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190829A** QC Batch: **R136212**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 02:33 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190905A** QC Batch: **75129**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 02:52 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 03:11 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 03:58 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 05:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 04:18 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 05:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:50:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 04:37 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 05:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136212	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	PBW	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497687

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136212	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	LCSW	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497688

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.046	0.20	5.000	0	101	90	110				

Sample ID	N037117-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497689

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110				

Sample ID	N037117-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497690

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.942	0.20	1.000	0	94.2	90	110				

Sample ID	N037118-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497691

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.055	0.20	1.000	0	105	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037118-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497692

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.073	0.20	1.000	0	107	90	110				

Sample ID	N037118-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497693

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.057	0.20	1.000	0	106	90	110				

Sample ID	N037118-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497694

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.090	0.20	1.000	0	109	90	110				

Sample ID	N037118-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497695

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.074	0.20	1.000	0	107	90	110				

Sample ID	N037118-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497696

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.035	0.20	1.000	0	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037118-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497708

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.044	0.20	1.000	0	104	90	110				

Sample ID	N037118-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497712

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0	106	90	110				

Sample ID	N037118-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497714

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.031	0.20	1.000	0	103	90	110				

Sample ID	N037118-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497716

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.054	0.20	1.000	0	105	90	110				

Sample ID	N037118-011AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497718

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037118-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497720

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.047	0.20	1.000	0	105	90	110				

Sample ID	N037118-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.068	0.20	1.000	0	107	90	110				

Sample ID	N037118-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497726

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.063	0.20	1.000	0	106	90	110				

Sample ID	N037118-015AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75129	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	PBW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504152

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75129	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	LCSW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504153

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.784	1.0	10.00	0	97.8	85	115				

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504157

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.348	1.0	10.00	0	93.5	75	125				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504158

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.359	1.0	10.00	0	93.6	75	125	9.348	0.121	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.8	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**		PrepDate:				Analyst: **MBC**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**		PrepDate:				Analyst: **MBC**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.33	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136417	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	PBW	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510911

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136417	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	LCSW	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510912

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.526	0.050	0.5000	0	105	85	115				

Sample ID	N037107-002BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	ZZZZZZ	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510914

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	1.049	0.050						0.9576	9.14	20	

Sample ID	N037147-001BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	ZZZZZZ	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510918

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.210	0.50	5.000	7.145	101	75	125				

Sample ID	N037147-001BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	ZZZZZZ	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510919

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.880	0.50	5.000	7.145	115	75	125	12.21	5.34	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-001

Client Sample ID: C-TAZ-D-Q319
Collection Date: 8/21/2019 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/4/2019 11:44 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	36	18	20		ug/L	1	9/5/2019 02:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-002

Client Sample ID: C-TAZ-S-Q319
Collection Date: 8/21/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:06 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-003

Client Sample ID: C-I-3-D-Q319
Collection Date: 8/21/2019 9:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 07:24 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:32 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-004

Client Sample ID: MW-904-Q319
Collection Date: 8/21/2019 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:24 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-005

Client Sample ID: C-I-3-S-Q319
Collection Date: 8/21/2019 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:28 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:33 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	33	18	20		ug/L	1	9/5/2019 02:45 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-007

Client Sample ID: C-R22A-D-Q319
Collection Date: 8/21/2019 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:37 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	43	18	20		ug/L	1	9/5/2019 03:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-008

Client Sample ID: C-R22A-S-Q319
Collection Date: 8/21/2019 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:42 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	27	18	20		ug/L	1	9/5/2019 03:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:46 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-010

Client Sample ID: C-R27-D-Q319
Collection Date: 8/21/2019 12:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:51 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:55 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	23	18	20		ug/L	1	9/5/2019 03:29 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-012

Client Sample ID: C-R27-S-Q319
Collection Date: 8/21/2019 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:59 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-013

Client Sample ID: R-28-Q319
Collection Date: 8/21/2019 1:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:13 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75133	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75133	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503517

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	93.007	20	100.0	0	93.0	85	115				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503521

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	97.928	20	100.0	0	97.9	75	125	98.89	0.981	20	

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503583

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	98.893	20	100.0	0	98.9	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-75132	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503470

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75132	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503471

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	89.419	20	100.0	0	89.4	85	115				

Sample ID	N037118-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503477

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.588	20	100.0	35.58	74.0	75	125				S

Sample ID	N037118-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503478

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.497	20	100.0	35.58	73.9	75	125	109.6	0.0835	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**N037118-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID:	**ZZZZZZ**	Batch ID: **75133**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/4/2019**	SeqNo: **3503520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	113.136	20	100.0	0	113	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	N037118-001C-PS	SampType:	PS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503476

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.722	20	100.0	35.58	72.1	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-001

Client Sample ID: C-TAZ-D-Q319
Collection Date: 8/21/2019 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:08 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:08 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:08 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 03:08 AM
Selenium	1.5	0.36	0.50		µg/L	1	9/9/2019 04:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:33 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:33 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:33 AM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/6/2019 03:33 AM
Selenium	1.3	0.36	0.50		µg/L	1	9/9/2019 04:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-003

Client Sample ID: C-I-3-D-Q319
Collection Date: 8/21/2019 9:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 03:39 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:39 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:39 AM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/6/2019 03:39 AM
Selenium	1.3	0.36	0.50		µg/L	1	9/9/2019 05:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-004

Client Sample ID: MW-904-Q319
Collection Date: 8/21/2019 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:44 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:44 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:44 AM
Molybdenum	4.7	0.21	0.50		µg/L	1	9/6/2019 03:44 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/10/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-005

Client Sample ID: C-I-3-S-Q319
Collection Date: 8/21/2019 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:59 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:59 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:59 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 03:59 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/9/2019 04:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:04 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:04 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:04 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 04:04 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/9/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:09 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:09 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:09 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 04:09 AM
Selenium	1.5	0.36	0.50		µg/L	1	9/10/2019 06:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:14 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:14 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:14 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 04:14 AM
Selenium	1.5	0.36	0.50		µg/L	1	9/9/2019 06:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/6/2019 04:19 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:19 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:19 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/6/2019 04:19 AM
Selenium	1.3	0.36	0.50		µg/L	1	9/9/2019 05:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-010

Client Sample ID: C-R27-D-Q319
Collection Date: 8/21/2019 12:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 04:24 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:24 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:24 AM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/6/2019 04:24 AM
Selenium	0.87	0.36	0.50		µg/L	1	9/10/2019 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 04:44 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:44 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:44 AM
Molybdenum	4.8	0.21	0.50		µg/L	1	9/6/2019 04:44 AM
Selenium	1.9	0.36	0.50		µg/L	1	9/9/2019 06:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-012

Client Sample ID: C-R27-S-Q319
Collection Date: 8/21/2019 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:59 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:59 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:59 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/6/2019 04:59 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/9/2019 07:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-013

Client Sample ID: R-28-Q319
Collection Date: 8/21/2019 1:15:00 PM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190905B** QC Batch: **75129** PrepDate: **8/23/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.1	0.081	0.10		µg/L	1	9/6/2019 05:04 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 05:04 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 05:04 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/6/2019 05:04 AM
Selenium	1.2	0.36	0.50		µg/L	1	9/10/2019 06:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75129** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **PBW** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **LCS-75129** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **LCSW** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.270	0.10	10.00	0	103	85	115				
Barium	10.898	1.0	10.00	0	109	85	115				
Manganese	101.105	0.50	100.0	0	101	85	115				
Molybdenum	10.166	0.50	10.00	0	102	85	115				

Sample ID **N037118-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **ZZZZZZ** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504315**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.312	0.10	10.00	2.361	99.5	75	125				
Barium	127.486	1.0	10.00	117.4	101	75	125				
Manganese	97.865	0.50	100.0	0	97.9	75	125				
Molybdenum	15.496	0.50	10.00	4.479	110	75	125				

Sample ID **N037118-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **ZZZZZZ** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.550	0.10	10.00	2.361	102	75	125	12.31	1.92	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136324
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504316

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	126.996	1.0	10.00	117.4	96.4	75	125	127.5	0.385	20	
Manganese	96.806	0.50	100.0	0	96.8	75	125	97.86	1.09	20	
Molybdenum	15.269	0.50	10.00	4.479	108	75	125	15.50	1.47	20	

Sample ID	MB-75129	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	PBW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506816

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-75129	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	LCSW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506817

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.884	0.50	10.00	0	98.8	85	115				

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506821

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.145	0.50	10.00	1.489	96.6	75	125				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506822

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.002	0.50	10.00	1.489	95.1	75	125	11.14	1.29	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Rigbie Tq	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech			
Signature: Date: 8/21/19	Sampled By: Andrew Ph		
Project Name: PG&E Topock - RMP	Signature: Date: 08/21/19		
Project Number: 30019131			

I hereby authorize ASSET Labs to perform the tests indicated below.

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	/	
Geotracker		RWQCB	✓	2. Headspace		
Labapec		CalTrans		3. Container Intact	/	
Others	✓	LEVEL III		4. Seal Present		/
Specify: RWQCB		LEVEL IV		5. IR number		2
Global ID:		Regulatory		6. Method of Cooling: Ice		
		Specify State:		Sample Temp: 4.1°C / 3.8°C / 4.4°C		

Courier: ASSET

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite as Nitrogen (SM4500N03); H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037118-01	C-TAZ-D-Q319	8/21/2019	8:35		X		X		X	X		X	X			X	X	E	7	P	BNS	
2	-02	C-TAZ-S-Q319	8/21/2019	8:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
3	-03	C-I-3-D-Q319	8/21/2019	9:20		X		X		X	X		X	X			X	X	E	7	P	BNS	
4	-04	MW-904-Q319	8/21/2019	9:30		X		X		X	X		X	X			X	X	E	7	P	BNS	
5	-05	C-I-3-S-Q319	8/21/2019	9:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
6	-06	R63-Q319	8/21/2019	10:15		X		X		X	X		X	X			X	X	E	7	P	BNS	
7	-07	C-R22A-D-Q319	8/21/2019	10:45		X		X		X	X		X	X			X	X	E	7	P	BNS	
8	-08	C-R22A-S-Q319	8/21/2019	11:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
9	-09	C-BNS-Q319	8/21/2019	11:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
10	-10	C-R27-D-Q319	8/21/2019	12:30		X		X		X	X		X	X			X	X	E	7	P	BNS	
11	-11	MW-905-Q319	8/21/2019	12:40		X		X		X	X		X	X			X	X	E	7	P	BNS	
12	-12	C-R27-S-Q319	8/21/2019	12:55		X		X		X	X		X	X			X	X	E	7	P	BNS	
13	-13	R-28-Q319	8/21/2019	13:15		X		X		X	X		X	X			X	X	E	7	P	BNS	
	-14	SW1-Q319	8/21/2019	14:30		X		X					X	X					E	5	P	BN	
14	-15	SW2-Q319	8/21/2019	14:50		X		X					X	X					E	5	P	BN	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
R. Rigbie TQ	8/21/19 1509	Jordan	8/21/19 1509
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Jordan	8/21/19 1830	Leandra Rodriguez	8/21/19 18:30
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled Y; 2. Headspace; 3. Container Intact Y; 4. Seal Present Y; 5. IR number 2; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivax.com P.O.#	Sample Temp: 4.1°C / 3.8°C / 4.4°C
Submitted By: Andrew Ku	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Courier: ASSET
Title: Field Tech	Sampled By: Riggie Tap	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface	Tracking No.:
Signature: Date: 08/21/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
I herby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 8/21/19		
Project Name: PG&E Topock - RMP			
Project Number: 30019131			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
	N037118-16 •	AmbientBlank-1-Q319	8/21/2019	10:30			X											E	1	P	B	Hold
	-17 •	AmbientBlank-2-Q319	8/21/2019	13:30			X											E	1	P	B	Hold

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Riggie Tap	8/21/19 1509	JORDAN	8/21/19 1509
JORDAN	8/21/19 1830	Joandra Rodriguez	8/21/19 18:30

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/21/2019	Workorder:	N037118
Rep sample Temp (Deg C):	4.1/3.8/4.4	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

For:

Checklist Completed By: YR YRJ 8/22/2019

Reviewed By: LG 090519

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-001A	C-TAZ-D-Q319	8/21/2019 8:35:00 AM	9/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-001B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-001C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-001D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-001E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-002A	C-TAZ-S-Q319	8/21/2019 8:50:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-002B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-002C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-002D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-002D	C-TAZ-S-Q319	8/21/2019 8:50:00 AM	9/5/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-002E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-003A	C-I-3-D-Q319	8/21/2019 9:20:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-003B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-003C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-003D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-003E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-004A	MW-904-Q319	8/21/2019 9:30:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-004B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-004B	MW-904-Q319	8/21/2019 9:30:00 AM	9/5/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-004C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-004D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-004E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-005A	C-I-3-S-Q319	8/21/2019 9:50:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-005B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-005C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-005D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-005E	C-I-3-S-Q319	8/21/2019 9:50:00 AM	9/5/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-006A	R63-Q319	8/21/2019 10:15:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-006B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-006C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-006D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-006E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-007A	C-R22A-D-Q319	8/21/2019 10:45:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-007B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-007C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-007C	C-R22A-D-Q319	8/21/2019 10:45:00 AM	9/5/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-007D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-007E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-008A	C-R22A-S-Q319	8/21/2019 11:05:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-008B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-008C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-008D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-008E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-009A	C-BNS-Q319	8/21/2019 11:50:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-009B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-009B	C-BNS-Q319	8/21/2019 11:50:00 AM	9/5/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-009C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-009D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-009E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-010A	C-R27-D-Q319	8/21/2019 12:30:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-010B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-010C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-010D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-010D	C-R27-D-Q319	8/21/2019 12:30:00 PM	9/5/2019	Groundwater		Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-010E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-011A	MW-905-Q319	8/21/2019 12:40:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-011B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-011C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-011D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-011E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-012A	C-R27-S-Q319	8/21/2019 12:55:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-012B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-012C	C-R27-S-Q319	8/21/2019 12:55:00 PM	9/5/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-012D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-012E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-013A	R-28-Q319	8/21/2019 1:15:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-013B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-013C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-013D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-013E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-014A	SW1-Q319	8/21/2019 2:30:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-014B	SW1-Q319	8/21/2019 2:30:00 PM	9/5/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-014C			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N037118-015A	SW2-Q319	8/21/2019 2:50:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-015B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-015C			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N037118-016A	AmbientBlank-1-Q319	8/21/2019 10:30:00 AM					☐	☐	☐	WW
N037118-017A	AmbientBlank-2-Q319	8/21/2019 1:30:00 PM					☐	☐	☐	WW
N037118-018A	FOLDER	9/5/2019	9/5/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/5/2019		Folder	Folder	☐	☐	☐	LAB
			9/5/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - RMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037118

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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September 13, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037118

RE: PG&E Topock - RMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 21, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

ASSET Laboratories **Date:** *26-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037118

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Samples N037118-016 (AmbientBlank-1-Q319) and N037118-017 (AmbientBlank-2-Q319) were not analyzed as per COC.

Analytical Comments for EPA 218.6:

Sample duplicate and matrix spike duplicate were inadvertently not analyzed. All samples were none detect and spiked at 1ppm. Filed a Corrective Action Report CAR 2864.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N037118-001C-MS and N037118-001C-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *13-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037118
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037118-001A	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001B	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001C	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001D	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-001E	C-TAZ-D-Q319	Groundwater	8/21/2019 8:35:00 AM	8/21/2019	9/13/2019
N037118-002A	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002B	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002C	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002D	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-002E	C-TAZ-S-Q319	Groundwater	8/21/2019 8:50:00 AM	8/21/2019	9/13/2019
N037118-003A	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003B	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003C	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003D	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-003E	C-I-3-D-Q319	Groundwater	8/21/2019 9:20:00 AM	8/21/2019	9/13/2019
N037118-004A	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004B	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004C	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004D	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-004E	MW-904-Q319	Groundwater	8/21/2019 9:30:00 AM	8/21/2019	9/13/2019
N037118-005A	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005B	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005C	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005D	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-005E	C-I-3-S-Q319	Groundwater	8/21/2019 9:50:00 AM	8/21/2019	9/13/2019
N037118-006A	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-006B	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-006C	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-006D	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037118
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037118-006E	R63-Q319	Groundwater	8/21/2019 10:15:00 AM	8/21/2019	9/13/2019
N037118-007A	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007B	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007C	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007D	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-007E	C-R22A-D-Q319	Groundwater	8/21/2019 10:45:00 AM	8/21/2019	9/13/2019
N037118-008A	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008B	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008C	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008D	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-008E	C-R22A-S-Q319	Groundwater	8/21/2019 11:05:00 AM	8/21/2019	9/13/2019
N037118-009A	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009B	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009C	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009D	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-009E	C-BNS-Q319	Groundwater	8/21/2019 11:50:00 AM	8/21/2019	9/13/2019
N037118-010A	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010B	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010C	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010D	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-010E	C-R27-D-Q319	Groundwater	8/21/2019 12:30:00 PM	8/21/2019	9/13/2019
N037118-011A	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011B	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011C	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011D	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-011E	MW-905-Q319	Groundwater	8/21/2019 12:40:00 PM	8/21/2019	9/13/2019
N037118-012A	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-012B	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-012C	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-012D	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037118
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037118-012E	C-R27-S-Q319	Groundwater	8/21/2019 12:55:00 PM	8/21/2019	9/13/2019
N037118-013A	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013B	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013C	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013D	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-013E	R-28-Q319	Groundwater	8/21/2019 1:15:00 PM	8/21/2019	9/13/2019
N037118-014A	SW1-Q319	Groundwater	8/21/2019 2:30:00 PM	8/21/2019	9/13/2019
N037118-014B	SW1-Q319	Groundwater	8/21/2019 2:30:00 PM	8/21/2019	9/13/2019
N037118-014C	SW1-Q319	Groundwater	8/21/2019 2:30:00 PM	8/21/2019	9/13/2019
N037118-015A	SW2-Q319	Groundwater	8/21/2019 2:50:00 PM	8/21/2019	9/13/2019
N037118-015B	SW2-Q319	Groundwater	8/21/2019 2:50:00 PM	8/21/2019	9/13/2019
N037118-015C	SW2-Q319	Groundwater	8/21/2019 2:50:00 PM	8/21/2019	9/13/2019
N037118-016A	AmbientBlank-1-Q319	Groundwater	8/21/2019 10:30:00 AM	8/21/2019	9/13/2019
N037118-017A	AmbientBlank-2-Q319	Groundwater	8/21/2019 1:30:00 PM	8/21/2019	9/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-003

Client Sample ID: C-I-3-D-Q319
Collection Date: 8/21/2019 9:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:50:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190822C**	QC Batch: **R136007**			PrepDate:			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/22/2019 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N037118-001DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	136007
Client ID:	ZZZZZZ	Batch ID:	R136007	TestNo:	EPA 120.1			Analysis Date:	8/22/2019	SeqNo:	3488302

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	894.000	0.10						892.0	0.224	2	

Sample ID	N037118-015CDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	136007
Client ID:	ZZZZZZ	Batch ID:	R136007	TestNo:	EPA 120.1			Analysis Date:	8/22/2019	SeqNo:	3488318

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	963.000	0.10						959.0	0.416	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-011

Client Sample ID: MW-905-Q319
Collection Date: 8/21/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:50:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190822A**	QC Batch: **R135999**			PrepDate:			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	8/22/2019 10:55 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/22/2019 10:55 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037118-001DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **135999**
Client ID: **ZZZZZZ**	Batch ID: **R135999**	TestNo: **SM4500-H+B**		Analysis Date: **8/22/2019**	SeqNo: **3487828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.030	0.10						7.980	0.625	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID **N037118-011DUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **135999**
Client ID: **ZZZZZZ**	Batch ID: **R135999**	TestNo: **SM4500-H+B**		Analysis Date: **8/22/2019**	SeqNo: **3487839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.010	0.10						7.970	0.501	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate: **8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate: **8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate: **8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826A**	QC Batch: **75150**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-75150	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136099
Client ID:	LCSW	Batch ID:	75150	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492127

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	950.000	10	1000	0	95.0	80	120				

Sample ID	MB-75150	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136099
Client ID:	PBW	Batch ID:	75150	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492128

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N037118-001DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136099
Client ID:	ZZZZZZ	Batch ID:	75150	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492130

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-75151	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	LCSW	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492140

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	947.000	10	1000	0	94.7	80	120				

Sample ID	MB-75151	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	PBW	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492141

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N037148-001DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	ZZZZZZ	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492150

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:30 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:40 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:49 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 12:58 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 03:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 01:08 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-007

Client Sample ID: C-R22A-D-Q319
Collection Date: 8/21/2019 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 01:17 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-008

Client Sample ID: C-R22A-S-Q319
Collection Date: 8/21/2019 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A** QC Batch: **R136212**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 01:55 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A** QC Batch: **75129**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 02:14 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 02:33 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 02:52 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 03:11 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 04:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 03:58 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 05:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 2:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A**	QC Batch: **R136212**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 04:18 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A**	QC Batch: **75129**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 05:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-015

Client Sample ID: SW2-Q319
Collection Date: 8/21/2019 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190829A** QC Batch: **R136212**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/29/2019 04:37 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190905A** QC Batch: **75129**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/6/2019 05:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136212	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	PBW	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497687

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136212	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	LCSW	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497688

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.046	0.20	5.000	0	101	90	110				

Sample ID	N037117-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497689

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110				

Sample ID	N037117-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497690

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.942	0.20	1.000	0	94.2	90	110				

Sample ID	N037118-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497691

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.055	0.20	1.000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037118-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497692

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.073	0.20	1.000	0	107	90	110				

Sample ID	N037118-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497693

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.057	0.20	1.000	0	106	90	110				

Sample ID	N037118-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497694

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.090	0.20	1.000	0	109	90	110				

Sample ID	N037118-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497695

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.074	0.20	1.000	0	107	90	110				

Sample ID	N037118-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497696

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.035	0.20	1.000	0	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037118-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.044	0.20	1.000	0	104	90	110				

Sample ID **N037118-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0	106	90	110				

Sample ID **N037118-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.031	0.20	1.000	0	103	90	110				

Sample ID **N037118-010AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.054	0.20	1.000	0	105	90	110				

Sample ID **N037118-011AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037118-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497720

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.047	0.20	1.000	0	105	90	110				

Sample ID	N037118-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.068	0.20	1.000	0	107	90	110				

Sample ID	N037118-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497726

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.063	0.20	1.000	0	106	90	110				

Sample ID	N037118-015AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136212
Client ID:	ZZZZZZ	Batch ID:	R136212	TestNo:	EPA 218.6			Analysis Date:	8/29/2019	SeqNo:	3497728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75129	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	PBW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504152

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75129	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	LCSW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504153

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.784	1.0	10.00	0	97.8	85	115				

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504157

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.348	1.0	10.00	0	93.5	75	125				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136323
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504158

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.359	1.0	10.00	0	93.6	75	125	9.348	0.121	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.8	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:55:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 1:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190911C**	QC Batch: **R136417**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.33	0.032	0.050		mg/L	1	9/11/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136417	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	PBW	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510911

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136417	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	LCSW	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510912

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.526	0.050	0.5000	0	105	85	115				

Sample ID	N037107-002BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	ZZZZZZ	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510914

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	1.049	0.050						0.9576	9.14	20	

Sample ID	N037147-001BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	ZZZZZZ	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510918

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.210	0.50	5.000	7.145	101	75	125				

Sample ID	N037147-001BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136417
Client ID:	ZZZZZZ	Batch ID:	R136417	TestNo:	SM4500-NO3			Analysis Date:	9/11/2019	SeqNo:	3510919

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.880	0.50	5.000	7.145	115	75	125	12.21	5.34	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-001

Client Sample ID: C-TAZ-D-Q319
Collection Date: 8/21/2019 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/4/2019 11:44 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	36	18	20		ug/L	1	9/5/2019 02:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-002

Client Sample ID: C-TAZ-S-Q319
Collection Date: 8/21/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:06 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-003

Client Sample ID: C-I-3-D-Q319
Collection Date: 8/21/2019 9:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 07:24 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:32 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-004

Client Sample ID: MW-904-Q319
Collection Date: 8/21/2019 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:24 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-005

Client Sample ID: C-I-3-S-Q319
Collection Date: 8/21/2019 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:28 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 02:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-006

Client Sample ID: R63-Q319
Collection Date: 8/21/2019 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:33 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	33	18	20		ug/L	1	9/5/2019 02:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-007

Client Sample ID: C-R22A-D-Q319
Collection Date: 8/21/2019 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:37 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	43	18	20		ug/L	1	9/5/2019 03:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-008

Client Sample ID: C-R22A-S-Q319
Collection Date: 8/21/2019 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:42 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	27	18	20		ug/L	1	9/5/2019 03:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:46 AM
TOTAL METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-010

Client Sample ID: C-R27-D-Q319
Collection Date: 8/21/2019 12:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:51 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-011

Client Sample ID: MW-905-Q319
Collection Date: 8/21/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:55 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	23	18	20		ug/L	1	9/5/2019 03:29 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-012

Client Sample ID: C-R27-S-Q319
Collection Date: 8/21/2019 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 12:59 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-013

Client Sample ID: R-28-Q319
Collection Date: 8/21/2019 1:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:13 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75133	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75133	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503517

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	93.007	20	100.0	0	93.0	85	115				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503521

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	97.928	20	100.0	0	97.9	75	125	98.89	0.981	20	

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503583

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	98.893	20	100.0	0	98.9	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-75132	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503470

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75132	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503471

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	89.419	20	100.0	0	89.4	85	115				

Sample ID	N037118-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503477

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.588	20	100.0	35.58	74.0	75	125				S

Sample ID	N037118-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503478

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.497	20	100.0	35.58	73.9	75	125	109.6	0.0835	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **N037118-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:			RunNo: **136301**		
Client ID: **ZZZZZZ**	Batch ID: **75133**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/4/2019**			SeqNo: **3503520**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	113.136	20	100.0	0	113	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	N037118-001C-PS	SampType:	PS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503476

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.722	20	100.0	35.58	72.1	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-001

Client Sample ID: C-TAZ-D-Q319
Collection Date: 8/21/2019 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:08 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:08 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:08 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 03:08 AM
Selenium	1.5	0.36	0.50		µg/L	1	9/9/2019 04:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 8:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:33 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:33 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:33 AM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/6/2019 03:33 AM
Selenium	1.3	0.36	0.50		µg/L	1	9/9/2019 04:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 9:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 03:39 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:39 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:39 AM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/6/2019 03:39 AM
Selenium	1.3	0.36	0.50		µg/L	1	9/9/2019 05:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-004

Client Sample ID: MW-904-Q319
Collection Date: 8/21/2019 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:44 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:44 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:44 AM
Molybdenum	4.7	0.21	0.50		µg/L	1	9/6/2019 03:44 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/10/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-005

Client Sample ID: C-I-3-S-Q319
Collection Date: 8/21/2019 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 03:59 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 03:59 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 03:59 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 03:59 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/9/2019 04:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:15:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-006		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190905B** QC Batch: **75129** PrepDate: **8/23/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:04 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:04 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:04 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 04:04 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/9/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 10:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:09 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:09 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:09 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 04:09 AM
Selenium	1.5	0.36	0.50		µg/L	1	9/10/2019 06:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:14 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:14 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:14 AM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/6/2019 04:14 AM
Selenium	1.5	0.36	0.50		µg/L	1	9/9/2019 06:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 11:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/6/2019 04:19 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:19 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:19 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/6/2019 04:19 AM
Selenium	1.3	0.36	0.50		µg/L	1	9/9/2019 05:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:30:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 04:24 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:24 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:24 AM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/6/2019 04:24 AM
Selenium	0.87	0.36	0.50		µg/L	1	9/10/2019 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q319
Lab Order:	N037118	**Collection Date:**	8/21/2019 12:40:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037118-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/6/2019 04:44 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:44 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:44 AM
Molybdenum	4.8	0.21	0.50		µg/L	1	9/6/2019 04:44 AM
Selenium	1.9	0.36	0.50		µg/L	1	9/9/2019 06:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-012

Client Sample ID: C-R27-S-Q319
Collection Date: 8/21/2019 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/6/2019 04:59 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 04:59 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 04:59 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/6/2019 04:59 AM
Selenium	1.7	0.36	0.50		µg/L	1	9/9/2019 07:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037118
Project: PG&E Topock - RMP, 30019131
Lab ID: N037118-013

Client Sample ID: R-28-Q319
Collection Date: 8/21/2019 1:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190905B**	QC Batch: **75129**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	2.1	0.081	0.10		µg/L	1	9/6/2019 05:04 AM
Barium	120	0.15	1.0		µg/L	1	9/6/2019 05:04 AM
Manganese	ND	0.26	0.50		µg/L	1	9/6/2019 05:04 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/6/2019 05:04 AM
Selenium	1.2	0.36	0.50		µg/L	1	9/10/2019 06:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75129** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **PBW** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **LCS-75129** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **LCSW** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.270	0.10	10.00	0	103	85	115				
Barium	10.898	1.0	10.00	0	109	85	115				
Manganese	101.105	0.50	100.0	0	101	85	115				
Molybdenum	10.166	0.50	10.00	0	102	85	115				

Sample ID **N037118-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **ZZZZZZ** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504315**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.312	0.10	10.00	2.361	99.5	75	125				
Barium	127.486	1.0	10.00	117.4	101	75	125				
Manganese	97.865	0.50	100.0	0	97.9	75	125				
Molybdenum	15.496	0.50	10.00	4.479	110	75	125				

Sample ID **N037118-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/23/2019** RunNo: **136324**
Client ID: **ZZZZZZ** Batch ID: **75129** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/6/2019** SeqNo: **3504316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.550	0.10	10.00	2.361	102	75	125	12.31	1.92	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136324
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3504316

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	126.996	1.0	10.00	117.4	96.4	75	125	127.5	0.385	20	
Manganese	96.806	0.50	100.0	0	96.8	75	125	97.86	1.09	20	
Molybdenum	15.269	0.50	10.00	4.479	108	75	125	15.50	1.47	20	

Sample ID	MB-75129	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	PBW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506816

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-75129	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	LCSW	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506817

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.884	0.50	10.00	0	98.8	85	115				

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506821

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.145	0.50	10.00	1.489	96.6	75	125				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136373
Client ID:	ZZZZZZ	Batch ID:	75129	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3506822

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.002	0.50	10.00	1.489	95.1	75	125	11.14	1.29	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Others ✓ — Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RWQCB ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled Y, 2. Headspace, 3. Container Intact Y, 4. Seal Present N, 5. IR number 2
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Rigsie Tejo	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech			Global ID:
Signature: Date: 8/21/19	Sampled By: Andrew Ph		Specify State:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		6. Method of Cooling: Ice
Project Name: PG&E Topock - RMP	Signature: Date: 08/21/19		Sample Temp: 4.1°C / 3.8°C / 4.4°C
Project Number: 30019131			Courier: ASSET
			Tracking No.:

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite as Nitrogen (SM4500N03); H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037118-01	C-TAZ-D-Q319	8/21/2019	8:35		X		X		X	X		X	X			X	X	E	7	P	BNS	
2	-02	C-TAZ-S-Q319	8/21/2019	8:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
3	-03	C-I-3-D-Q319	8/21/2019	9:20		X		X		X	X		X	X			X	X	E	7	P	BNS	
4	-04	MW-904-Q319	8/21/2019	9:30		X		X		X	X		X	X			X	X	E	7	P	BNS	
5	-05	C-I-3-S-Q319	8/21/2019	9:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
6	-06	R63-Q319	8/21/2019	10:15		X		X		X	X		X	X			X	X	E	7	P	BNS	
7	-07	C-R22A-D-Q319	8/21/2019	10:45		X		X		X	X		X	X			X	X	E	7	P	BNS	
8	-08	C-R22A-S-Q319	8/21/2019	11:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
9	-09	C-BNS-Q319	8/21/2019	11:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
10	-10	C-R27-D-Q319	8/21/2019	12:30		X		X		X	X		X	X			X	X	E	7	P	BNS	
11	-11	MW-905-Q319	8/21/2019	12:40		X		X		X	X		X	X			X	X	E	7	P	BNS	
12	-12	C-R27-S-Q319	8/21/2019	12:55		X		X		X	X		X	X			X	X	E	7	P	BNS	
13	-13	R-28-Q319	8/21/2019	13:15		X		X		X	X		X	X			X	X	E	7	P	BNS	
	-14	SW1-Q319	8/21/2019	14:30		X		X					X	X					E	5	P	BN	
14	-15	SW2-Q319	8/21/2019	14:50		X		X					X	X					E	5	P	BN	

Relinquished by (Signature and Printed Name): R. Rigsie Tejo — Date/Time: 8/21/19 1509	Relinquished by (Signature and Printed Name): Andrew Ph — Date/Time: 8/21/19 1509
Relinquished by (Signature and Printed Name): Andrew Ph 8/21/19 1830	Relinquished by (Signature and Printed Name): Leandra Rodriguez — Date/Time: 8/21/19 18:30
Relinquished by (Signature and Printed Name): — Date/Time:	Relinquished by (Signature and Printed Name): — Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled Y; 2. Headspace; 3. Container Intact Y; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivax.com P.O.#	Sample Temp: 4.1°C / 3.8°C / 4.4°C
Submitted By: Andrew Ku	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Courier: ASSET
Title: Field Tech	Sampled By: Riggie Tap	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface	Tracking No.:
Signature: Date: 08/21/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
I herby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 8/21/19		
Project Name: PG&E Topock - RMP			
Project Number: 30019131			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
	N037118-16 •	AmbientBlank-1-Q319	8/21/2019	10:30			X											E	1	P	B	Hold
	-17 •	AmbientBlank-2-Q319	8/21/2019	13:30			X											E	1	P	B	Hold

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Riggie Tap	8/21/19 1509	JORDAN	8/21/19 1509
JORDAN	8/21/19 1830	Joandra Rodriguez	8/21/19 18:30

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/21/2019	Workorder:	N037118
Rep sample Temp (Deg C):	4.1/3.8/4.4	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

For:

Checklist Completed By: YR YRJ 8/22/2019

Reviewed By: LG 090519

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-001A	C-TAZ-D-Q319	8/21/2019 8:35:00 AM	9/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-001B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-001C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-001D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-001E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-002A	C-TAZ-S-Q319	8/21/2019 8:50:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-002B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-002C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-002D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-002D	C-TAZ-S-Q319	8/21/2019 8:50:00 AM	9/5/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-002E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-003A	C-I-3-D-Q319	8/21/2019 9:20:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-003B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-003C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-003D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-003E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-004A	MW-904-Q319	8/21/2019 9:30:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-004B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-004B	MW-904-Q319	8/21/2019 9:30:00 AM	9/5/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-004C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-004D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-004E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-005A	C-I-3-S-Q319	8/21/2019 9:50:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-005B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-005C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-005D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-005E	C-I-3-S-Q319	8/21/2019 9:50:00 AM	9/5/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-006A	R63-Q319	8/21/2019 10:15:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-006B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-006C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-006D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-006E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-007A	C-R22A-D-Q319	8/21/2019 10:45:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-007B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-007C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-007C	C-R22A-D-Q319	8/21/2019 10:45:00 AM	9/5/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-007D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-007E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-008A	C-R22A-S-Q319	8/21/2019 11:05:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-008B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-008C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-008D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-008E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-009A	C-BNS-Q319	8/21/2019 11:50:00 AM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-009B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-009B	C-BNS-Q319	8/21/2019 11:50:00 AM	9/5/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-009C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-009D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-009E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-010A	C-R27-D-Q319	8/21/2019 12:30:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-010B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-010C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-010D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-010D	C-R27-D-Q319	8/21/2019 12:30:00 PM	9/5/2019	Groundwater		Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-010E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-011A	MW-905-Q319	8/21/2019 12:40:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-011B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-011C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-011D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-011E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-012A	C-R27-S-Q319	8/21/2019 12:55:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-012B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-012C	C-R27-S-Q319	8/21/2019 12:55:00 PM	9/5/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-012D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-012E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-013A	R-28-Q319	8/21/2019 1:15:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-013B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-013C			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037118-013D			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/5/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/5/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037118-013E			9/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037118-014A	SW1-Q319	8/21/2019 2:30:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

WORK ORDER Summary

26-Aug-19

WorkOrder: N037118

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/21/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037118-014B	SW1-Q319	8/21/2019 2:30:00 PM	9/5/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-014C			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N037118-015A	SW2-Q319	8/21/2019 2:50:00 PM	9/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037118-015B			9/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037118-015C			9/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/5/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N037118-016A	AmbientBlank-1-Q319	8/21/2019 10:30:00 AM					☐	☐	☐	WW
N037118-017A	AmbientBlank-2-Q319	8/21/2019 1:30:00 PM					☐	☐	☐	WW
N037118-018A	FOLDER	9/5/2019	9/5/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/5/2019		Folder	Folder	☐	☐	☐	LAB
			9/5/2019		Folder	Folder	☐	☐	☐	LAB

Subject: Re: N037118 - PG&E Topock - RMP, 30019131
From: Nancy Sibucao <nancy@assetlaboratories.com>
Date: 9/17/2019, 10:23 AM
To: Daniel Moore <Daniel.Moore@critigen.com>, Marlon Cartin <marlon@assetlaboratories.com>

Hi Dan,

Noted, we will issue a corrective action report. Is it okay if we will just include it in the level 4package as we already reported the level2 on September13?

Thanks,
Nancy

On 9/17/2019 6:41 AM, Daniel Moore wrote:

> Hi Marlin, Please issue a corrective action since all samples have an MS !
>
> On Sep 16, 2019, at 6:44 PM, Marlon Cartin <marlon@assetlaboratories.com> wrote:
>
> > Hi Dan,
> >
> > Hope this e-mail finds you well.
> > We have an analytical issue on Cr+6 for the above project, the analyst missed to run a Dup and MSD on the batch. However, all samples are ND and they all have MS.
> > Do you want us to re-run the samples or report the existing run and file a Corrective Action Report?
> >
> > Thank you for all your help.
> >
> > **Marlon Cartin**
> > Sr. Project Manager
> > California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 **l P:** 562.219.7435 **l F:** 562.219.7436
> > Nevada: 3151 W. Post Road, Las Vegas, NV 89118 **l P:** 702.307.2659 Ext. 410 **l F:** 702.307.2691 **l M:** 702.439.0421
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List of Analysts

ASSET Laboratories Work Order: N037118

NAME	TEST METHOD
Claire Ignacio	EPA 6010B_Dissolved, EPA 6010B, EPA 6020_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540D
Hanah Glodoviza	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136007 **Analyst:** LSR

ASSET #: N037118 **Date Analyzed:** 22-Aug

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/30/2019

2nd Level Reviewer: NS 9/6/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 8/22/19 1500
Analyst: ISK

	Standard	Std ID	Reading	Comments
	9.98 mS/cm	CINV-190516A	10.06 @ 21.3°C	% Rec: (90-110%)
	1410	190724D	1403 @ 21.4°C	
	9985	190724F	10150 @ 21.4°C	
	19999	406.13A	99600 @ 21.5°C	

	Sample ID	Matrix	Reading	Comments
1	NDS7118-1D	H2O	892 @ 24.5°C	
2	1DDUP		894 @ 24.5°C	
3	2D		898 @ 24.5°C	
4	3D		905 @ 24.7°C	
5	4D		907 @ 24.7°C	
6	5D		909 @ 25.0°C	
7	6D		913 @ 25.1°C	
8	7D		912 @ 25.0°C	
9	8D		916 @ 25.0°C	
10	9D		915 @ 25.1°C	
Dup	10D		916 @ 25.3°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: Julia Ramit 8/30/2019
Analyst: CONT D

	Standard	Std ID	Reading	Comments
	1413 mS/cm	CINV-190313A	1448 @ 24.1°C	% Rec: (90-110%)
	10000	B	9810 @ 26.0°C	
	99999	CINV-190524A	97600 @ 25.8°C	

	Sample ID	Matrix	Reading	Comments
1	NDS7118-11D	H2O	924 @ 25.3°C	
2	12D		923 @ 25.3°C	
3	13D		921 @ 25.4°C	
4	14C		951 @ 25.4°C	
5	15C		959 @ 25.5°C	
6	15C DUP		963 @ 25.7°C	
7				
8				
9	1413 mS/cm	CINV-190313A	1445 @ 26.0°C	
10	10000	B	9840 @ 25.9°C	
Dup	99999	CINV-190524A	97300 @ 25.9°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R135999 **Instrument ID:** pH meter

ASSET #: N037118 **Analyst:** LSR

Date Analyzed: 22-Aug

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X			/		
2. Was a closing buffer used at the end of analysis?	X			/		
3. Was the meter checked every 10 samples?	X			/		
Sample Information						
4. Are all samples analyzed within hold time.		X			/	
QC Items						
5. Was a duplicate sample analyzed?	X			/		
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			/
7. Runlog complete and included in package.	X			/		
Preliminary Report						
8. Does the raw data match the preliminary report?	X			/		
9. Are analytical results correct?	X			/		
10. Is the QC summary report present and complete?	X			/		

Comments:

Samples were received past HT.

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/29/2019

2nd Level Reviewer: NS 9/6/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 8/22/19 1055
Analyst: ISn

Standard	Std ID	pH	Comments
Buffer 7	CNV-190422A	7.00 @ 25°C	
Buffer 4	190724EJ	4.02 @ 25°C	
Buffer 10	190801A	10.02 @ 25°C	
Slope		98.2%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB97118-1D	H2O	7.98 @ 25°C	
2	1DDUP		8.03 @ 25°C	
3	2D		8.01 @ 25°C	
4	3D		7.98 @ 25°C	
5	4D		8.00 @ 25°C	
6	5D		7.98 @ 25°C	
7	6D		7.91 @ 25°C	
8	7D		8.03 @ 25°C	
9	8D		8.09 @ 25°C	
10	9D		8.02 @ 25°C	
Use Dup	10D		8.02 @ 25°C	Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CNV-190422C	6.99 @ 25°C	Accept: +/-0.05 pH units from expected value

Date:
Analyst: CONT'D

Julia Ramit 8/29/2019

Standard	Std ID	pH	Comments
Buffer 7			
Buffer 4			
Buffer 10			
Slope			Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB97118-1D	H2O	7.97 @ 25°C	
2	11DDUP		8.01 @ 25°C	
3	12D		8.01 @ 25°C	
4	13D		8.06 @ 25°C	
5	14C		7.64 @ 25°C	
6	15C		7.60 @ 25°C	
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CNV-190422C	6.97 @ 25°C	Accept: +/-0.05 pH units from expected value

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ORELAP/NELAP Cert 4046

SM 2540D

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75150/75151 **Analyst:** LSR

ASSET #: N037118 **Date Analyzed:** 26-Aug

Method: EPA 160.2

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Silvia Ramit Date: 9/3/2019

2nd Level Reviewer NS 9/6/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540D
TEST NAME: Total Non-Filterable Residue
MATRIX: Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N037118-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.4185- 1.4181) *1000000}{200}$$
$$= 2 \text{ mg/L}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Lilia Ramit 9/3/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 8:47:18 A**
Prep End Date: **8/26/2019 2:45:00 P**
Reviewed/ Date: NS 9/6/2019
Initials/ Date: Lilia Ramit 9/3/2019
Prep Batch **75150** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75150	Water		100	☐	100	1.000		
MB-75150	Water		100	☐	100	1.000		
N037118-001D	Groundwater		200	☐	100	0.500		
N037118-001D-DU	Groundwater		200	☐	100	0.500		
N037118-002D	Groundwater		200	☐	100	0.500		
N037118-003D	Groundwater		200	☐	100	0.500		
N037118-004D	Groundwater		200	☐	100	0.500		
N037118-005D	Groundwater		200	☐	100	0.500		
N037118-006D	Groundwater		200	☐	100	0.500		
N037118-007D	Groundwater		200	☐	100	0.500		
N037118-008D	Groundwater		200	☐	100	0.500		
N037118-009D	Groundwater		200	☐	100	0.500		
N037118-010D	Groundwater		200	☐	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10416	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190814C	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 8:47:18 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 9/3/2019

Prep Batch **75150** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75150	Water	10ST190814C	100	☐	100	1.000		
MB-75150	Water		100	☐	100	1.000		
N037118-001D	Groundwater		100/200	☐	100	1.000		
N037118-001DDU	Groundwater		100/200	☐	100	1.000		
N037118-002D	Groundwater		100/200	☐	100	1.000		
N037118-003D	Groundwater		100/200	☐	100	1.000		
N037118-004D	Groundwater		100/200	☐	100	1.000		
N037118-005D	Groundwater		100/200	☐	100	1.000		
N037118-006D	Groundwater		100/200	☐	100	1.000		
N037118-007D	Groundwater		100/200	☐	100	1.000		
N037118-008D	Groundwater		100/200	☐	100	1.000		
N037118-009D	Groundwater		100/200	☐	100	1.000		
N037118-010D	Groundwater		100/200	☐	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10416

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 8:47:28 A**
Prep End Date: **8/26/2019 2:45:00 P**
Reviewed/ Date: NS 9/6/2019
Initials/ Date: Lilia Ramit 9/3/2019
Prep Batch **75151** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75151	Water		100	☐	100	1.000		
MB-75151	Water		100	☐	100	1.000		
N037098-001B	Water		200	☐	100	0.500		
N037099-001D	Wastewater		200	☐	100	0.500		
N037100-001A	Wastewater		200	☐	100	0.500		
N037118-011D	Groundwater		200	☐	100	0.500		
N037118-012D	Groundwater		200	☐	100	0.500		
N037118-013D	Groundwater		200	☐	100	0.500		
N037125-001B	Water		100	☐	100	1.000		
N037148-001D	Groundwater		200	☐	100	0.500		
N037148-001D-DU	Groundwater		200	☐	100	0.500		
N037148-002D	Groundwater		200	☐	100	0.500		
N037148-003D	Groundwater		200	☐	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10416	Glass Fiber Filter, 47mm
10417	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190814C	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 8:47:28 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 9/3/2019

Prep Factor Units
mL / mL

Prep Batch **75151** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75151	Water	lws190814C	100	☐	100	1.000		
MB-75151	Water		100	☐	100	1.000		
N037098-001B	Water		100 /200	☐	100	1.000		
N037099-001D	Wastewater		100 /200	☐	100	1.000		
N037100-001A	Wastewater		100 /200	☐	100	1.000		
N037118-011D	Groundwater		100 /200	☐	100	1.000		
N037118-012D	Groundwater		100 /200	☐	100	1.000		
N037118-013D	Groundwater		100 /200	☐	100	1.000		
N037125-001B	Water		✓100	☐	100	1.000		
N037148-001D	Groundwater		100 /200	☐	100	1.000		
N037148-001D-DU	Groundwater		100 /200	☐	100	1.000		
N037148-002D	Groundwater		100 /200	☐	100	1.000		
N037148-003D	Groundwater		100 /200	☐	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10416
10417

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST (TSS) TDS/TS

Date	Sample ID	Sample Vol. - (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19 847	MB 75150	100	1.4140 1.4136	1.4134 1.4135	LSR
	LCS 75150	100	1.4173 1.4172	1.5120 1.5122	
1	NO37118-1D	200	1.4183 1.4184	1.4183 1.4185	
D1	1D DUP	200	1.4161 1.4160	1.4162 1.4162	
2	2D	200	1.4196 1.4196	1.4197 1.4199	1
3	3D	200	1.3994 1.3992	1.3994 1.3994	
4	4D	200	1.4133 1.4136	1.4137 1.4138	
5	5D	200	1.4094 1.4094	1.4094 1.4095	
6	6D	200	1.4004 1.4001	1.4002 1.4002	
7	7D	200	1.4247 1.4247	1.4250 1.4250	

Julia Ramit 9/3/2019

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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

SOLIDS RAW DATA

TEST :TSS/TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19	N037118-8D.	200	1.4250 1.4246	1.4247 1.4249	LSR
9	9D	200	1.3935 1.3933	1.3933 1.3936	
10	10D	200	1.4221 1.4220	1.4222 1.4222	
					1
	Julia Ramit	9/3/2019			

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TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/26/2019							
MB-75150	100	1.4136	1.4135	-1.0000	1.00	-1	MBLK
LCS-75150	100	1.4172	1.5122	950.0000	1.00	950	LCS
N037118-001D	200	1.4181	1.4185	4.0000	0.50	2	SAMP
N037118-001DDUP	200	1.416	1.4162	2.0000	0.50	1	DUP
N037118-002D	200	1.4196	1.4199	3.0000	0.50	1.5	SAMP
N037118-003D	200	1.3992	1.3994	2.0000	0.50	1	SAMP
N037118-004D	200	1.4136	1.4138	2.0000	0.50	1	SAMP
N037118-005D	200	1.4094	1.4095	1.0000	0.50	0.5	SAMP
N037118-006D	200	1.4001	1.4002	1.0000	0.50	0.5	SAMP
N037118-007D	200	1.4247	1.425	3.0000	0.50	1.5	SAMP
N037118-008D	200	1.4246	1.4249	3.0000	0.50	1.5	SAMP
N037118-009D	200	1.3933	1.3936	3.0000	0.50	1.5	SAMP
N037118-010D	200	1.422	1.4222	2.0000	0.50	1	SAMP

Silvia Ramit 9/3/2019

SOLIDS RAW DATA

TEST (TSS) TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19 847	MB 75151	100	1.4224 1.4223	1.4223 1.4222	LSR
	LCS 75151	100	1.4070 1.4071	1.5017 1.5018	
11	N037098-1B	200	1.4201 1.4198	1.4204 1.4203	
12	N037099-1D	200	1.4002 1.3999	1.3999 1.4002	
13	N037100-1A	200	1.4193 1.4192	1.4193 1.4193	
14	N037118-11D LSR 8/26	200	1.4229 1.4229	1.4230 1.4230	
15	12D	200	1.4171 1.4170	1.4172 1.4172	
16	13D	200	1.4124 1.4125	1.4124 1.4126 LSR 8/26	
17	N037125-1B	100	1.4128 1.4126	1.4330 1.4331	
18	N037148-1D	200	1.4025 1.4023	1.4024 1.4027	

Julia Ramit 9/3/2019 ASSET Laboratories Logbook#17

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19	NB7148-1D. DUP	200	1.3195 1.3995	1.3996 1.4000	USN
19	2D	200	1.4052 1.4055	1.4056 1.4056	USN 9/4
20	3D	200	1.4142 1.4139	1.4161 1.4164	
					1
	Silvia Ramit		9/3/2019		
	0.9999 C	1445	8/26/19 USN		

105°C TIME IN 1445
TIME OUT = 1415

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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/26/2019							
MB-75151	100	1.4223	1.4222	-1.0000	1.00	-1	MBLK
LCS-75151	100	1.4071	1.5018	947.0000	1.00	947	LCS
N037098-001B	200	1.4198	1.4203	5.0000	0.50	2.5	SAMP
N037099-001D	200	1.3999	1.4002	3.0000	0.50	1.5	SAMP
N037100-001A	200	1.4192	1.4193	1.0000	0.50	0.5	SAMP
N037118-011D	200	1.4229	1.423	1.0000	0.50	0.5	SAMP
N037118-012D	200	1.417	1.4172	2.0000	0.50	1	SAMP
N037118-013D	200	1.4125	1.4126	1.0000	0.50	0.5	SAMP
N037125-001B	100	1.4126	1.4331	205.0000	1.00	205	SAMP
N037148-001D	200	1.4023	1.4027	4.0000	0.50	2	SAMP
N037148-001DDUP	200	1.3995	1.4	5.0000	0.50	2.5	DUP
N037148-002D	200	1.4055	1.4056	1.0000	0.50	0.5	SAMP
N037148-003D	200	1.4139	1.4164	25.0000	0.50	12.5	SAMP

Julia Ramit 9/3/2019

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136212
ASSET #: N037118

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 8/29/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: HSG Date: 9/6/2019

2nd Level Reviewer: NS 9/6/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037118-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0000 * 1$$

$$Cr^{+6}, \mu g/L = 0.0000$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

NS 9/17/2019

ANALYSIS RUN LOG

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190829A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/29/19 9:09 AM	Not Reported
10	CCV -1	CCV	1	Hexavalent Chromium	08/29/19 9:20 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/29/19 9:29 AM	Reported
12	CCB -1	CCB	1	Hexavalent Chromium	08/29/19 9:39 AM	Reported
13	MB-R136212	MBLK	1	Hexavalent Chromium	08/29/19 9:48 AM	Reported
14	LCS-R136212	LCS	1	Hexavalent Chromium	08/29/19 9:58 AM	Reported
15	N037117-006AMS	MS	1	Hexavalent Chromium	08/29/19 10:21 AM	Reported
16	N037117-007AMS	MS	1	Hexavalent Chromium	08/29/19 10:33 AM	Reported
17	N037118-001AMS	MS	1	Hexavalent Chromium	08/29/19 10:42 AM	Reported
18	N037118-002AMS	MS	1	Hexavalent Chromium	08/29/19 10:51 AM	Reported
19	N037118-003AMS	MS	1	Hexavalent Chromium	08/29/19 11:01 AM	Reported
20	N037118-004AMS	MS	1	Hexavalent Chromium	08/29/19 11:10 AM	Reported
21	N037118-005AMS	MS	1	Hexavalent Chromium	08/29/19 11:20 AM	Reported
22	N037118-006AMS	MS	1	Hexavalent Chromium	08/29/19 11:29 AM	Reported
23	CCV-1 2	CCV1	1	Hexavalent Chromium	08/29/19 11:39 AM	Reported
24	CCB-1 2	CCB	1	Hexavalent Chromium	08/29/19 11:48 AM	Reported
25	N037117-006A	SAMP	1	Hexavalent Chromium	08/29/19 11:58 AM	Reported
26	N037117-007A	SAMP	1	Hexavalent Chromium	08/29/19 12:07 PM	Reported
27	N037118-001A	SAMP	1	Hexavalent Chromium	08/29/19 12:19 PM	Reported
28	N037118-002A	SAMP	1	Hexavalent Chromium	08/29/19 12:30 PM	Reported
29	N037118-003A	SAMP	1	Hexavalent Chromium	08/29/19 12:40 PM	Reported
30	N037118-004A	SAMP	1	Hexavalent Chromium	08/29/19 12:49 PM	Reported
31	N037118-005A	SAMP	1	Hexavalent Chromium	08/29/19 12:58 PM	Reported
32	N037118-006A	SAMP	1	Hexavalent Chromium	08/29/19 1:08 PM	Reported
33	N037118-007A	SAMP	1	Hexavalent Chromium	08/29/19 1:17 PM	Reported
34	N037118-007AMS	MS	1	Hexavalent Chromium	08/29/19 1:27 PM	Reported
35	CCV-2 3	CCV	1	Hexavalent Chromium	08/29/19 1:36 PM	Reported
36	CCB-2 3	CCB	1	Hexavalent Chromium	08/29/19 1:46 PM	Reported
37	N037118-008A	SAMP	1	Hexavalent Chromium	08/29/19 1:55 PM	Reported
38	N037118-008AMS	MS	1	Hexavalent Chromium	08/29/19 2:05 PM	Reported
39	N037118-009A	SAMP	1	Hexavalent Chromium	08/29/19 2:14 PM	Reported
40	N037118-009AMS	MS	1	Hexavalent Chromium	08/29/19 2:24 PM	Reported
41	N037118-010A	SAMP	1	Hexavalent Chromium	08/29/19 2:33 PM	Reported
42	N037118-010AMS	MS	1	Hexavalent Chromium	08/29/19 2:43 PM	Reported

NS 9/6/2019

INJECTION LOG: 190829A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037118-011A	SAMP	1	Hexavalent Chromium	08/29/19 2:52 PM	Reported
44	N037118-011AMS	MS	1	Hexavalent Chromium	08/29/19 3:01 PM	Reported
45	N037118-012A	SAMP	1	Hexavalent Chromium	08/29/19 3:11 PM	Reported
46	N037118-012AMS	MS	1	Hexavalent Chromium	08/29/19 3:20 PM	Reported
47	CCV-3 4	CCV1	1	Hexavalent Chromium	08/29/19 3:30 PM	Reported
48	CCB-3 4	CCB	1	Hexavalent Chromium	08/29/19 3:39 PM	Reported
49	N037118-013A	SAMP	1	Hexavalent Chromium	08/29/19 3:58 PM	Reported
50	N037118-013AMS	MS	1	Hexavalent Chromium	08/29/19 4:09 PM	Reported
51	N037118-014A	SAMP	1	Hexavalent Chromium	08/29/19 4:18 PM	Reported
52	N037118-014AMS	MS	1	Hexavalent Chromium	08/29/19 4:28 PM	Reported
53	N037118-015A	SAMP	1	Hexavalent Chromium	08/29/19 4:37 PM	~~Not~~ Reported
54	N037118-015AMS	MS	1	Hexavalent Chromium	08/29/19 4:47 PM	Reported
55	N036916-004AMS	MS	1	Hexavalent Chromium	08/29/19 4:56 PM	Not Reported
56	N036916-004A	SAMP	5	Hexavalent Chromium	08/29/19 5:44 PM	Not Reported
57	N036916-004AMS	MS	5	Hexavalent Chromium	08/29/19 6:01 PM	NotReported
58	CCV-4 5	CCV	1	Hexavalent Chromium	08/29/19 6:16 PM	Reported
59	CCB-4 5	CCB	1	Hexavalent Chromium	08/29/19 6:27 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190829A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**30/Aug/19 17:29:51**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

	No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
	1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
	2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
	3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
	4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
	5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
	6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
	7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
	8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
	9	BLANK	1	1000	Unknown		08/29/2019 09:09	Finished	BLANK
CCV-1,CCV,1	10	~~CCV,CCV,1,~~	2	1000	Unknown		08/29/2019 09:20	Finished	CCV @5ppb, IWST-190702A
	11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/29/2019 09:29	Finished	PQL @ 0.2ppb
CCB-1,CCB,1	12	~~CCB,CCB,1,~~	4	1000	Unknown		08/29/2019 09:39	Finished	CCB R190701
	13	MB-H2O,MBLK,1,	5	1000	Unknown		08/29/2019 09:48	Finished	MB R190701
	14	LCS-H2O,LCS,1,	6	1000	Unknown		08/29/2019 09:58	Finished	LCS @5ppb, IWST-190702B
	15	N037117-006AMS,MS	8	1000	Unknown		08/29/2019 10:21	Finished	MS (1ppb), IWST-190702B,10
	16	N037117-007AMS,MS	9	1000	Unknown		08/29/2019 10:33	Finished	MS (1ppb), IWST-190702B,10
	17	N037118-001AMS,MS	10	1000	Unknown		08/29/2019 10:42	Finished	MS (1ppb), IWST-190702B,2>1
	18	N037118-002AMS,MS	11	1000	Unknown		08/29/2019 10:51	Finished	MS (1ppb), IWST-190702B,2>1
	19	N037118-003AMS,MS	12	1000	Unknown		08/29/2019 11:01	Finished	MS (1ppb), IWST-190702B,10
	20	N037118-004AMS,MS	13	1000	Unknown		08/29/2019 11:10	Finished	MS (1ppb), IWST-190702B,10
	21	N037118-005AMS,MS	14	1000	Unknown		08/29/2019 11:20	Finished	MS (1ppb), IWST-190702B,10
	22	N037118-006AMS,MS	15	1000	Unknown		08/29/2019 11:29	Finished	MS (1ppb), IWST-190702B,10
CCV-2,CCV,1	23	~~CCV-1,CCV1,~~1,	16	1000	Unknown		08/29/2019 11:39	Finished	CCV @10ppb, IWST-190702A
CCB-2,CCB,1	24	~~CCB-1,CCB,1,~~	17	1000	Unknown		08/29/2019 11:48	Finished	CCB R190617C
	25	N037117-006A,SAMP	18	1000	Unknown		08/29/2019 11:58	Finished	SAMP,10mL
	26	N037117-007A,SAMP	19	1000	Unknown		08/29/2019 12:07	Finished	SAMP,10mL
	27	N037118-001A,SAMP	20	1000	Unknown		08/29/2019 12:19	Finished	SAMP,10mL
	28	N037118-002A,SAMP	21	1000	Unknown		08/29/2019 12:30	Finished	SAMP,10mL
	29	N037118-003A,SAMP	22	1000	Unknown		08/29/2019 12:40	Finished	SAMP,10mL
	30	N037118-004A,SAMP	23	1000	Unknown		08/29/2019 12:49	Finished	SAMP,10mL
	31	N037118-005A,SAMP	24	1000	Unknown		08/29/2019 12:58	Finished	SAMP,10mL
	32	N037118-006A,SAMP	25	1000	Unknown		08/29/2019 13:08	Finished	SAMP,10mL
	33	N037118-007A,SAMP	26	1000	Unknown		08/29/2019 13:17	Finished	SAMP,10mL
	34	N037118-007AMS,MS	27	1000	Unknown		08/29/2019 13:27	Finished	MS (1ppb), IWST-190702B,10
CCV-3,CCV,1	35	~~CCV-2,CCV,~~1,	28	1000	Unknown		08/29/2019 13:36	Finished	CCV @5ppb, IWST-190702A
CCB-3,CCB,1	36	~~CCB-2,CCB,1,~~	29	1000	Unknown		08/29/2019 13:46	Finished	CCB R190617C
	37	N037118-008A,SAMP	30	1000	Unknown		08/29/2019 13:55	Finished	SAMP,10mL
	38	N037118-008AMS,MS	31	1000	Unknown		08/29/2019 14:05	Finished	MS (1ppb), IWST-190702B,10
	39	N037118-009A,SAMP	32	1000	Unknown		08/29/2019 14:14	Finished	SAMP,10mL
	40	N037118-009AMS,MS	33	1000	Unknown		08/29/2019 14:24	Finished	MS (1ppb), IWST-190702B,10
	41	N037118-010A,SAMP	34	1000	Unknown		08/29/2019 14:33	Finished	SAMP,10mL
	42	N037118-010AMS,MS	35	1000	Unknown		08/29/2019 14:43	Finished	MS (1ppb), IWST-190702B,10
	43	N037118-011A,SAMP	36	1000	Unknown		08/29/2019 14:52	Finished	SAMP,10mL
	44	N037118-011AMS,MS	37	1000	Unknown		08/29/2019 15:01	Finished	MS (1ppb), IWST-190702B,10
	45	N037118-012A,SAMP	38	1000	Unknown		08/29/2019 15:11	Finished	SAMP,10mL
	46	N037118-012AMS,MS	39	1000	Unknown		08/29/2019 15:20	Finished	MS (1ppb), IWST-190702B,10
CCV-4,CCV,1	47	~~CCV-3,CCV,1,~~	40	1000	Unknown		08/29/2019 15:30	Finished	CCV @10ppb, IWST-190702A
CCB-4,CCB,1	48	~~CCB-3,CCB,1,~~	41	1000	Unknown		08/29/2019 15:39	Finished	CCB R190617C
	49	N037118-013A,SAMP	1	1000	Unknown		08/29/2019 15:58	Finished	SAMP,10mL
	50	N037118-013AMS,MS	2	1000	Unknown		08/29/2019 16:09	Finished	MS (1ppb), IWST-190702B,10
	51	N037118-014A,SAMP	3	1000	Unknown		08/29/2019 16:18	Finished	SAMP,10mL
	52	N037118-014AMS,MS	4	1000	Unknown		08/29/2019 16:28	Finished	MS (1ppb), IWST-190702B,10
	53	N037118-015A,SAMP	5	1000	Unknown		08/29/2019 16:37	Finished	SAMP,10mL
	54	N037118-015AMS,MS	6	1000	Unknown		08/29/2019 16:47	Finished	MS (1ppb), IWST-190702B,10
	55	N036916-004AMS,MS	7	1000	Unknown		08/29/2019 16:56	Finished	MS (1ppb), IWST-190702B,10
	56	N036916-004A,SAMP	10	1000	Unknown		08/29/2019 17:44	Finished	SAMP,2>10mL
	57	N036916-004AMS,MS	11	1000	Unknown		08/29/2019 18:01	Finished	MS (1ppb), IWST-190702B,2>1
CCV-5,CCV,1	58	~~CCV-4,CCV,~~1,	13	1000	Unknown		08/29/2019 18:16	Finished	CCV @5ppb, IWST-190702A
CCB-5,CCB,1	59	~~CCB-4,CCB,1,~~	14	1000	Unknown		08/29/2019 18:27	Finished	CCB R190617C
	60	SHUTDOWN	15	1000	Unknown		08/29/2019 18:37	Finished	

61	Eluent: R190828B	16	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190828A	17	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/21/19
Time Prepared: 1120AM
Prepared By: HSG

Slope: 99.3%
pH 4: 4.03
7: 7.02
10: 10.01

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CNV-190329A
NH4OH + NH4SO4 eluent: R190816C, R190828A
NH4OH + NH4SO4 buffer: R190617C, R190710A, R190701B
6N NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037103-1A	9.19	9.36	~250mL	~250 ml	+3 drops 6N NaOH	
2)	N037104-2A	8.62	11.42			+5 drops 6N NaOH	
3)	N037105-1A	8.91	9.61			+5 drops 6N NaOH	
4)	-2A	9.24	9.38			+2 drops 6N NaOH	
5)	N037106-1A	9.29	9.41			+1 drop 6N NaOH	
6)	-2A	9.22	9.32			+1 drop 6N NaOH	
7)	-3A	9.25	9.37			+1 drop 6N NaOH	
8)	-4A	9.31	—				
9)	-5A	9.21	9.38			+2 drops 6N NaOH	
10)	-6A	9.17	9.36			+2 drops 6N NaOH	
11)	-7A	9.12	9.38			+2 drops 6N NaOH	
12)	-8A	9.22	9.33			+1 drop 6N NaOH	
13)	N037107-9A	9.38	—				
14)	-10A	9.33	—				
15)	-11A	9.33	—				

Sample Preparation

Date Prepared: 8/22/19
Time Prepared: 1300
Prepared By: HSG

SLOPE: 98.2%
pH 4: 4.02
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CNV-190329A
NH4OH + NH4SO4 eluent: R190822A, R190828A
NH4OH + NH4SO4 buffer: R190808A, R190617C, R190710A,
6N NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037112-1A	9.17	9.34	~250 ml	~250ml	+2 drops 6N NaOH	
2)	N037113-2A	9.47	—				
3)	N037114-1A	8.79	9.35			+3 drops 6N NaOH	
4)	N037115-2A	9.38	—				
5)	N037116-1A	9.18	9.41			+3 drops 6N NaOH	
6)	N037116-2A	8.91	9.33			+6 drops 6N NaOH	
7)	-3A	9.24	9.49			+1 drop 6N NaOH	
8)	-4A	9.20	9.36			+2 drop 6N NaOH	
9)	-5A	9.25	9.33			+1 drop 6N NaOH	
10)	-6A	9.26	9.35			+1 drop 6N NaOH	
11)	N037117-6A	9.43	—				
12)	-7A	9.45	—				
13)	N037118-1A	9.34	—				1/3
14)	1A ~~-2A~~ HSG	9.19	9.35			+2 drops NaOH	2/3
15)	1A 2 ~~-3A~~ HSG	9.31	—				3/3
	~~N037118-2A HSG~~						~~1/3 HSG~~

Logbook No. 16

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/22/19
Time Prepared: 1300
Prepared By: HSG

SLOPE: 96.2%
pH 4: 4.02
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 1235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190828A
NH4OH + NH4SO4 buffer: R190701B
6N NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037118-2A	9.32	–	~250 ml	~250 mL	1/	1/3
2)	N037118-2A	9.28	9.30				2/3
3)	N037118-2A	9.30	–				3/3
4)	-3A	9.32	–				1/3
5)	-3A	9.33	–				2/3
6)	-3A	9.35	–				3/3
7)	-4A	9.37	–				1/3
8)	-4A	9.33	–				2/3
9)	-4A	9.31	–				3/3
10)	-5A	9.31	–				1/3
11)	-5A	9.31	–				2/3
12)	-5A	9.33	–				3/3
13)	-6A	9.33	–				1/3
14)	-6A	9.19	9.34			+2 drop NaOH	2/3
15)	-6A	9.18	9.30			+1 drop NaOH	3/3

Sample Preparation

Date Prepared: 8/22/19
Time Prepared: 1300
Prepared By: HSG

SLOPE: 98.2%
pH 4: 4.02
7: 7.01
10: 10.02

Reagent ID:
Sulfuric Acid: 1235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190828A
NH4OH + NH4SO4 buffer: R190701B
6N NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037118-7A	9.32	–	~250mL	~250 mL		1/3
2)	-7A	9.28	9.36			+1 drop NaOH	2/3
3)	-7A	9.33	–				3/3
4)	-8A	9.27	9.42			+2 drops NaOH	1/3
5)	-8A	9.25	9.33			+2 drops NaOH	2/3
6)	-8A	HC 9.32	9.31			+1 drop NaOH	3/3
7)	-9A	9.25	9.34			+1 drop NaOH	1/3
8)	-9A	9.27	9.34			+1 drop NaOH	2/3
9)	-9A	9.12	9.35			+3 drops NaOH	3/3
10)	-10A	9.28	9.34			+1 drops NaOH	1/3
11)	-10A	9.13	9.40			+3 drops NaOH	2/3
12)	-10A	9.23	9.32			+1 drop NaOH	3/3
13)	-11A	9.25	9.31			+1 drop NaOH	1/3
14)	-11A	9.27	9.32			+1 drop NaOH	2/3
15)	-11A	9.25	9.34			+1 drop NaOH	3/3

Logbook No. 16

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/22/19
Time Prepared: 1300
Prepared By: HS6

SLOPE: 98.2%
pH 4: 4.02
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R1908284
NH4OH + NH4SO4 buffer: R1907018

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of ~~buffer~~ added	Comments
1)	N037118-~~9~~A 12A	9.23	9.36	~200 mL	~250 mL	+2 drops	1/3
2)	-~~9~~A 12A	9.25	9.32			+1 drop	2/3
3)	-~~8~~A 12A	9.24	9.37			+2 drops	3/3
4)	- 13A	9.25	9.38			+2 drops	1/3
5)	- 13A	9.22	9.35			+2 drops	2/3
6)	- 13A	9.23	9.36			+2 drops	3/3
7)	- 14A	8.74	9.45			+3 drops	1/3
8)	- 14A	9.20	9.34			+2 drops	2/3
9)	- 14A	9.10	9.35			+2 drops	3/3
10)	- 15A	9.21	9.35			+2 drops	1/3
11)	- 15A	9.25	9.35			+2 drops	2/3
12)	- 15A	9.22	9.32			+2 drops	3/3
13)	- 16A	9.24	9.35			+1 drop	
14)	- 17A	9.27	9.37			+1 drop	
15)							

Sample Preparation

Date Prepared: 8/23/19
Time Prepared: 1206 PM
Prepared By: HS6 / LSR

SLOPE: 98.5%
pH 4: 4.03
7: 7.03
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R1906224, R1906284, R1909034
NH4OH + NH4SO4 buffer: R1907018

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of ~~buffer~~ added	Comments
1)	N037141-1A	9.36	-	~250 ml	~250 mL	-	
2)	N037139-1A	8.81	9.37			+3 drops	
3)	J -2A	8.79	9.35			+3 drops	
4)	N037140-2A	9.10	9.54			+2 drops	
5)	N037142-2A	8.89	9.40			+3 drops	
6)	N037143-1A	9.25	9.34			+1 drop	
7)	! 2A	9.39	-			-	
8)	N037144-1A	9.26	9.35			+1 drop NaOH	
9)	! 2A	9.26	9.38			+1 drop	
10)	! 3A	9.18	9.36			+2 drops	
11)	! 4A	9.10	9.36			+3 drops	
12)	N037145-1A	9.18	9.32			+3 drops	
13)	! 2A	9.00	9.31			+4 drops	
14)	N037146-1A	9.17	9.34			+2 drops	
15)	! 2A	9.20	9.38			+2 drops	
	N037147-3A	9.35	-			-	

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/27/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0535	0.2527	1.2778	2.5458	3.9240	5.1959	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ICV**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.202	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCV**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.177	0.20	5.000	0	104	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.195	0.20	0.2000	0	97.4	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.365	0.20	10.00	0	104	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCV**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.104	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ZZZZZZ**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.119	0.20	10.00	0	101	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCV**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.126	0.20	5.000	0	103	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **ICB**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCB**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCB**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCB**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCB**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136212**
Client ID: **CCB**	Batch ID: **R136212**	TestNo: **EPA 218.6**		Analysis Date: **8/29/2019**	SeqNo: **3497732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/29/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.706	
CCV-2	4.706	
CCV-3	4.698	
CCV-4	4.706	
CCV-5	4.698	
Average	4.703	
Actual RT Window	4.623 - 4.783	
Applied RT Window	4.503 - 4.903	
MB-R136212	N.A.	N.A.
LCS-R136212	4.706	PASS
N037117-006AMS	4.698	PASS
N037117-007AMS	4.698	PASS
N037118-001AMS	4.690	PASS
N037118-002AMS	4.690	PASS
N037118-003AMS	4.690	PASS
N037118-004AMS	4.698	PASS
N037118-005AMS	4.690	PASS
N037118-006AMS	4.690	PASS
N037117-006A	N.A.	N.A.
N037117-007A	N.A.	N.A.
N037118-001A	N.A.	N.A.
N037118-002A	N.A.	N.A.
N037118-003A	N.A.	N.A.
N037118-004A	N.A.	N.A.
N037118-005A	N.A.	N.A.
N037118-006A	N.A.	N.A.
N037118-007A	N.A.	N.A.
N037118-007AMS	4.690	PASS
N037118-008A	N.A.	N.A.
N037118-008AMS	4.690	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/29/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.706	
CCV-2	4.706	
CCV-3	4.698	
CCV-4	4.706	
CCV-5	4.698	
Average	4.703	
Actual RT Window	4.623 - 4.783	
Applied RT Window	4.503 - 4.903	
N037118-009A	N.A.	N.A.
N037118-009AMS	4.690	PASS
N037118-010A	N.A.	N.A.
N037118-010AMS	4.690	PASS
N037118-011A	N.A.	N.A.
N037118-011AMS	4.690	PASS
N037118-012A	N.A.	N.A.
N037118-012AMS	4.690	PASS
N037118-013A	N.A.	N.A.
N037118-013AMS	4.690	PASS
N037118-014A	N.A.	N.A.
N037118-014AMS	4.698	PASS
N037118-015A	N.A.	N.A.
N037118-015AMS	4.690	PASS
N036916-004AMS	4.540	PASS
N036916-004A	N.A.	N.A.
N036916-004AMS	4.648	PASS

CORRECTIVE ACTION DOCUMENTATION

ASSET Laboratories

Corrective Action Report (CAR)

Date Initiated: 13-Aug-19 **Corrective Action Report ID:** 2864

Initiated By: Hanah Glodoviza **Department:** II-1(Cr6)

Corrective Action Description

CAR Summary: No Sample DUP and Matrix Spike DUP

Description of Nonconformance: Inadvertently not able to analyze sample duplicate and matrix spike duplicate. Affected samples were N037117 & N037118.

Description of Corrective Action: All samples were none detect and with MS spiked at 1ppm. Please see attached correspondence to the client.

Performed By: Hanah Glodoviza **Completion Date:** 13-Aug-19

Client Notification

Client Notification Required: ~~No~~ **Notified By:**

Comment:

Quality Assurance Review

Corrective Action: Deficiency

Further Action required by QA: none

Approval and Closure

CAR Closed By: Close Date:

QA Reviewed By: 9/18/2019 QA Date:

Last Updated BY nancys Updated: 18-Sep-2019 6:14 PM Reported: 18-Sep-2019 6:14 PM

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

NS 9/6/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

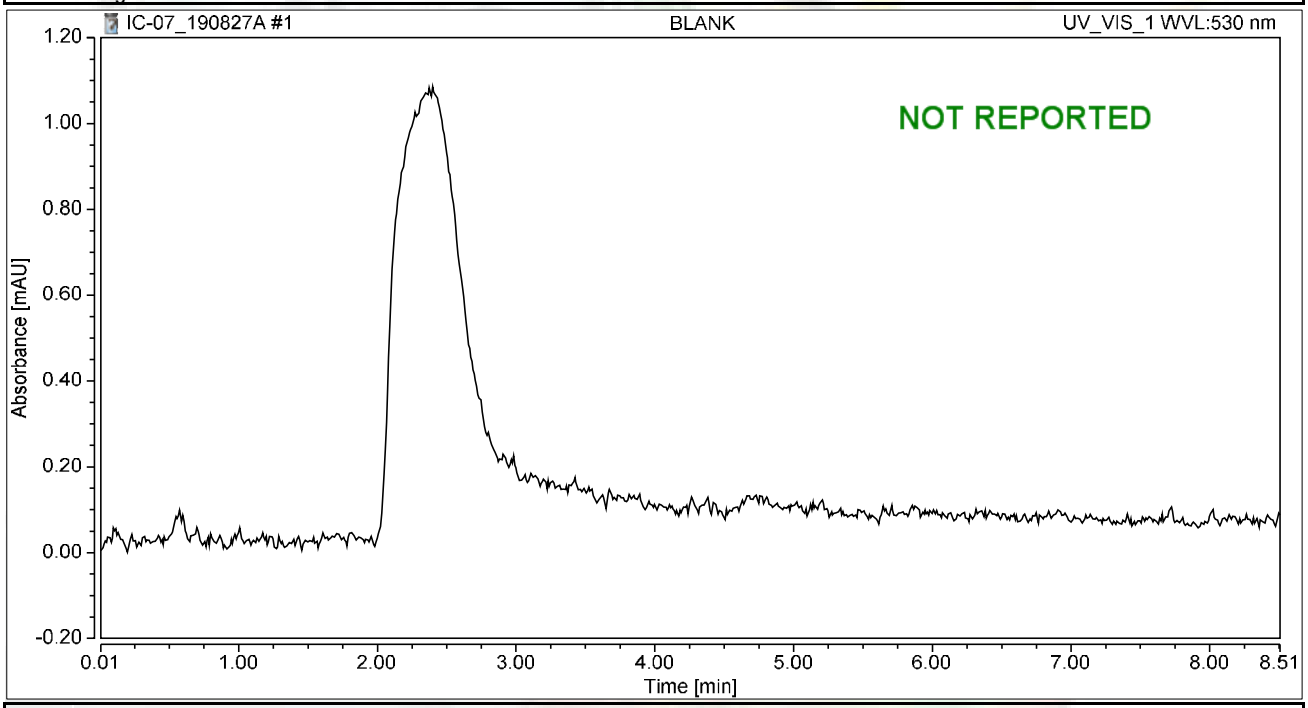
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

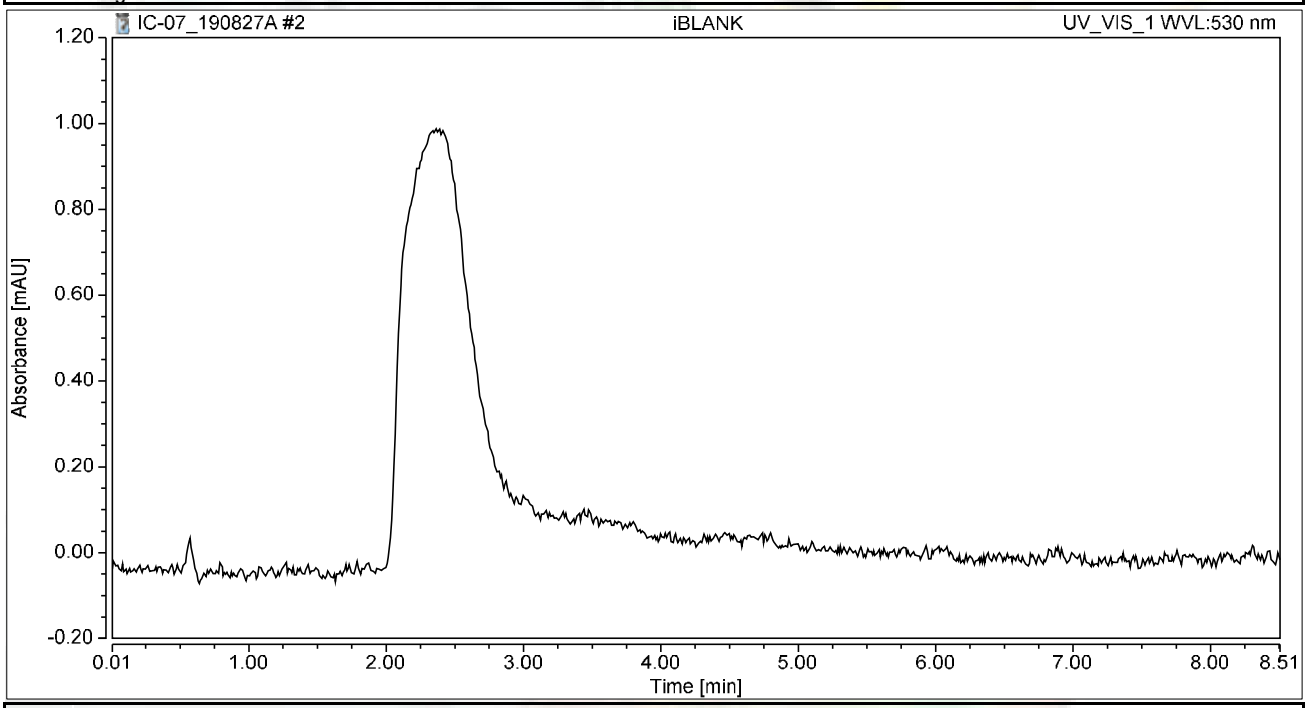
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

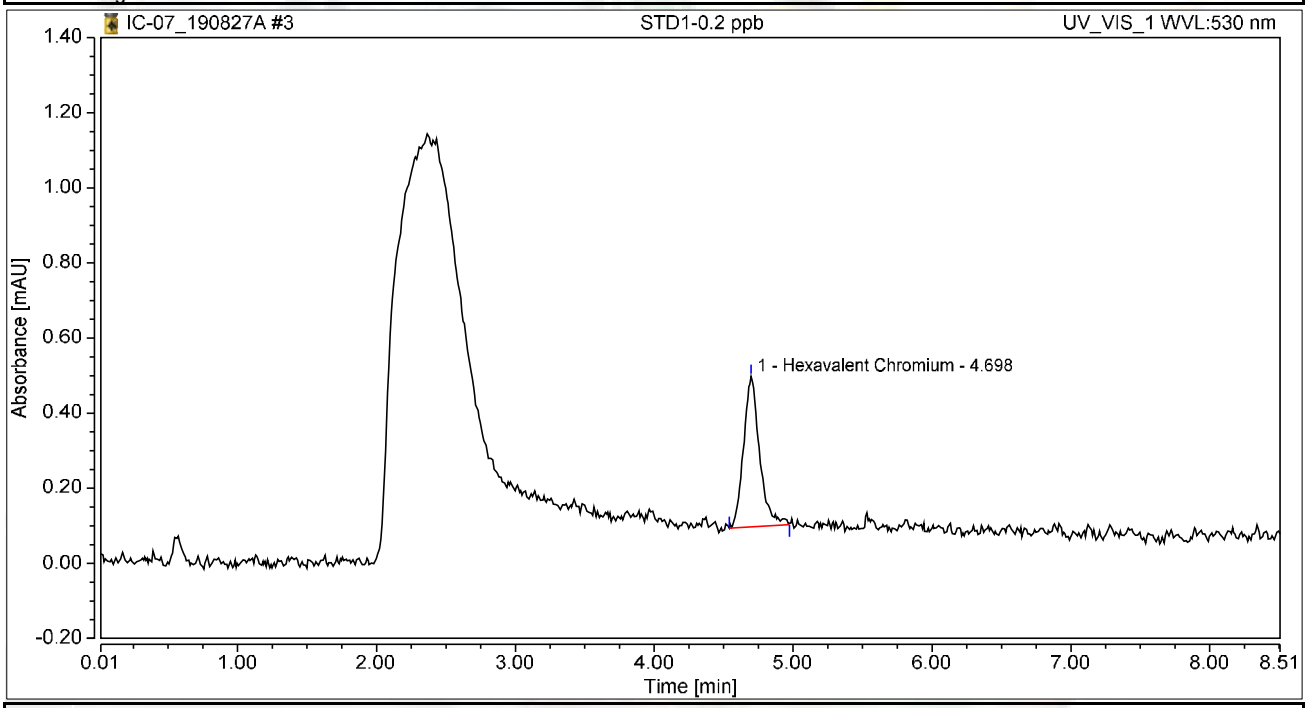
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

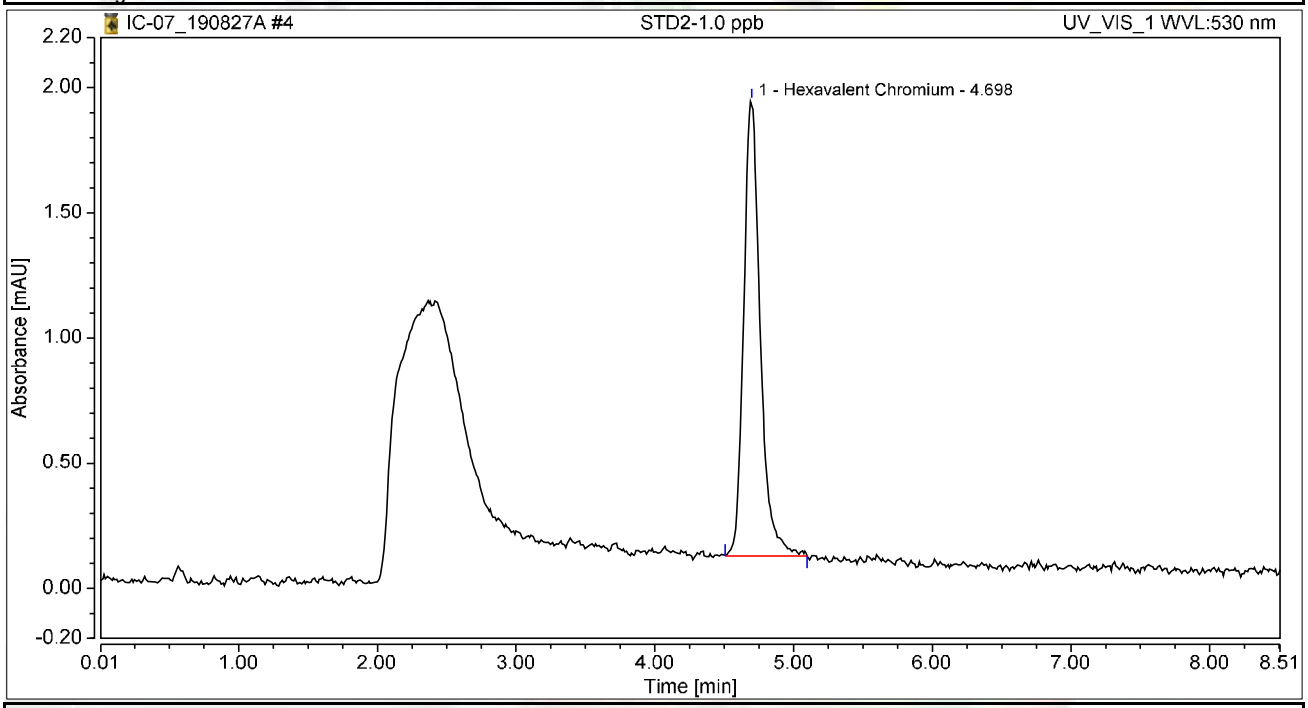
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.401	100.00	100.00	0.2063
Total:			**0.054**	**0.401**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

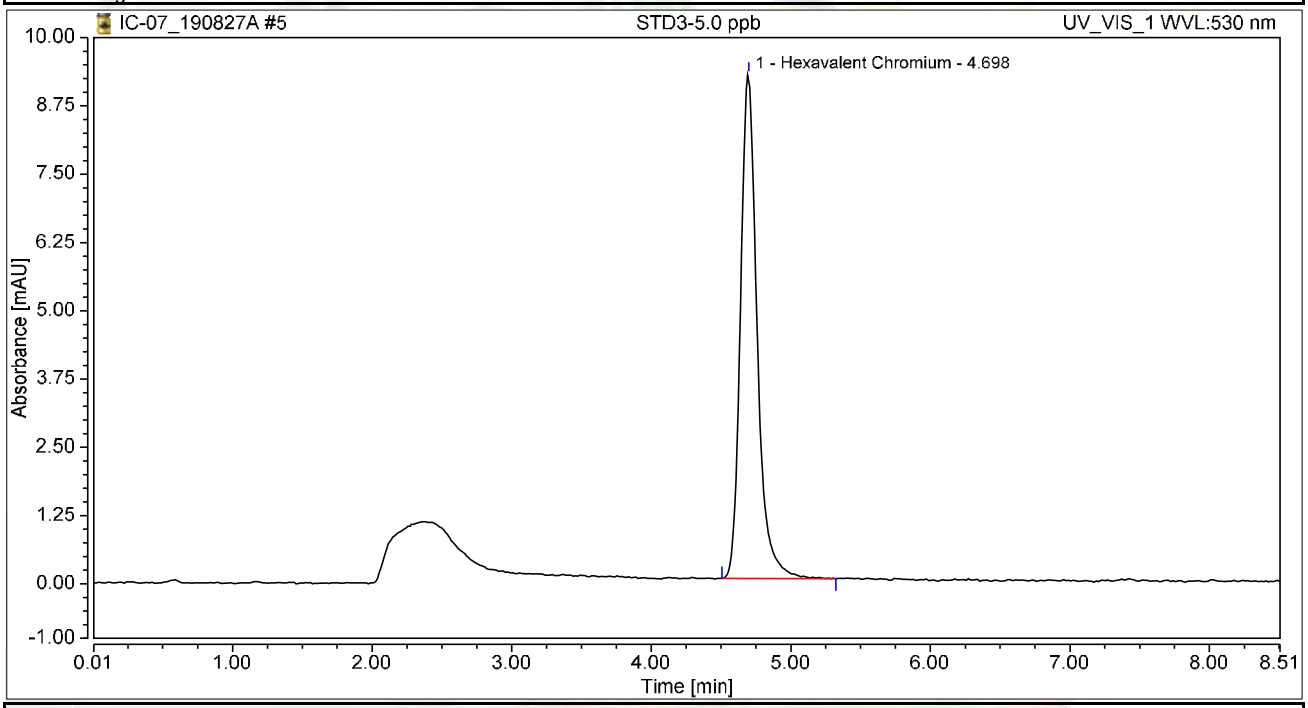
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.253	1.819	100.00	100.00	0.9737
Total:			**0.253**	**1.819**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

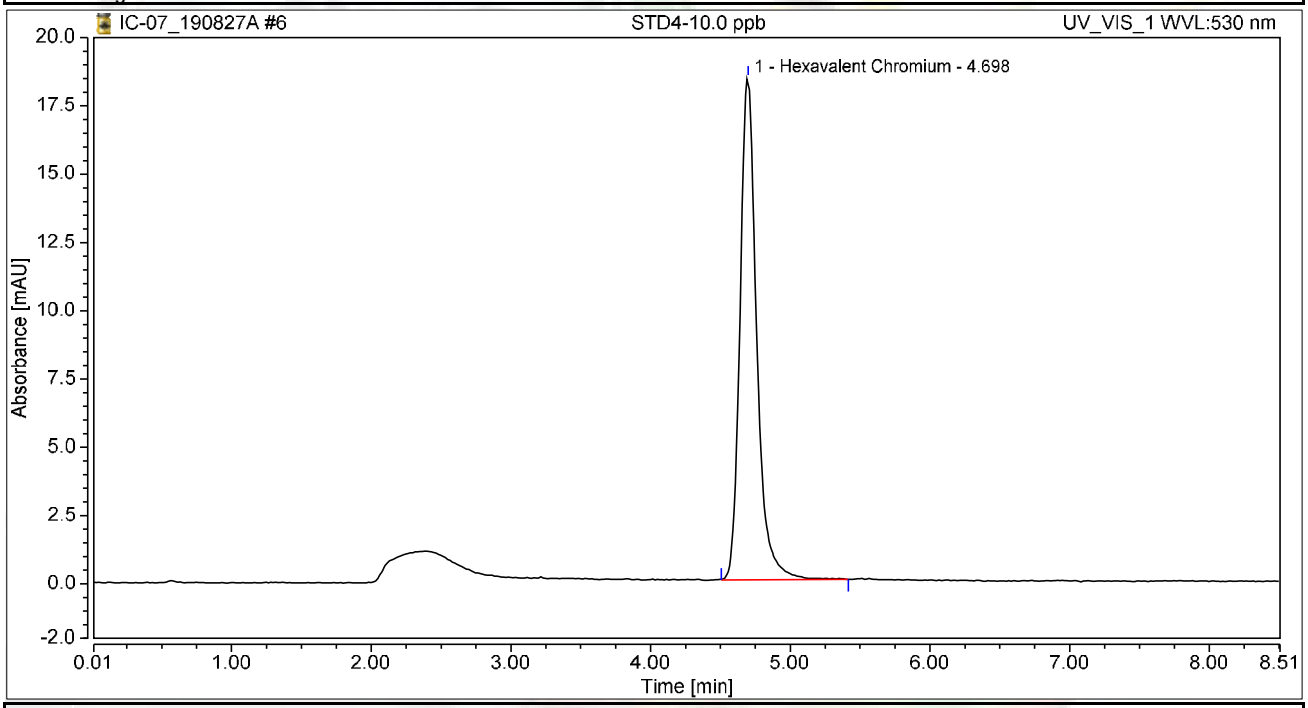
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.278	9.233	100.00	100.00	4.9242
Total:			**1.278**	**9.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

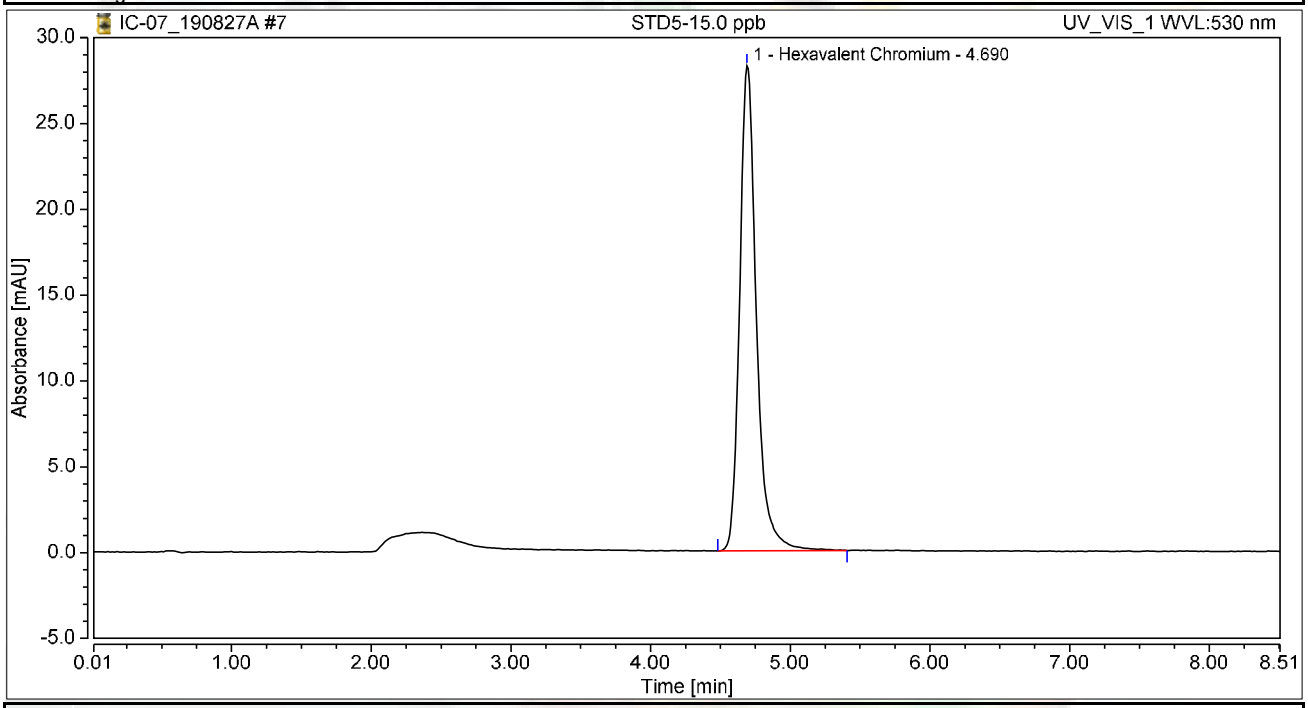
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.546	18.373	100.00	100.00	9.8106
Total:			**2.546**	**18.373**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

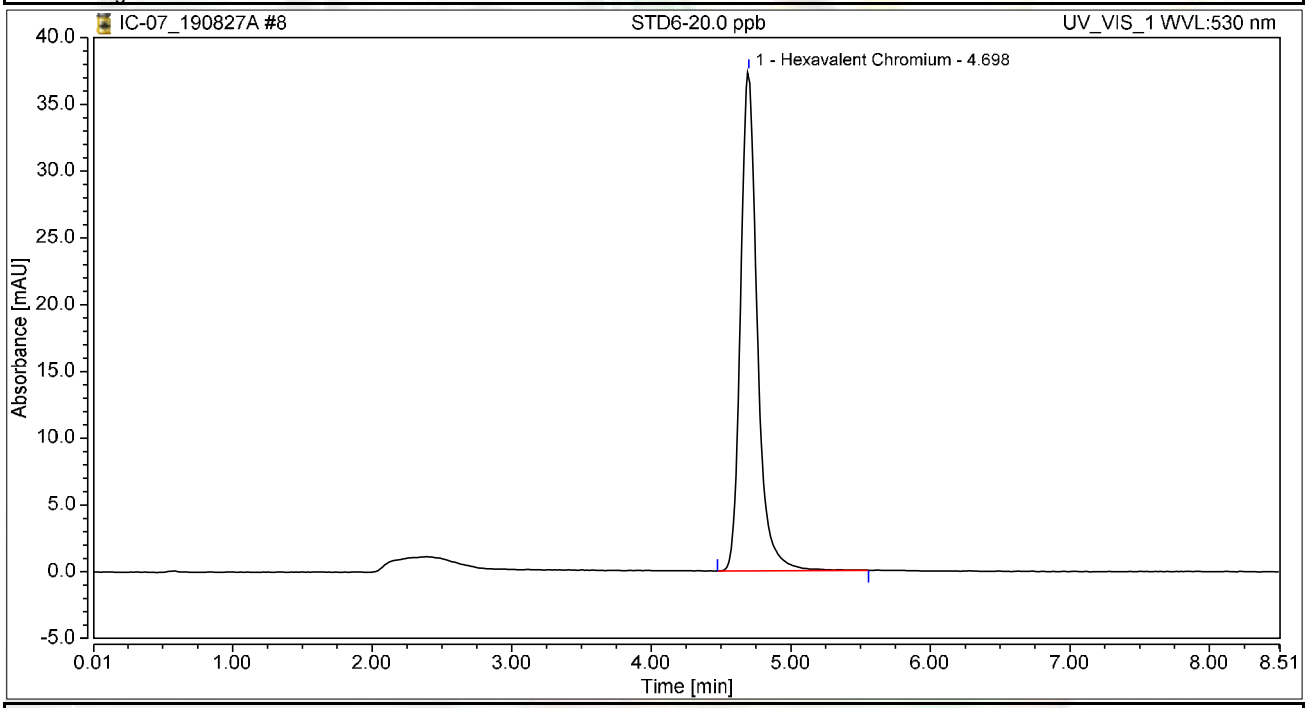
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.924	28.263	100.00	100.00	15.1217
Total:			**3.924**	**28.263**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



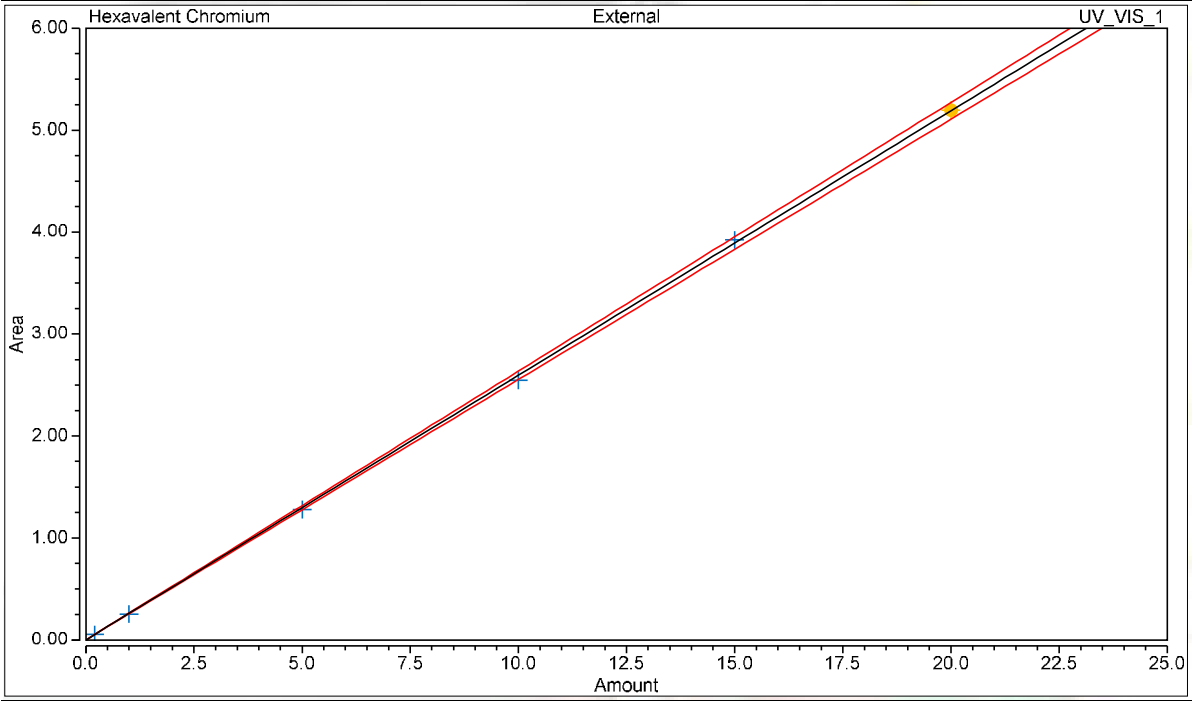
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.196	37.432	100.00	100.00	20.0236
Total:			**5.196**	**37.432**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99982

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

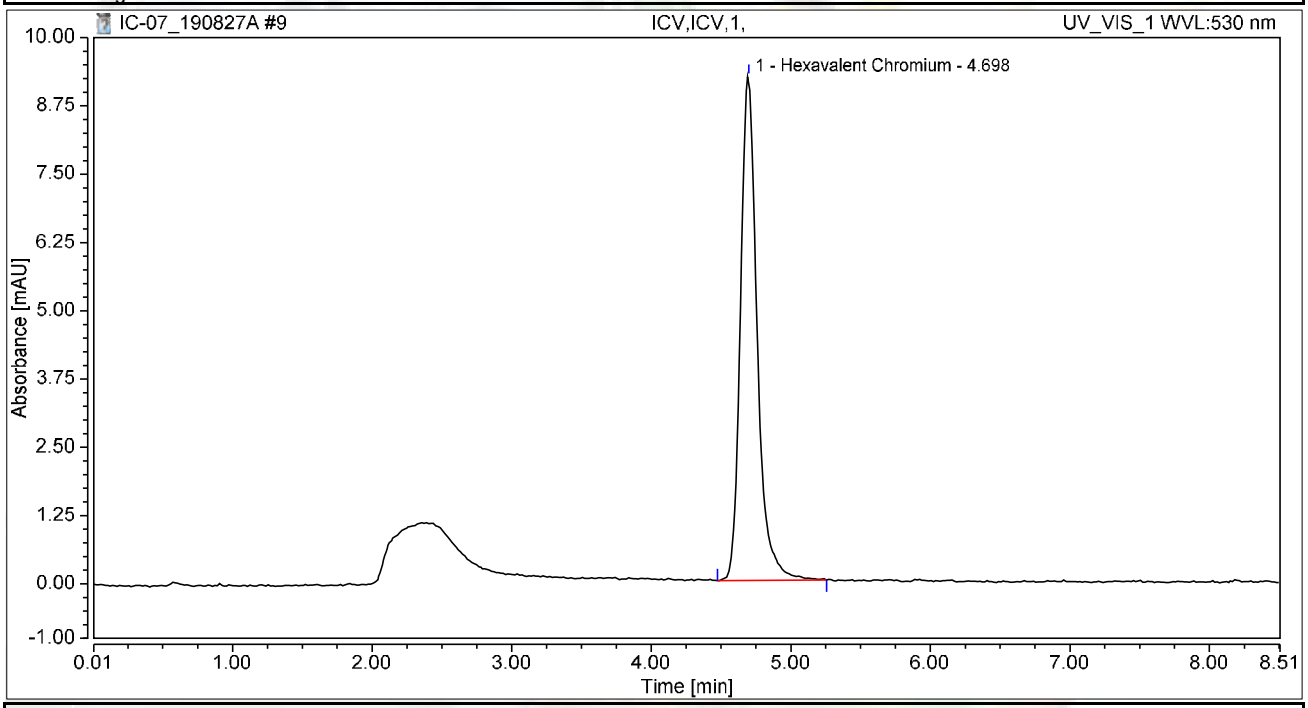
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
3	STD1-0.2 ppb	01	0.2000	0.0535	0.054	0.401
4	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.819
5	STD3-5.0 ppb	03	5.0000	1.2778	1.278	9.233
6	STD4-10.0 ppb	04	10.0000	2.5458	2.546	18.373
7	STD5-15.0 ppb	05	15.0000	3.9240	3.924	28.263
8	STD6-20.0 ppb	06	20.0000	5.1959	5.196	37.432

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

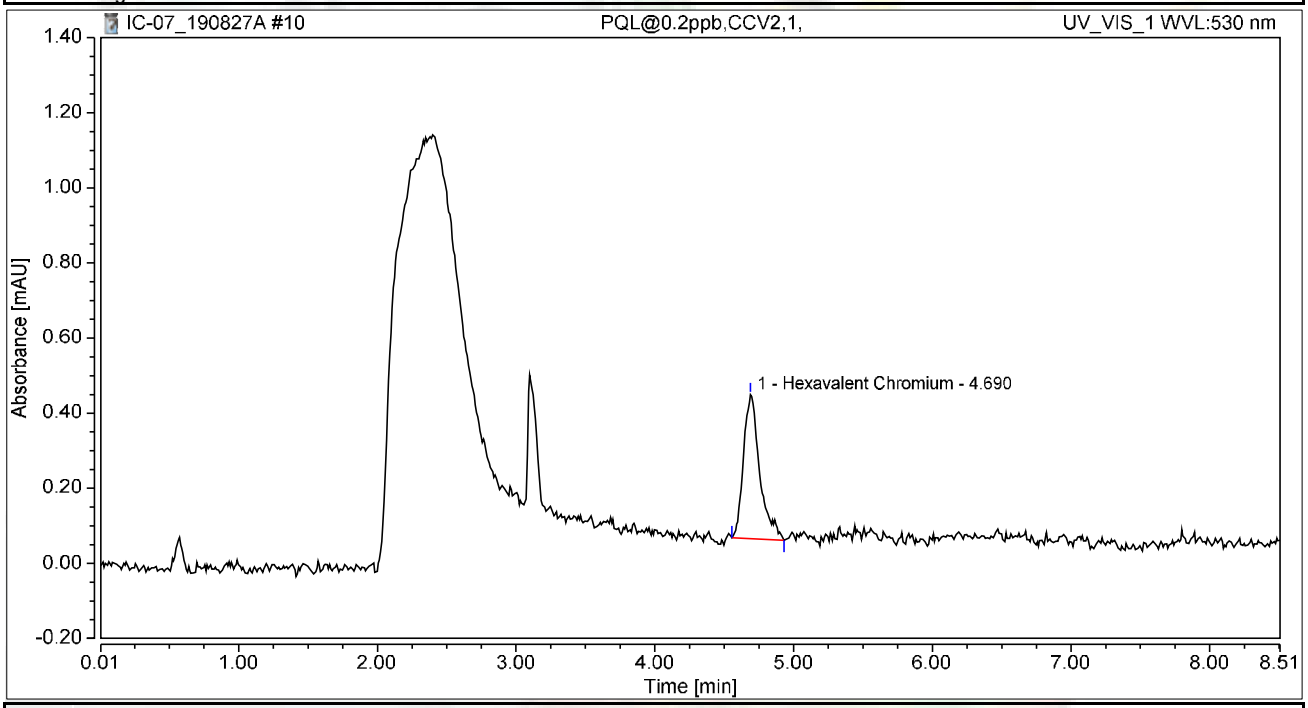
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.281	9.225	100.00	100.00	4.9381
Total:			**1.281**	**9.225**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

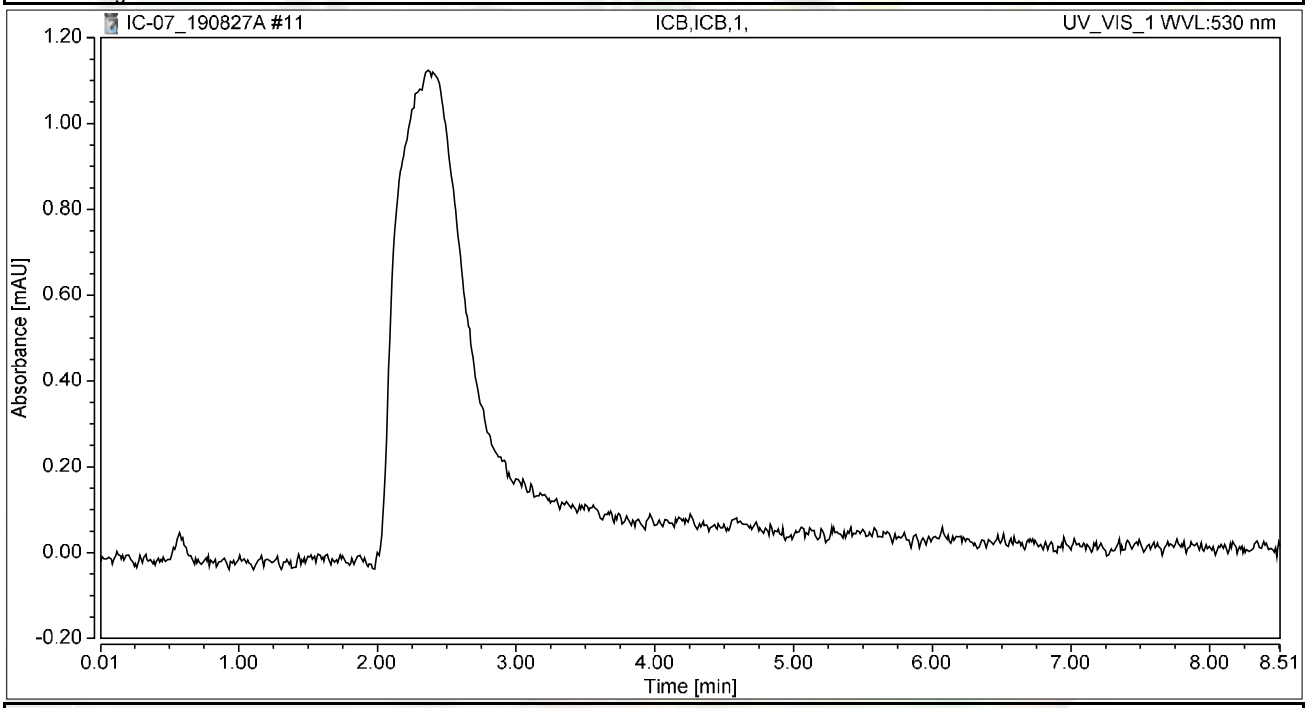
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.052	0.383	100.00	100.00	0.2022
Total:			**0.052**	**0.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190829A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/29/19 9:09 AM	Not Reported
10	CCV -1	CCV	1	Hexavalent Chromium	08/29/19 9:20 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/29/19 9:29 AM	Reported
12	CCB -1	CCB	1	Hexavalent Chromium	08/29/19 9:39 AM	Reported
13	MB-R136212	MBLK	1	Hexavalent Chromium	08/29/19 9:48 AM	Reported
14	LCS-R136212	LCS	1	Hexavalent Chromium	08/29/19 9:58 AM	Reported
15	N037117-006AMS	MS	1	Hexavalent Chromium	08/29/19 10:21 AM	Reported
16	N037117-007AMS	MS	1	Hexavalent Chromium	08/29/19 10:33 AM	Reported
17	N037118-001AMS	MS	1	Hexavalent Chromium	08/29/19 10:42 AM	Reported
18	N037118-002AMS	MS	1	Hexavalent Chromium	08/29/19 10:51 AM	Reported
19	N037118-003AMS	MS	1	Hexavalent Chromium	08/29/19 11:01 AM	Reported
20	N037118-004AMS	MS	1	Hexavalent Chromium	08/29/19 11:10 AM	Reported
21	N037118-005AMS	MS	1	Hexavalent Chromium	08/29/19 11:20 AM	Reported
22	N037118-006AMS	MS	1	Hexavalent Chromium	08/29/19 11:29 AM	Reported
23	CCV-1 2	CCV1	1	Hexavalent Chromium	08/29/19 11:39 AM	Reported
24	CCB-1 2	CCB	1	Hexavalent Chromium	08/29/19 11:48 AM	Reported
25	N037117-006A	SAMP	1	Hexavalent Chromium	08/29/19 11:58 AM	Reported
26	N037117-007A	SAMP	1	Hexavalent Chromium	08/29/19 12:07 PM	Reported
27	N037118-001A	SAMP	1	Hexavalent Chromium	08/29/19 12:19 PM	Reported
28	N037118-002A	SAMP	1	Hexavalent Chromium	08/29/19 12:30 PM	Reported
29	N037118-003A	SAMP	1	Hexavalent Chromium	08/29/19 12:40 PM	Reported
30	N037118-004A	SAMP	1	Hexavalent Chromium	08/29/19 12:49 PM	Reported
31	N037118-005A	SAMP	1	Hexavalent Chromium	08/29/19 12:58 PM	Reported
32	N037118-006A	SAMP	1	Hexavalent Chromium	08/29/19 1:08 PM	Reported
33	N037118-007A	SAMP	1	Hexavalent Chromium	08/29/19 1:17 PM	Reported
34	N037118-007AMS	MS	1	Hexavalent Chromium	08/29/19 1:27 PM	Reported
35	CCV-2 3	CCV	1	Hexavalent Chromium	08/29/19 1:36 PM	Reported
36	CCB-2 3	CCB	1	Hexavalent Chromium	08/29/19 1:46 PM	Reported
37	N037118-008A	SAMP	1	Hexavalent Chromium	08/29/19 1:55 PM	Reported
38	N037118-008AMS	MS	1	Hexavalent Chromium	08/29/19 2:05 PM	Reported
39	N037118-009A	SAMP	1	Hexavalent Chromium	08/29/19 2:14 PM	Reported
40	N037118-009AMS	MS	1	Hexavalent Chromium	08/29/19 2:24 PM	Reported
41	N037118-010A	SAMP	1	Hexavalent Chromium	08/29/19 2:33 PM	Reported
42	N037118-010AMS	MS	1	Hexavalent Chromium	08/29/19 2:43 PM	Reported

NS 9/6/2019

INJECTION LOG: 190829A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037118-011A	SAMP	1	Hexavalent Chromium	08/29/19 2:52 PM	Reported
44	N037118-011AMS	MS	1	Hexavalent Chromium	08/29/19 3:01 PM	Reported
45	N037118-012A	SAMP	1	Hexavalent Chromium	08/29/19 3:11 PM	Reported
46	N037118-012AMS	MS	1	Hexavalent Chromium	08/29/19 3:20 PM	Reported
47	CCV-3 4	CCV1	1	Hexavalent Chromium	08/29/19 3:30 PM	Reported
48	CCB-3 4	CCB	1	Hexavalent Chromium	08/29/19 3:39 PM	Reported
49	N037118-013A	SAMP	1	Hexavalent Chromium	08/29/19 3:58 PM	Reported
50	N037118-013AMS	MS	1	Hexavalent Chromium	08/29/19 4:09 PM	Reported
51	N037118-014A	SAMP	1	Hexavalent Chromium	08/29/19 4:18 PM	Reported
52	N037118-014AMS	MS	1	Hexavalent Chromium	08/29/19 4:28 PM	Reported
53	N037118-015A	SAMP	1	Hexavalent Chromium	08/29/19 4:37 PM	~~Not~~ Reported
54	N037118-015AMS	MS	1	Hexavalent Chromium	08/29/19 4:47 PM	Reported
55	N036916-004AMS	MS	1	Hexavalent Chromium	08/29/19 4:56 PM	Not Reported
56	N036916-004A	SAMP	5	Hexavalent Chromium	08/29/19 5:44 PM	Not Reported
57	N036916-004AMS	MS	5	Hexavalent Chromium	08/29/19 6:01 PM	NotReported
58	CCV-4 5	CCV	1	Hexavalent Chromium	08/29/19 6:16 PM	Reported
59	CCB-4 5	CCB	1	Hexavalent Chromium	08/29/19 6:27 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190829A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**30/Aug/19 17:29:51**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

	No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
	1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
	2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
	3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
	4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
	5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
	6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
	7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
	8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
	9	BLANK	1	1000	Unknown		08/29/2019 09:09	Finished	BLANK
CCV-1,CCV,1	10	~~CCV,CCV,1,~~	2	1000	Unknown		08/29/2019 09:20	Finished	CCV @5ppb, IWST-190702A
	11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/29/2019 09:29	Finished	PQL @ 0.2ppb
CCB-1,CCB,1	12	~~CCB,CCB,1,~~	4	1000	Unknown		08/29/2019 09:39	Finished	CCB R190701
	13	MB-H2O,MBLK,1,	5	1000	Unknown		08/29/2019 09:48	Finished	MB R190701
	14	LCS-H2O,LCS,1,	6	1000	Unknown		08/29/2019 09:58	Finished	LCS @5ppb, IWST-190702B
	15	N037117-006AMS,MS	8	1000	Unknown		08/29/2019 10:21	Finished	MS (1ppb), IWST-190702B,10
	16	N037117-007AMS,MS	9	1000	Unknown		08/29/2019 10:33	Finished	MS (1ppb), IWST-190702B,10
	17	N037118-001AMS,MS	10	1000	Unknown		08/29/2019 10:42	Finished	MS (1ppb), IWST-190702B,2>1
	18	N037118-002AMS,MS	11	1000	Unknown		08/29/2019 10:51	Finished	MS (1ppb), IWST-190702B,2>1
	19	N037118-003AMS,MS	12	1000	Unknown		08/29/2019 11:01	Finished	MS (1ppb), IWST-190702B,10
	20	N037118-004AMS,MS	13	1000	Unknown		08/29/2019 11:10	Finished	MS (1ppb), IWST-190702B,10
	21	N037118-005AMS,MS	14	1000	Unknown		08/29/2019 11:20	Finished	MS (1ppb), IWST-190702B,10
	22	N037118-006AMS,MS	15	1000	Unknown		08/29/2019 11:29	Finished	MS (1ppb), IWST-190702B,10
CCV-2,CCV,1	23	~~CCV-1,CCV1,~~1,	16	1000	Unknown		08/29/2019 11:39	Finished	CCV @10ppb, IWST-190702A
CCB-2,CCB,1	24	~~CCB-1,CCB,1,~~	17	1000	Unknown		08/29/2019 11:48	Finished	CCB R190617C
	25	N037117-006A,SAMP	18	1000	Unknown		08/29/2019 11:58	Finished	SAMP,10mL
	26	N037117-007A,SAMP	19	1000	Unknown		08/29/2019 12:07	Finished	SAMP,10mL
	27	N037118-001A,SAMP	20	1000	Unknown		08/29/2019 12:19	Finished	SAMP,10mL
	28	N037118-002A,SAMP	21	1000	Unknown		08/29/2019 12:30	Finished	SAMP,10mL
	29	N037118-003A,SAMP	22	1000	Unknown		08/29/2019 12:40	Finished	SAMP,10mL
	30	N037118-004A,SAMP	23	1000	Unknown		08/29/2019 12:49	Finished	SAMP,10mL
	31	N037118-005A,SAMP	24	1000	Unknown		08/29/2019 12:58	Finished	SAMP,10mL
	32	N037118-006A,SAMP	25	1000	Unknown		08/29/2019 13:08	Finished	SAMP,10mL
	33	N037118-007A,SAMP	26	1000	Unknown		08/29/2019 13:17	Finished	SAMP,10mL
	34	N037118-007AMS,MS	27	1000	Unknown		08/29/2019 13:27	Finished	MS (1ppb), IWST-190702B,10
CCV-3,CCV,1	35	~~CCV-2,CCV,~~1,	28	1000	Unknown		08/29/2019 13:36	Finished	CCV @5ppb, IWST-190702A
CCB-3,CCB,1	36	~~CCB-2,CCB,1,~~	29	1000	Unknown		08/29/2019 13:46	Finished	CCB R190617C
	37	N037118-008A,SAMP	30	1000	Unknown		08/29/2019 13:55	Finished	SAMP,10mL
	38	N037118-008AMS,MS	31	1000	Unknown		08/29/2019 14:05	Finished	MS (1ppb), IWST-190702B,10
	39	N037118-009A,SAMP	32	1000	Unknown		08/29/2019 14:14	Finished	SAMP,10mL
	40	N037118-009AMS,MS	33	1000	Unknown		08/29/2019 14:24	Finished	MS (1ppb), IWST-190702B,10
	41	N037118-010A,SAMP	34	1000	Unknown		08/29/2019 14:33	Finished	SAMP,10mL
	42	N037118-010AMS,MS	35	1000	Unknown		08/29/2019 14:43	Finished	MS (1ppb), IWST-190702B,10
	43	N037118-011A,SAMP	36	1000	Unknown		08/29/2019 14:52	Finished	SAMP,10mL
	44	N037118-011AMS,MS	37	1000	Unknown		08/29/2019 15:01	Finished	MS (1ppb), IWST-190702B,10
	45	N037118-012A,SAMP	38	1000	Unknown		08/29/2019 15:11	Finished	SAMP,10mL
	46	N037118-012AMS,MS	39	1000	Unknown		08/29/2019 15:20	Finished	MS (1ppb), IWST-190702B,10
CCV-4,CCV,1	47	~~CCV-3,CCV,1,~~	40	1000	Unknown		08/29/2019 15:30	Finished	CCV @10ppb, IWST-190702A
CCB-4,CCB,1	48	~~CCB-3,CCB,1,~~	41	1000	Unknown		08/29/2019 15:39	Finished	CCB R190617C
	49	N037118-013A,SAMP	1	1000	Unknown		08/29/2019 15:58	Finished	SAMP,10mL
	50	N037118-013AMS,MS	2	1000	Unknown		08/29/2019 16:09	Finished	MS (1ppb), IWST-190702B,10
	51	N037118-014A,SAMP	3	1000	Unknown		08/29/2019 16:18	Finished	SAMP,10mL
	52	N037118-014AMS,MS	4	1000	Unknown		08/29/2019 16:28	Finished	MS (1ppb), IWST-190702B,10
	53	N037118-015A,SAMP	5	1000	Unknown		08/29/2019 16:37	Finished	SAMP,10mL
	54	N037118-015AMS,MS	6	1000	Unknown		08/29/2019 16:47	Finished	MS (1ppb), IWST-190702B,10
	55	N036916-004AMS,MS	7	1000	Unknown		08/29/2019 16:56	Finished	MS (1ppb), IWST-190702B,10
	56	N036916-004A,SAMP	10	1000	Unknown		08/29/2019 17:44	Finished	SAMP,2>10mL
	57	N036916-004AMS,MS	11	1000	Unknown		08/29/2019 18:01	Finished	MS (1ppb), IWST-190702B,2>1
CCV-5,CCV,1	58	~~CCV-4,CCV,~~1,	13	1000	Unknown		08/29/2019 18:16	Finished	CCV @5ppb, IWST-190702A
CCB-5,CCB,1	59	~~CCB-4,CCB,1,~~	14	1000	Unknown		08/29/2019 18:27	Finished	CCB R190617C
	60	SHUTDOWN	15	1000	Unknown		08/29/2019 18:37	Finished	

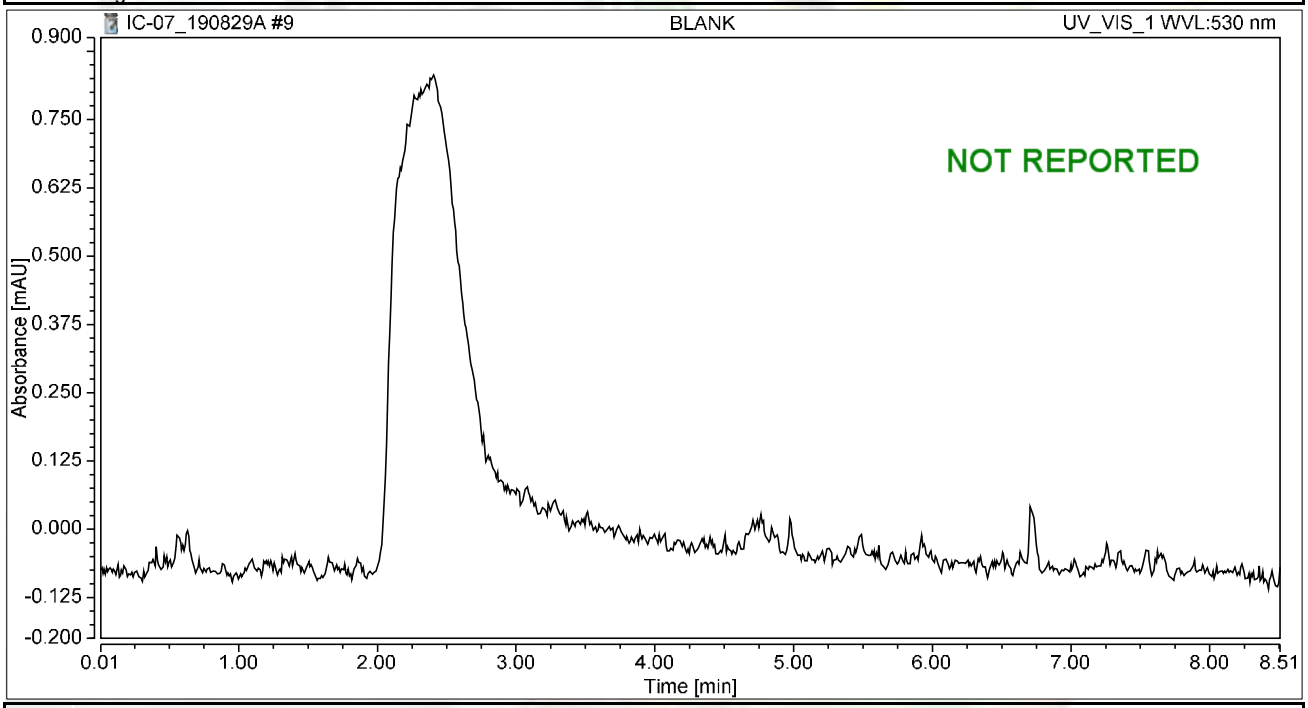
61	Eluent: R190828B	16	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190828A	17	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 09:09**	*Sample Weight:*	**1.0000**

Chromatogram



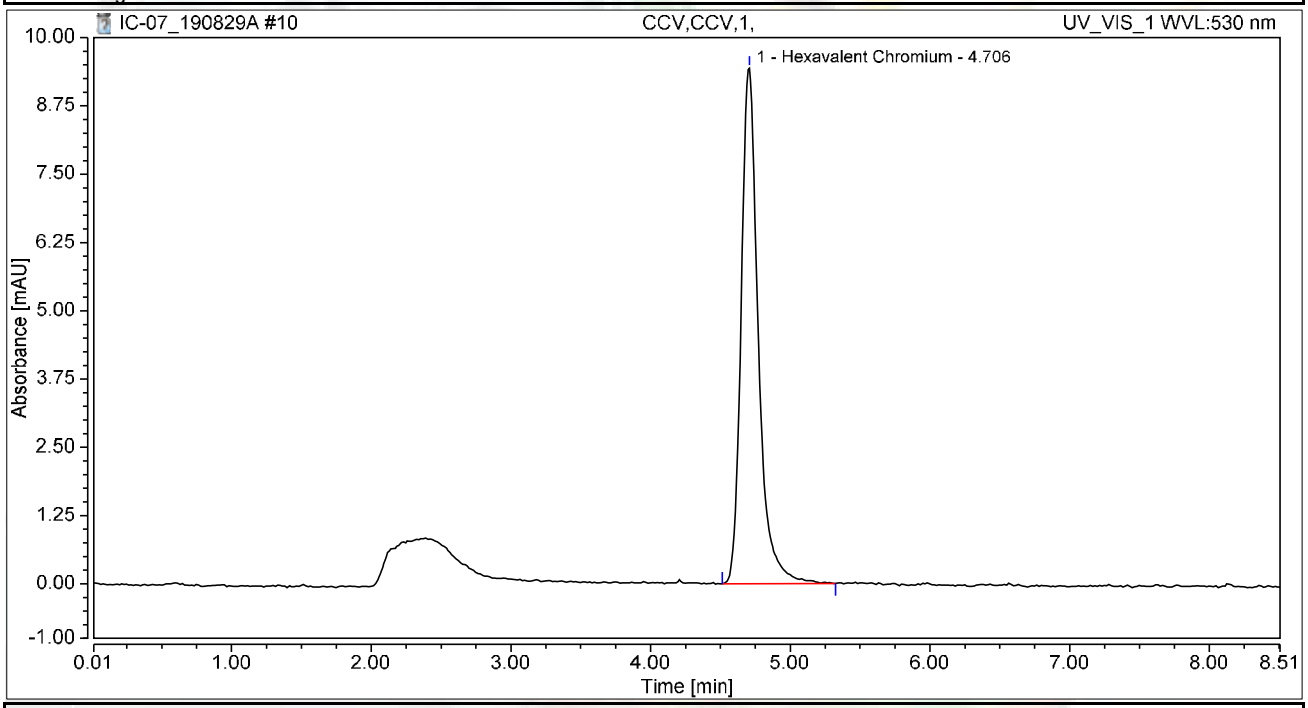
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details	CCV-1		
Injection Name:	**~~CCV~~,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 09:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

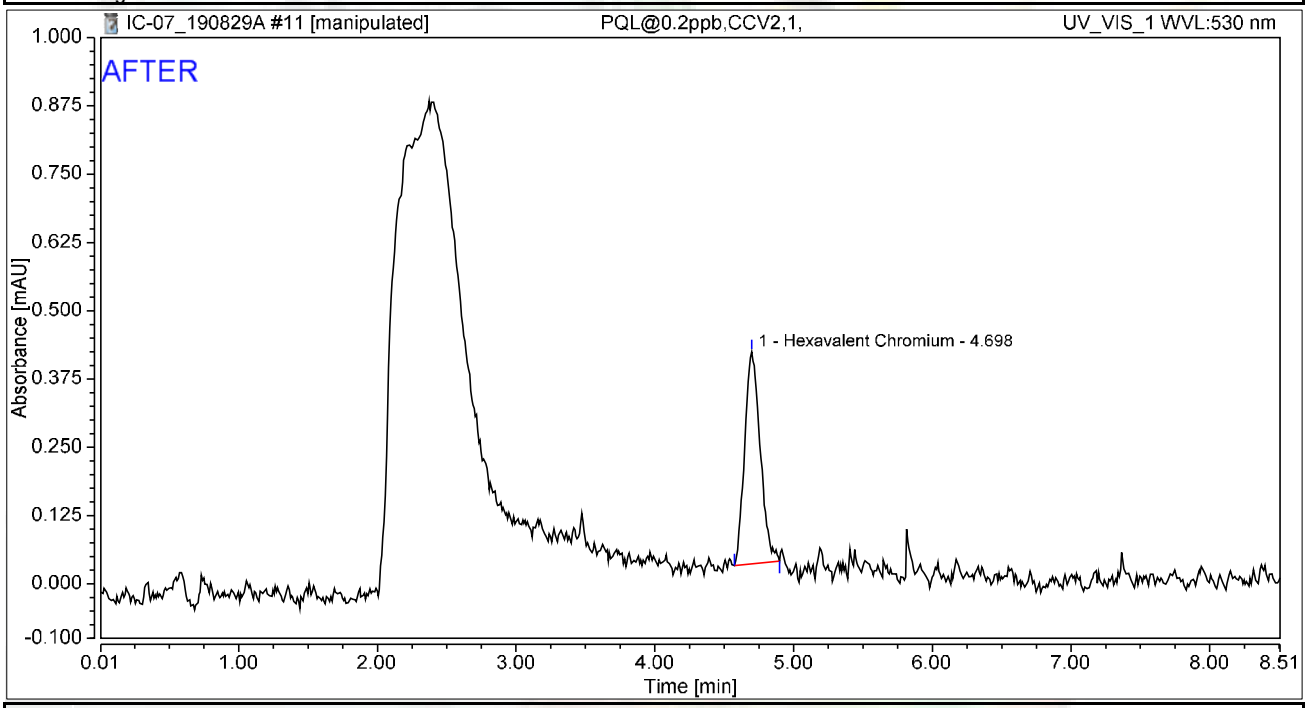
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.343	9.442	100.00	100.00	5.1768
Total:			**1.343**	**9.442**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 09:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.051	0.388	100.00	100.00	0.1947
Total:			**0.051**	**0.388**	**100.00**	**100.00**	

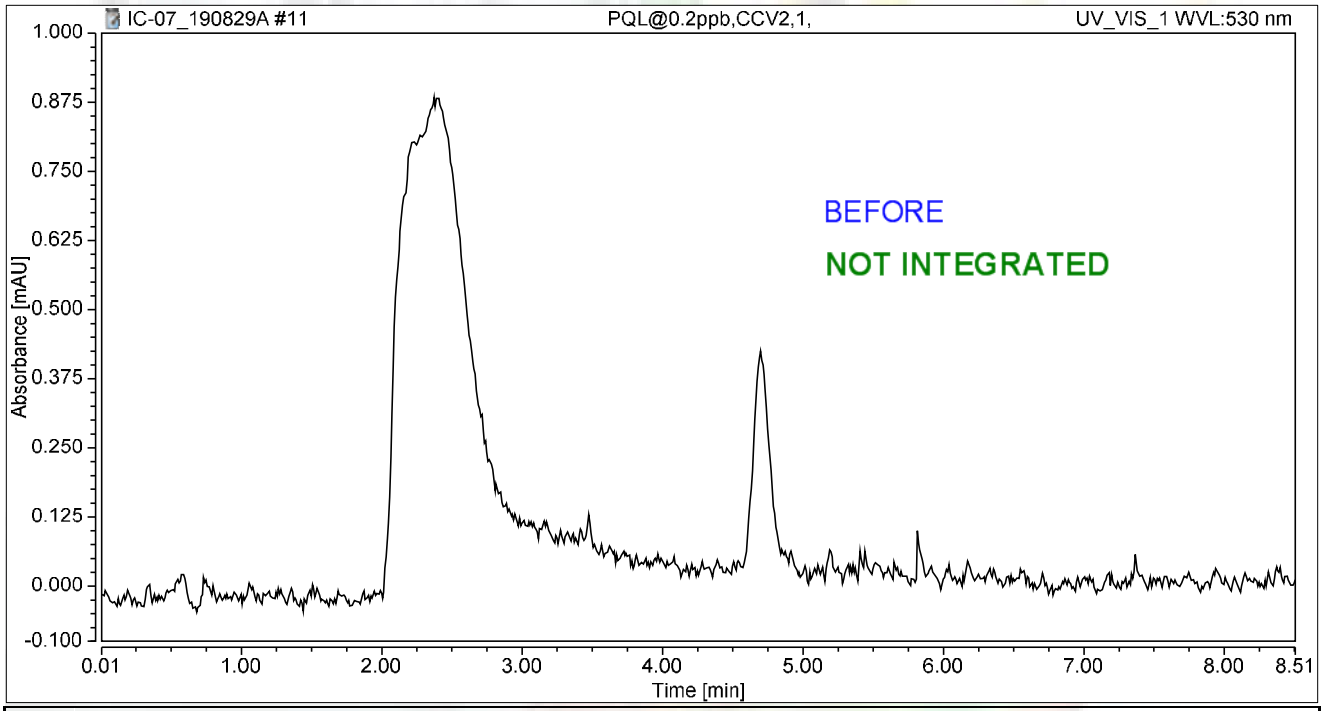
NS 9/6/2019

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 09:29**	*Sample Weight:*	**1.0000**

Chromatogram



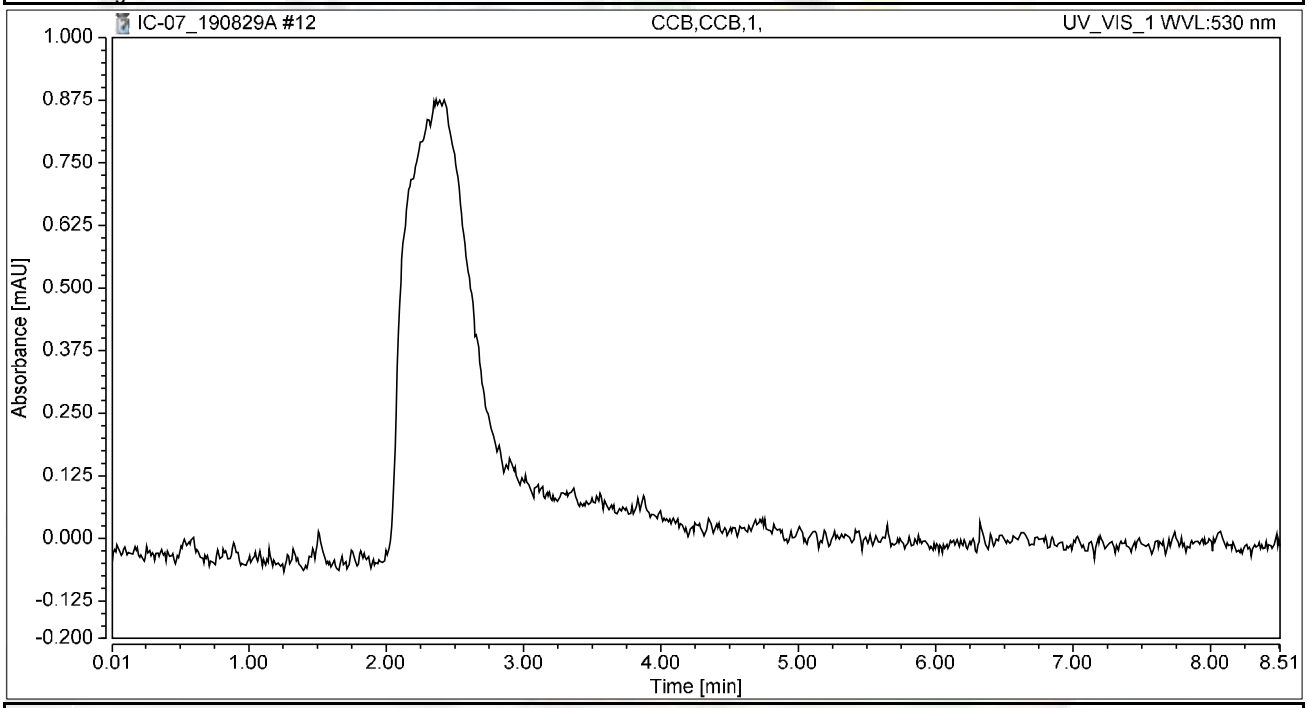
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details	CCB-1		
Injection Name:	~~CCB~~,CCB,1,	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 09:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

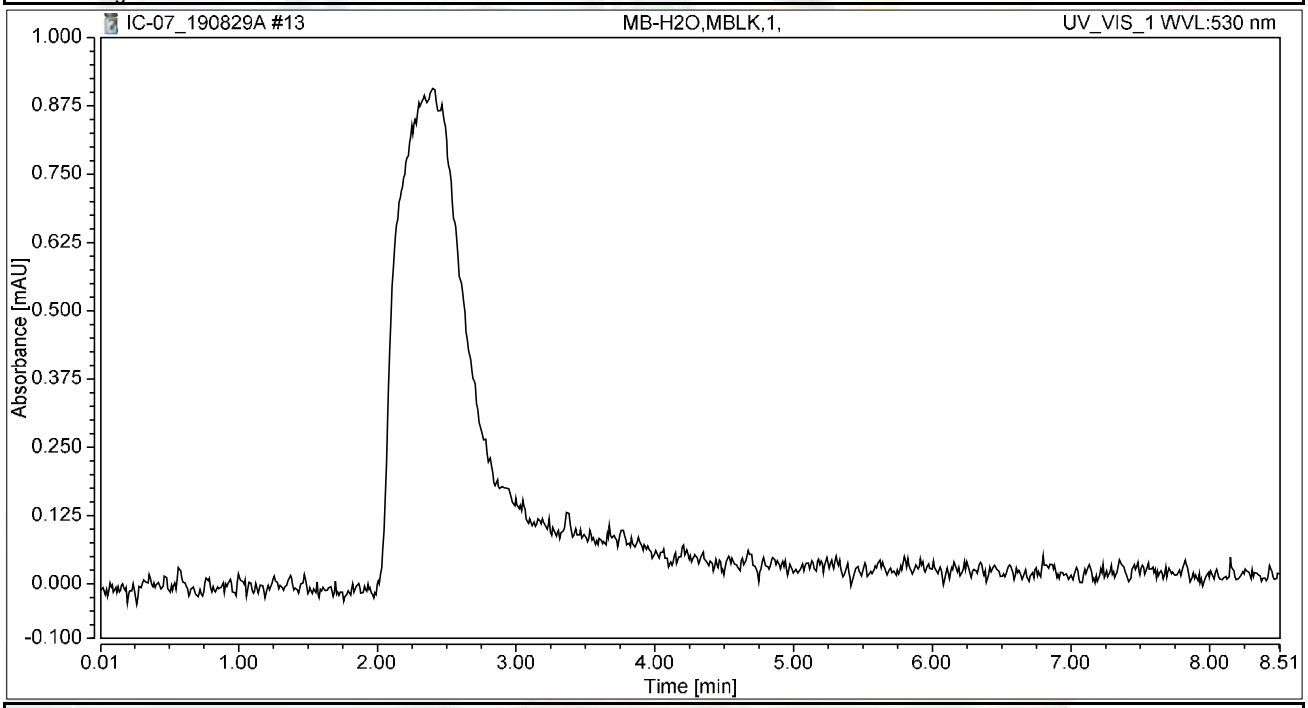
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

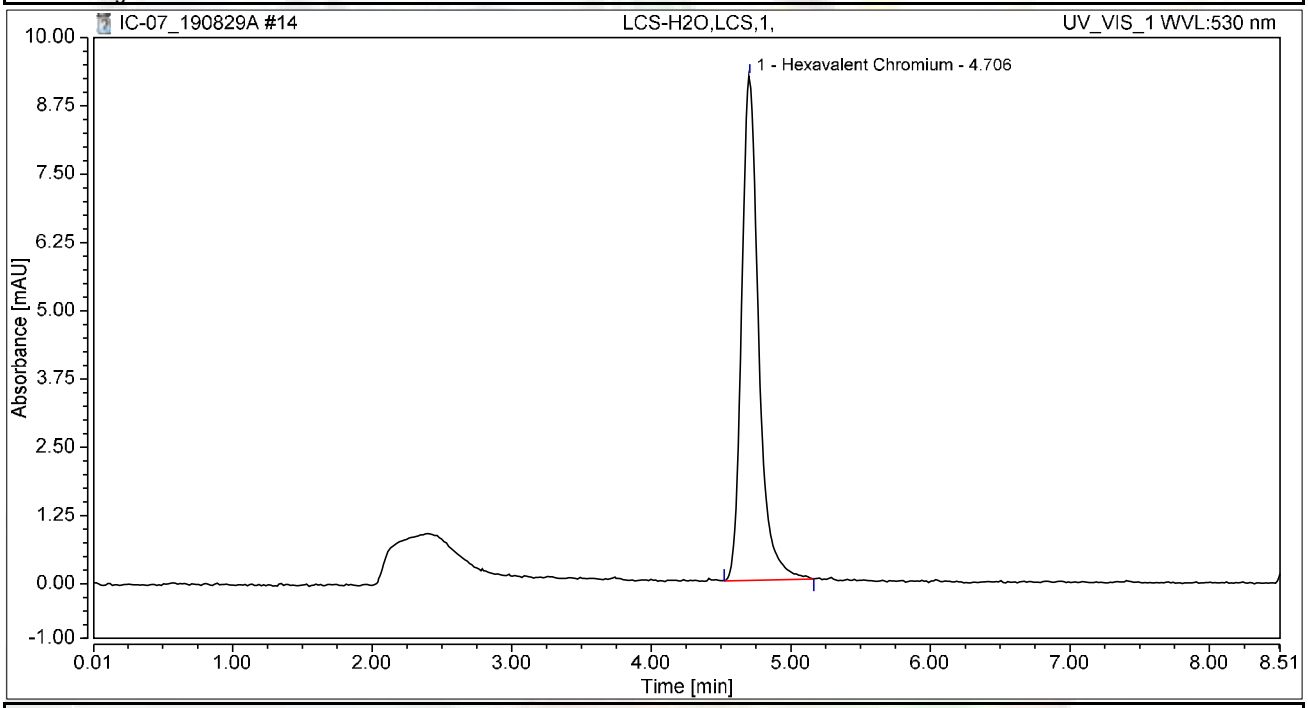
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 09:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

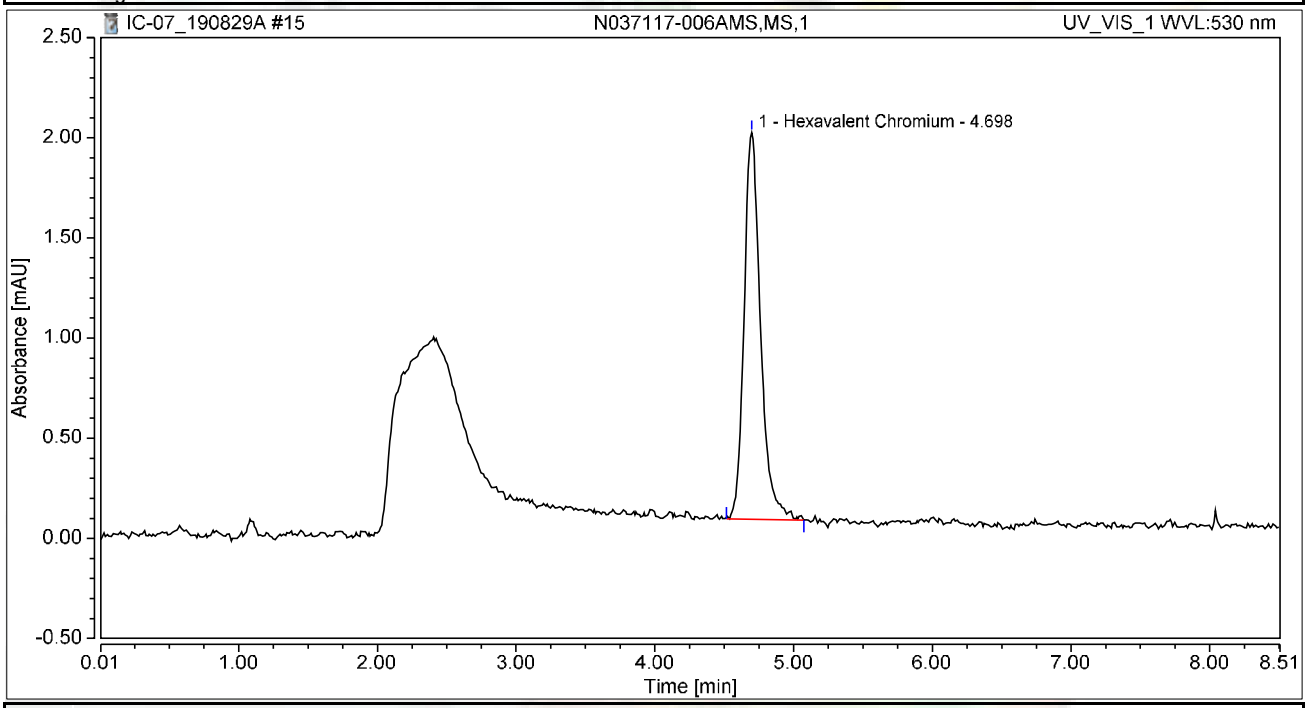
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.309	9.238	100.00	100.00	5.0459
Total:			**1.309**	**9.238**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037117-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 10:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

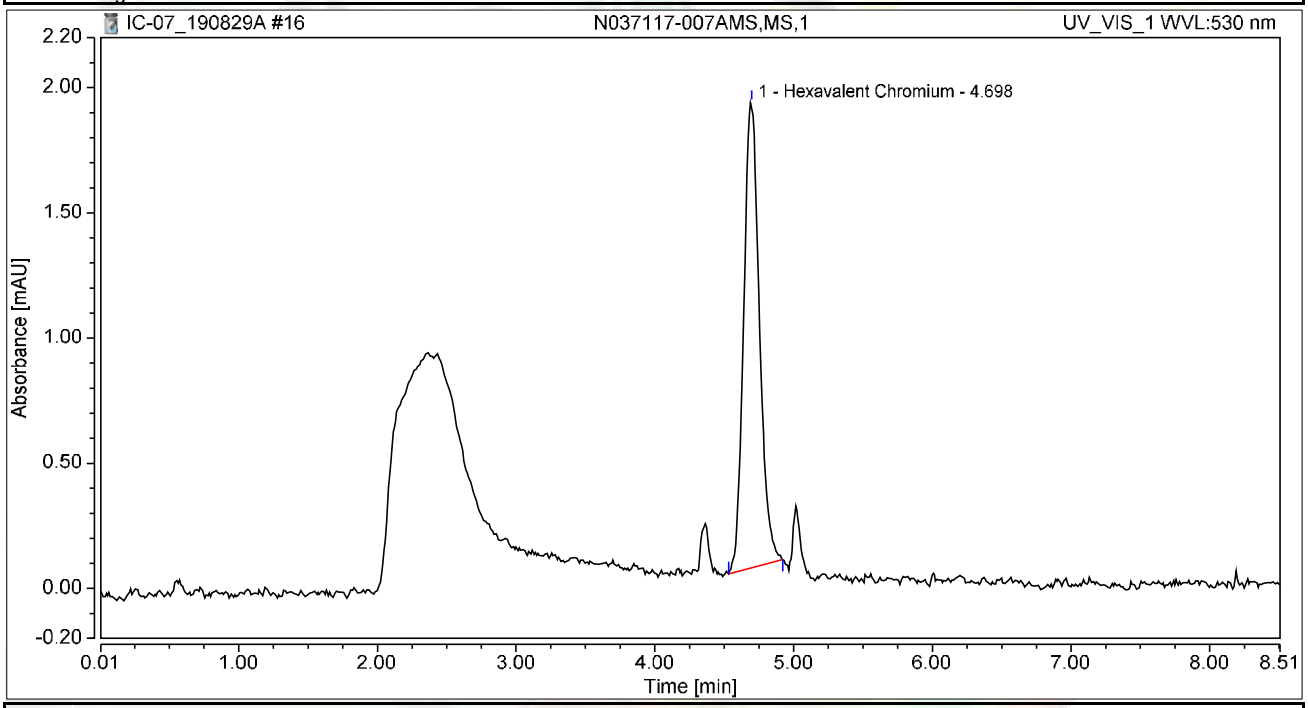
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.266	1.931	100.00	100.00	1.0249
Total:			**0.266**	**1.931**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037117-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 10:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

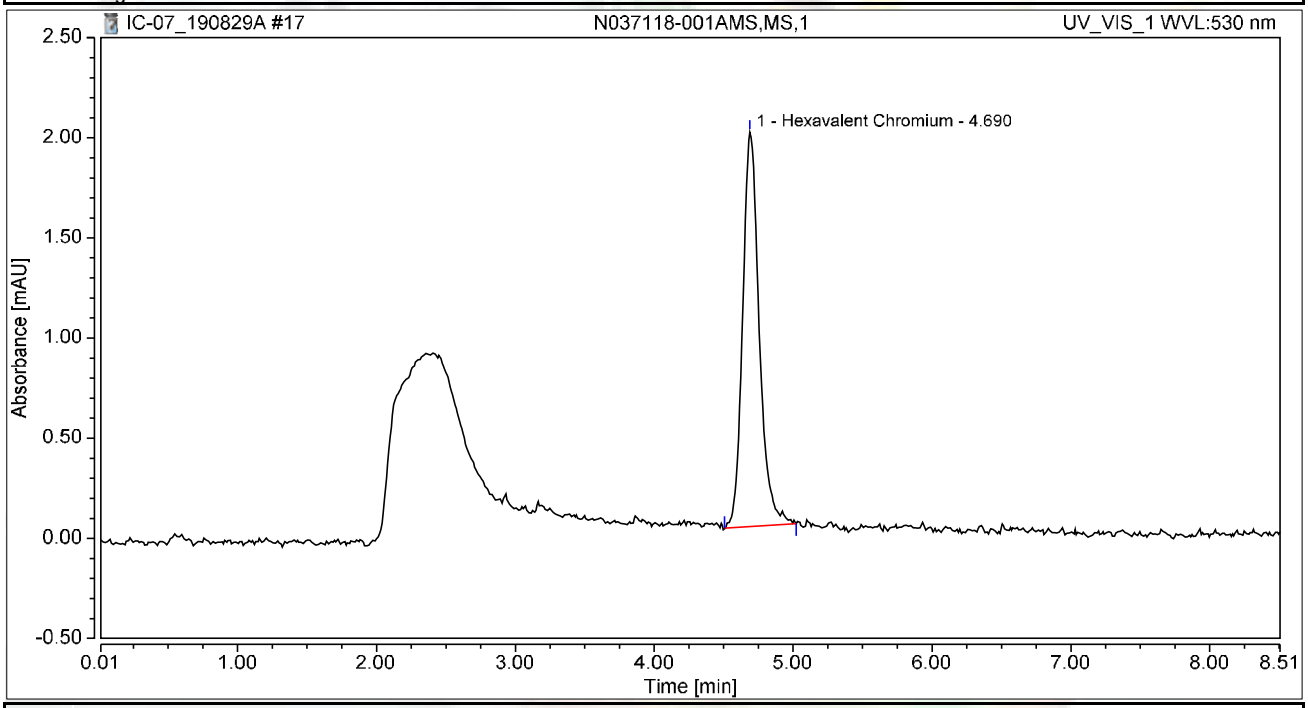
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.245	1.859	100.00	100.00	0.9424
Total:			**0.245**	**1.859**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 10:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

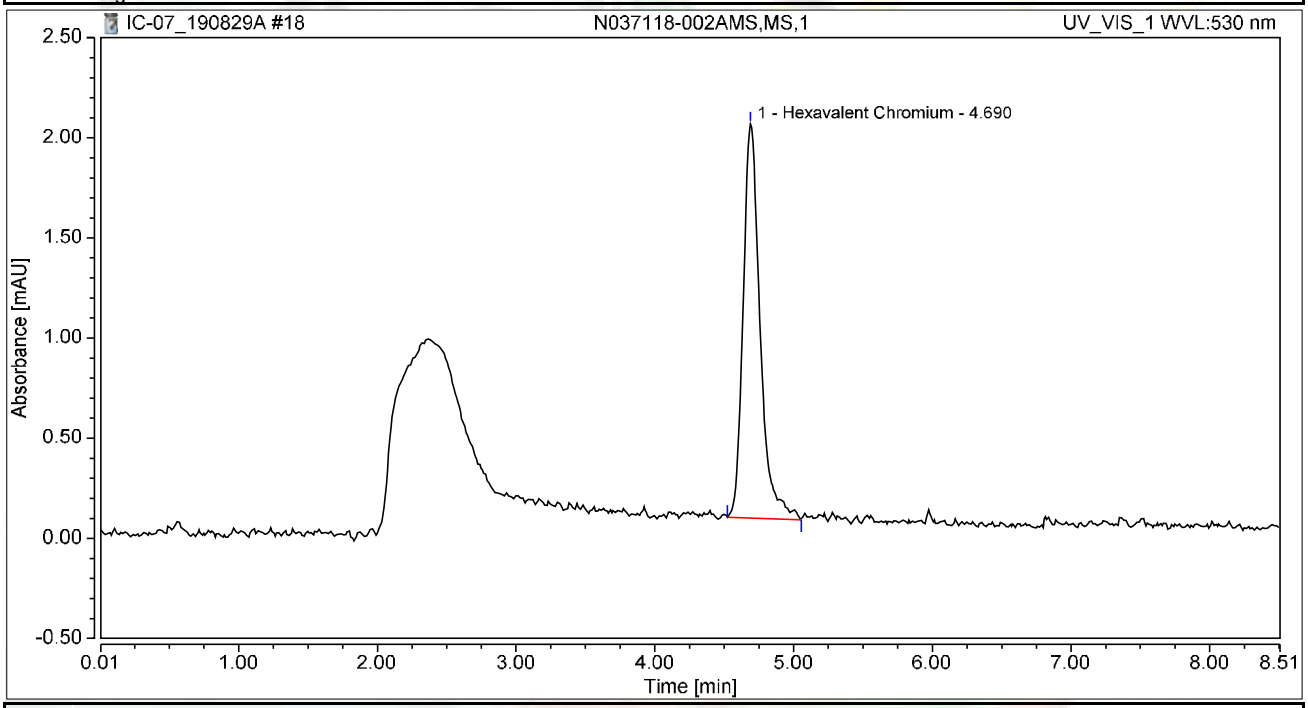
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.274	1.970	100.00	100.00	1.0546
Total:			**0.274**	**1.970**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

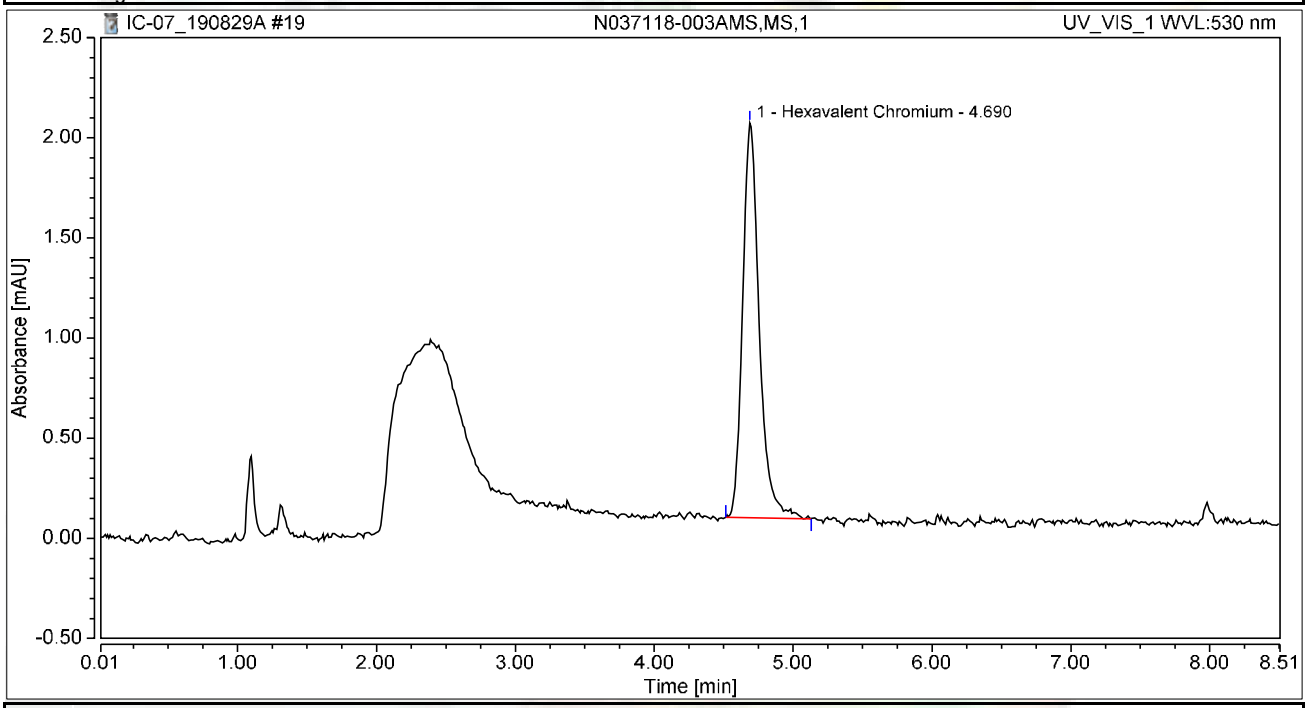
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.278	1.968	100.00	100.00	1.0728
Total:			**0.278**	**1.968**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 11:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

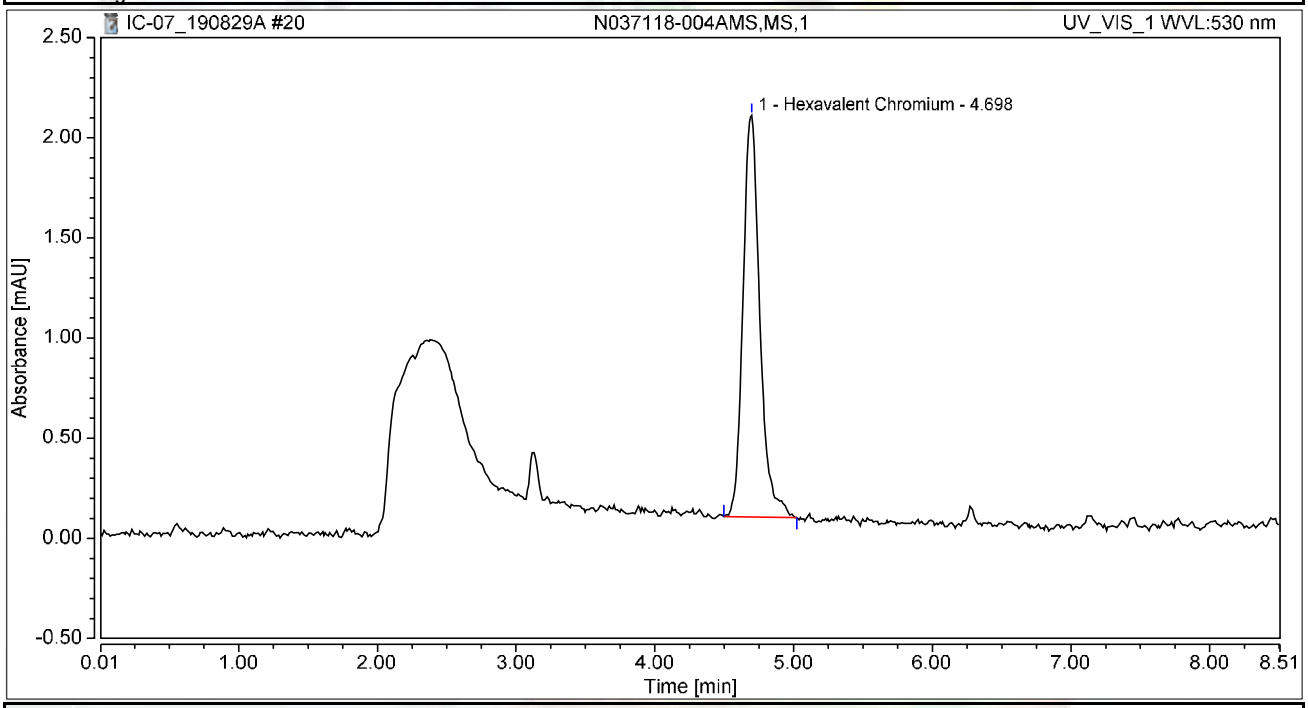
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.274	1.972	100.00	100.00	1.0568
Total:			**0.274**	**1.972**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

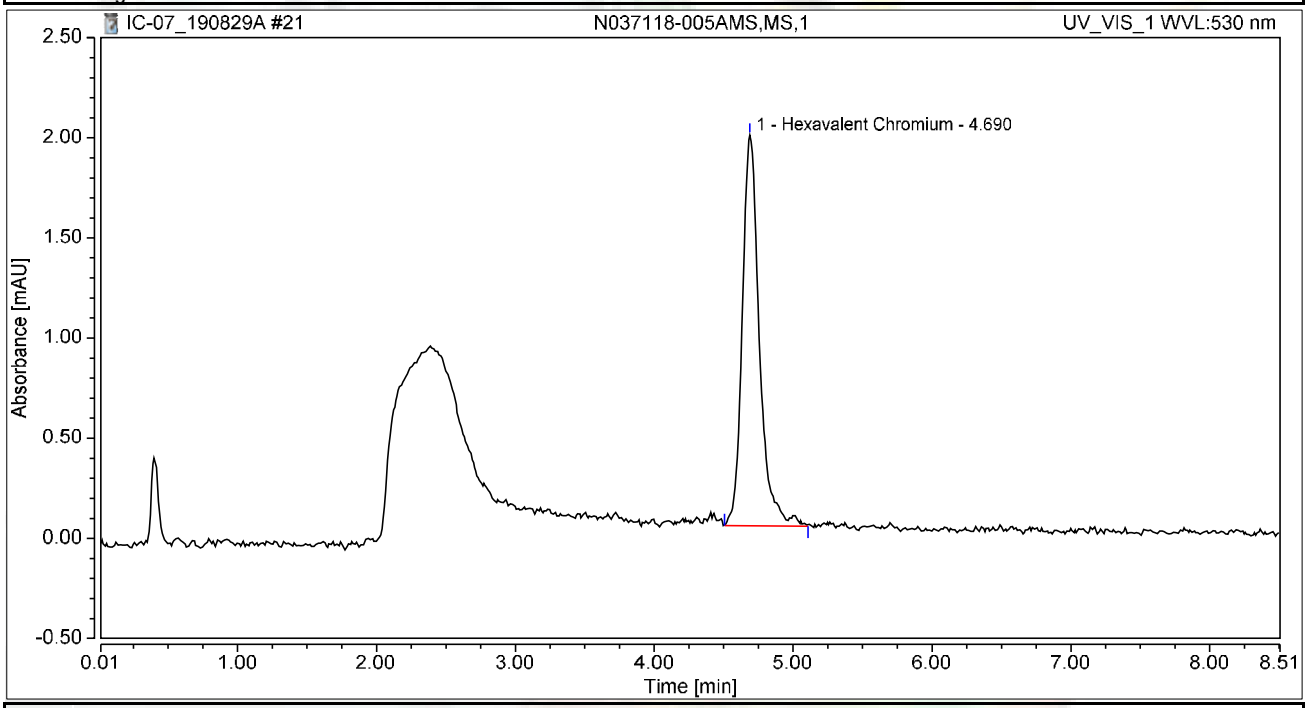
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.283	2.005	100.00	100.00	1.0901
Total:			**0.283**	**2.005**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 11:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

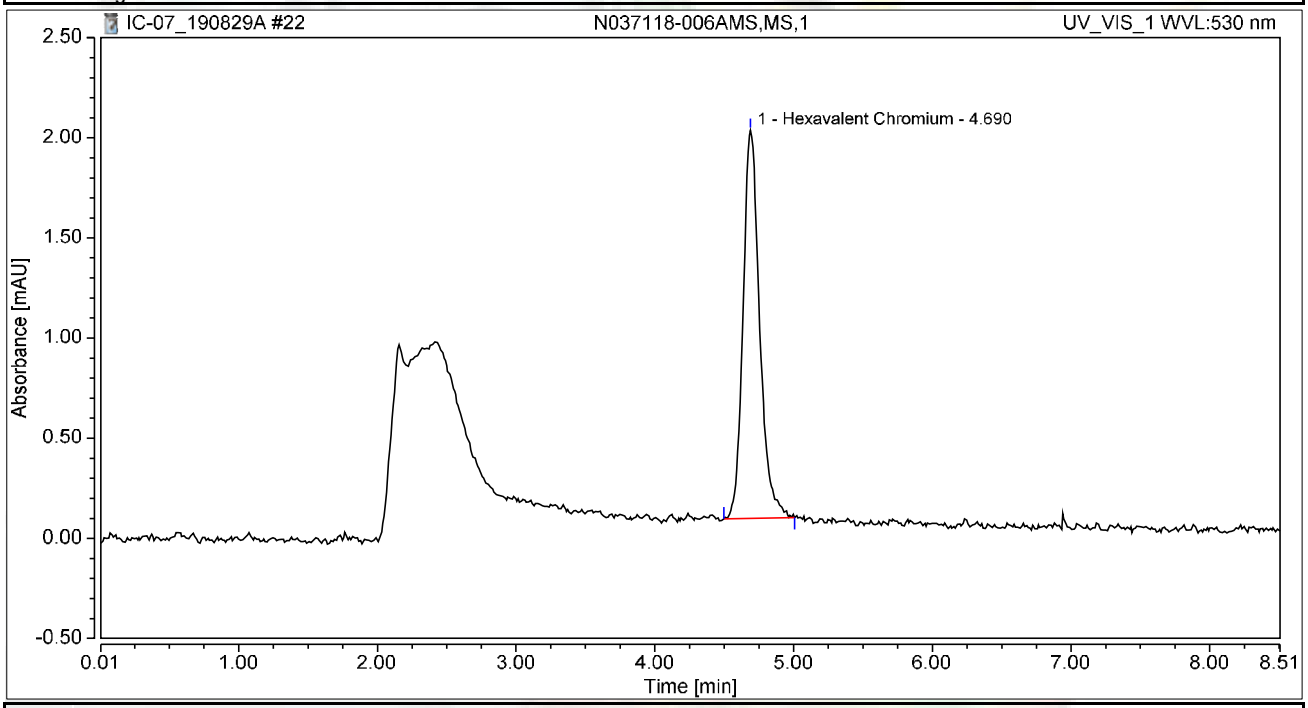
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.279	1.950	100.00	100.00	1.0743
Total:			**0.279**	**1.950**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 11:29**	*Sample Weight:*	**1.0000**

Chromatogram



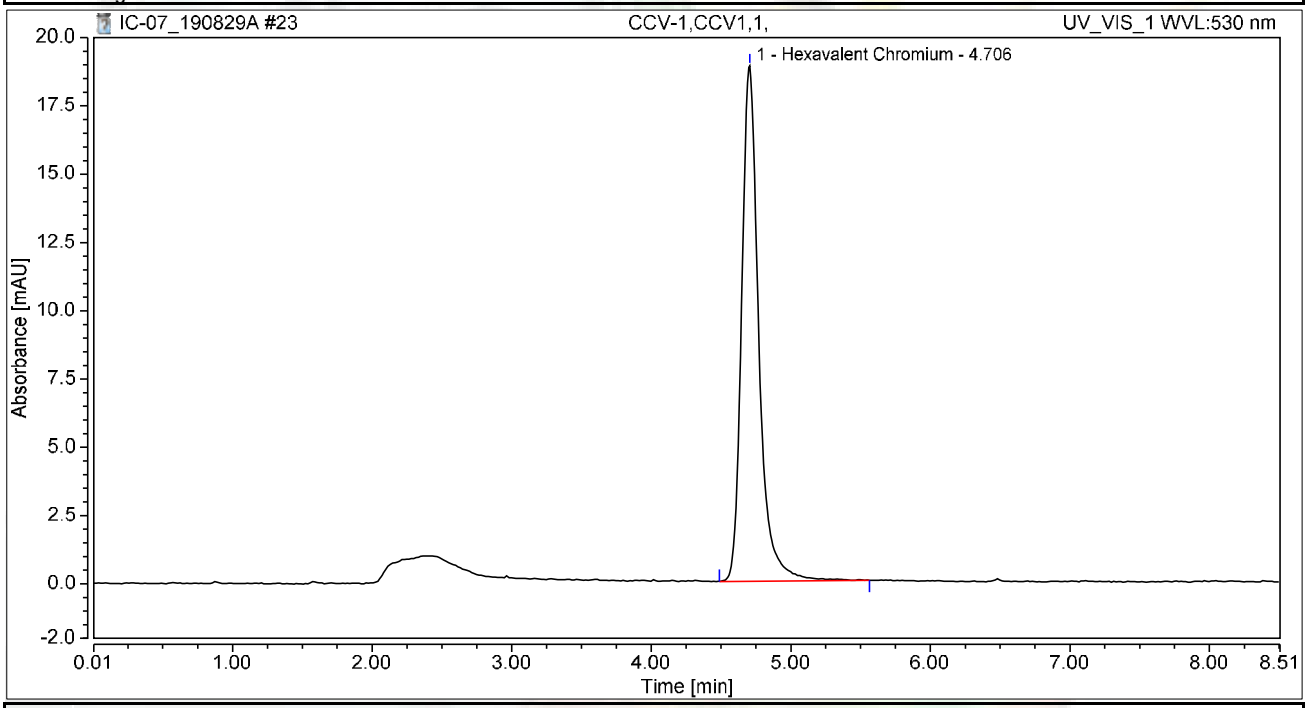
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.269	1.938	100.00	100.00	1.0354
Total:			**0.269**	**1.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details	CCV-2		
Injection Name:	**~~CCV-1~~,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 11:39**	*Sample Weight:*	**1.0000**

Chromatogram



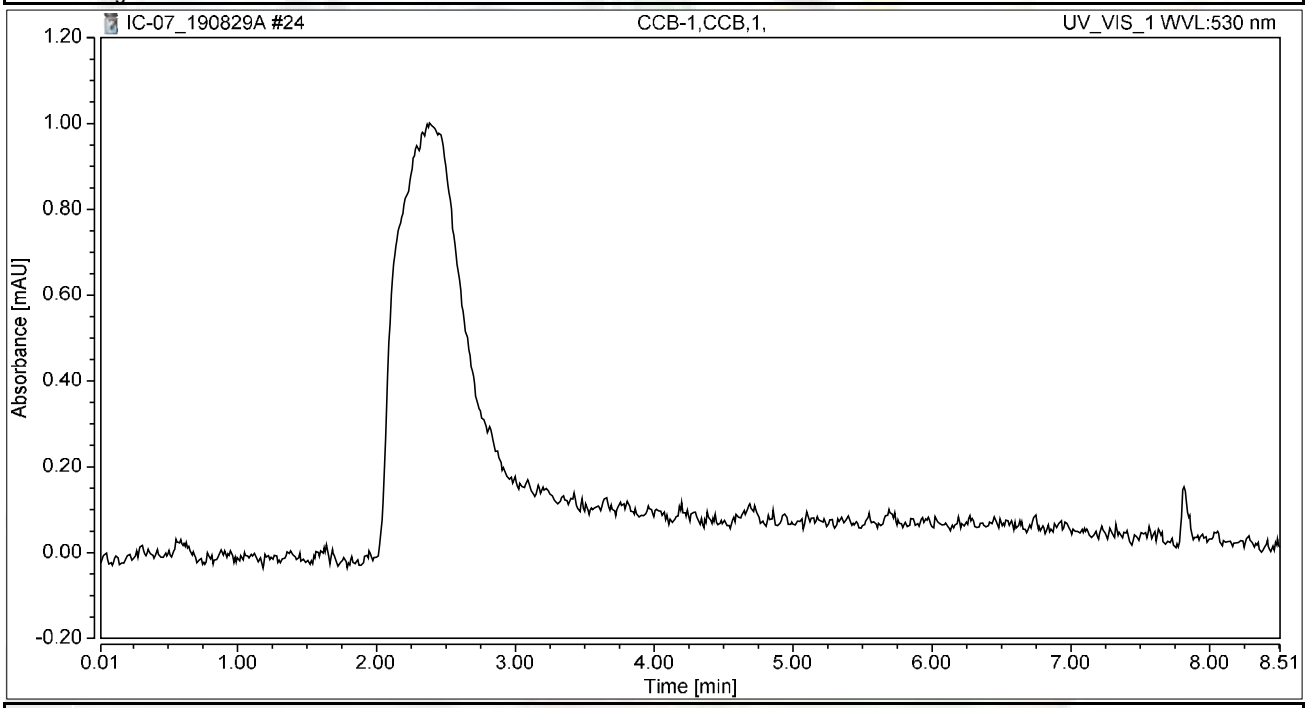
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.690	18.875	100.00	100.00	10.3654
Total:			**2.690**	**18.875**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details	CCB-2		
Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 11:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

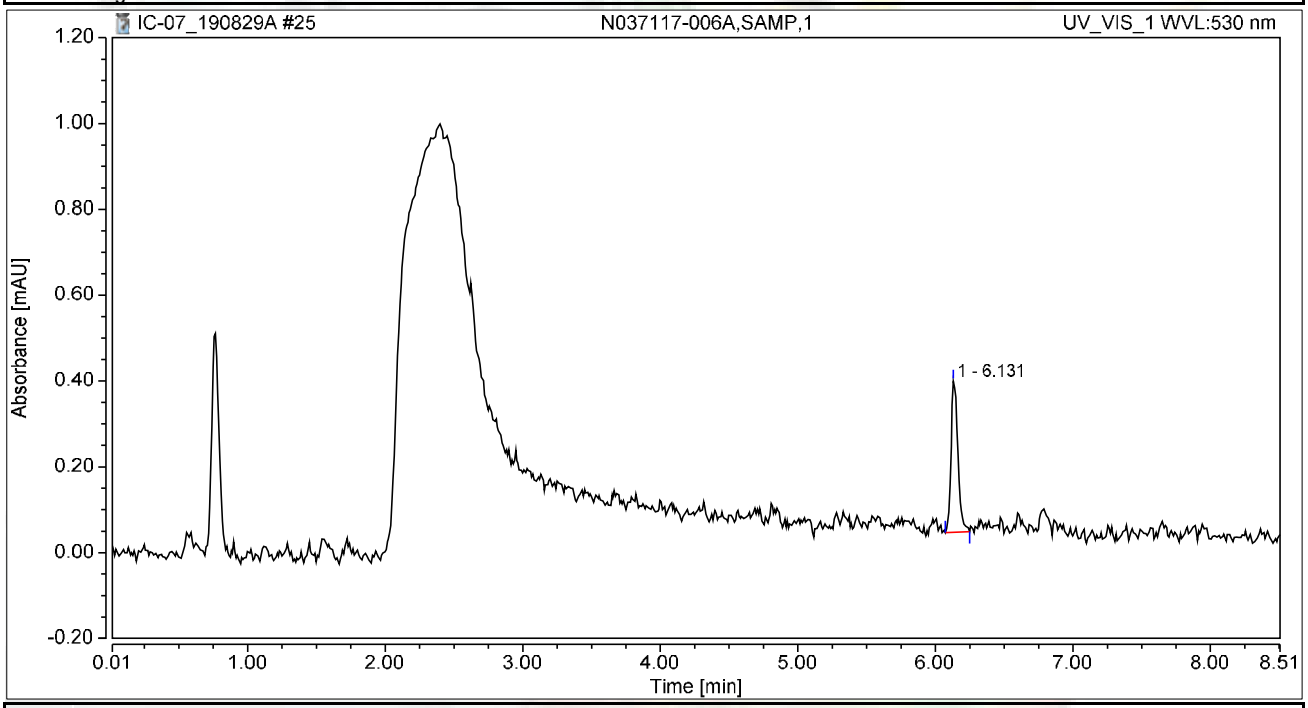
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037117-006A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 11:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

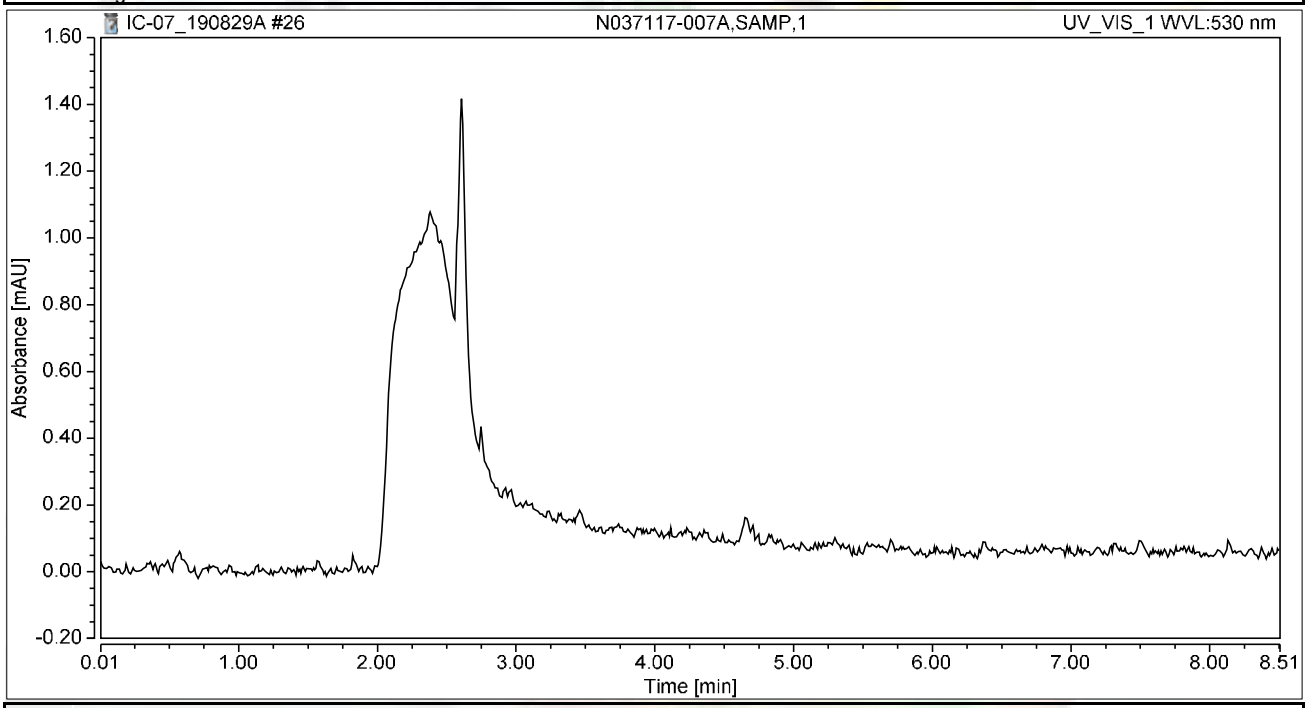
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.131	0.020	0.351	100.00	100.00	n.a.
Total:			**0.020**	**0.351**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037117-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 12:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

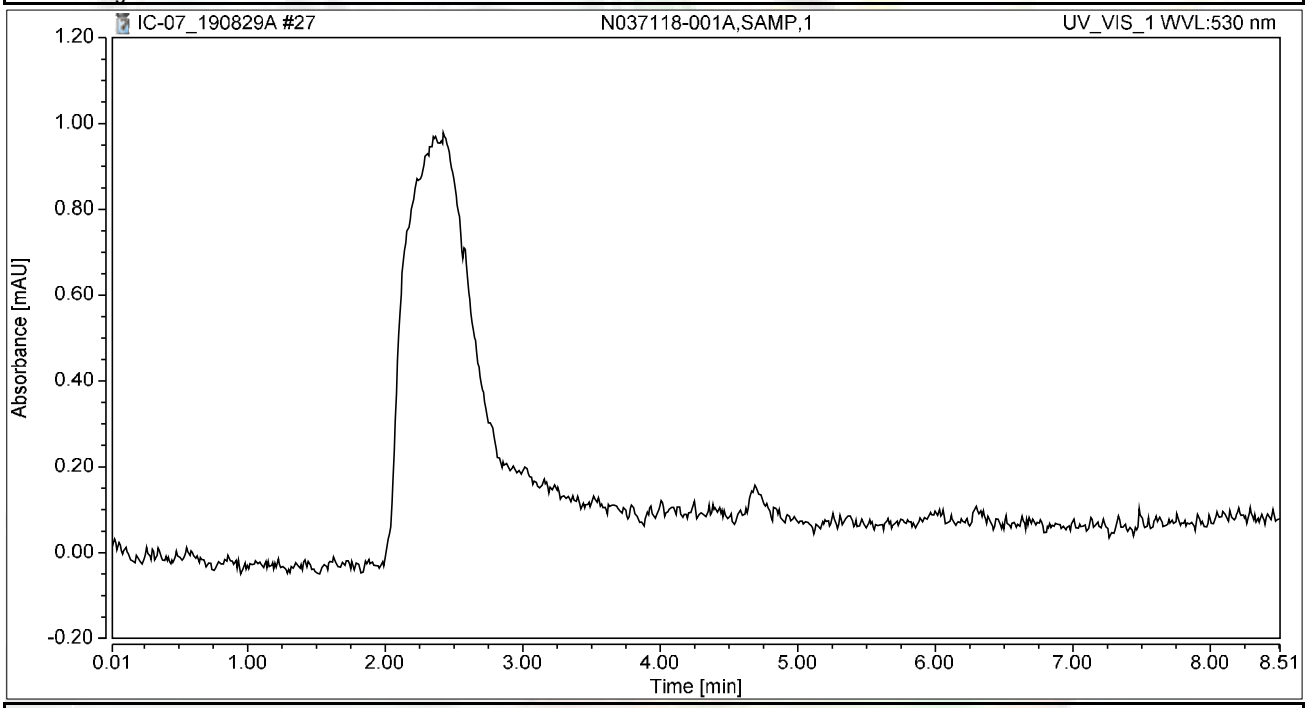
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 12:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

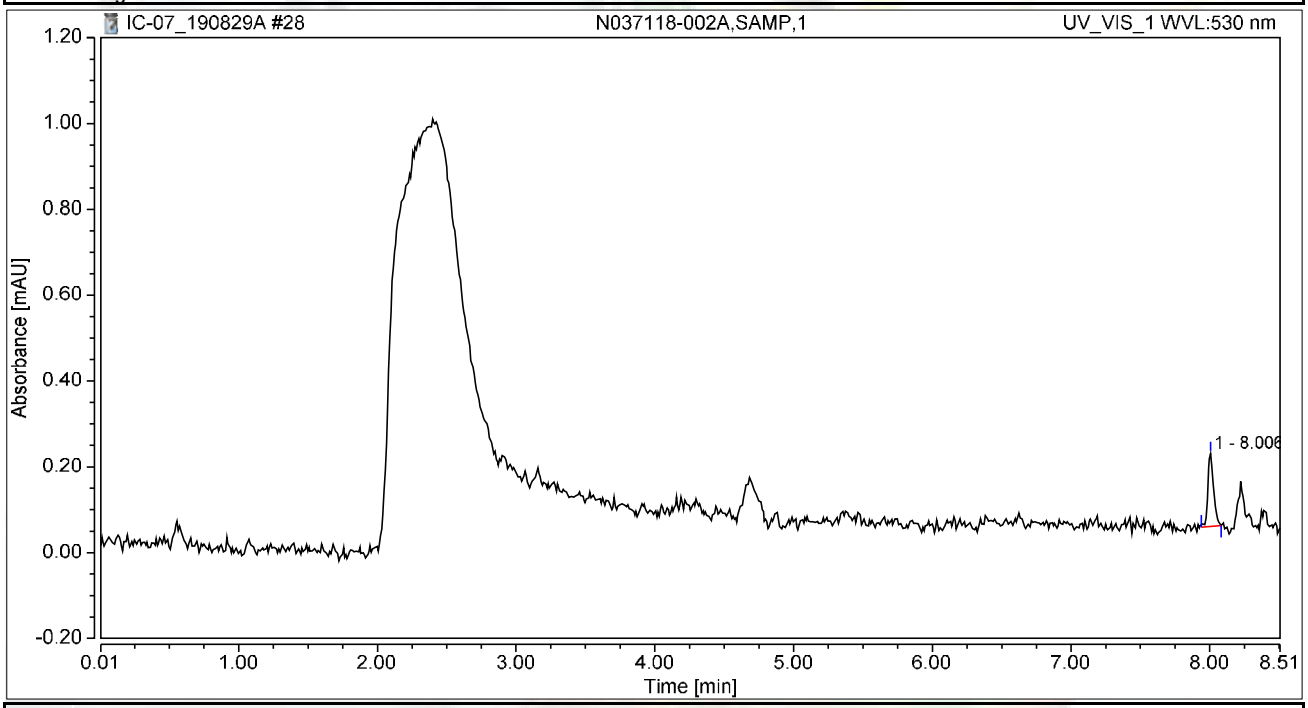
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 12:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

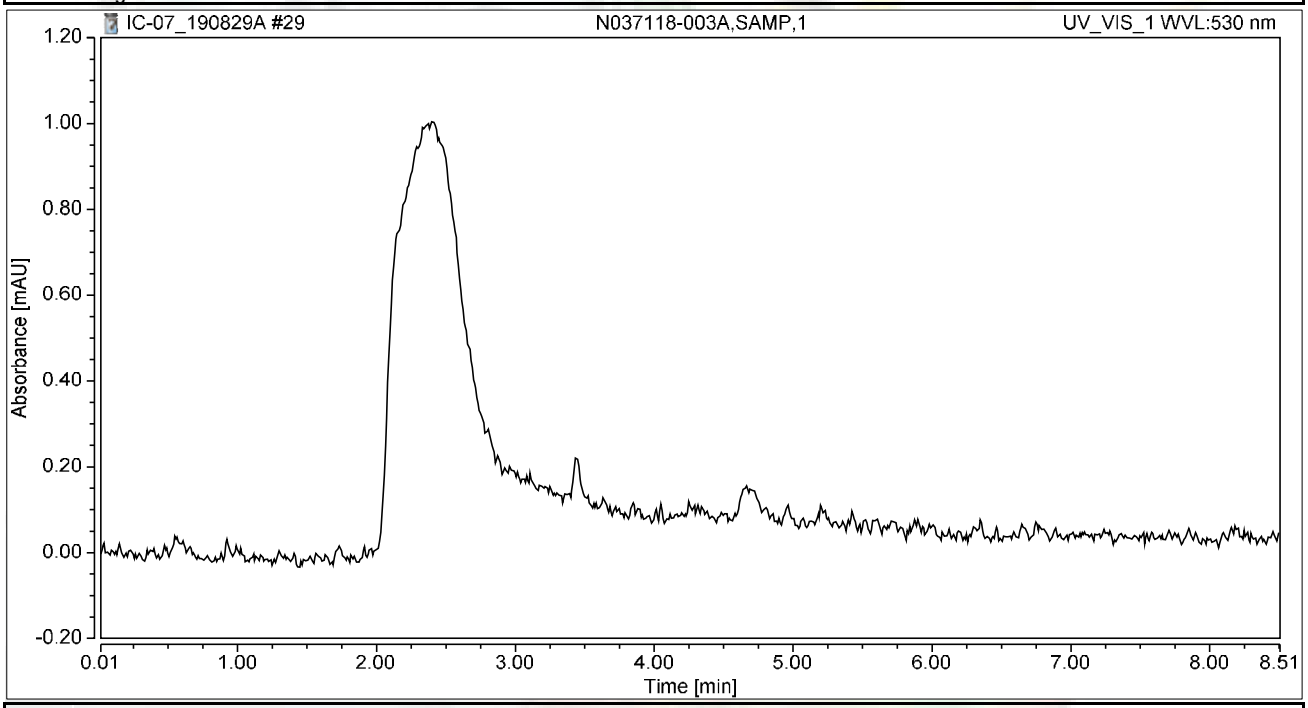
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		8.006	0.008	0.170	100.00	100.00	n.a.
Total:			**0.008**	**0.170**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 12:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

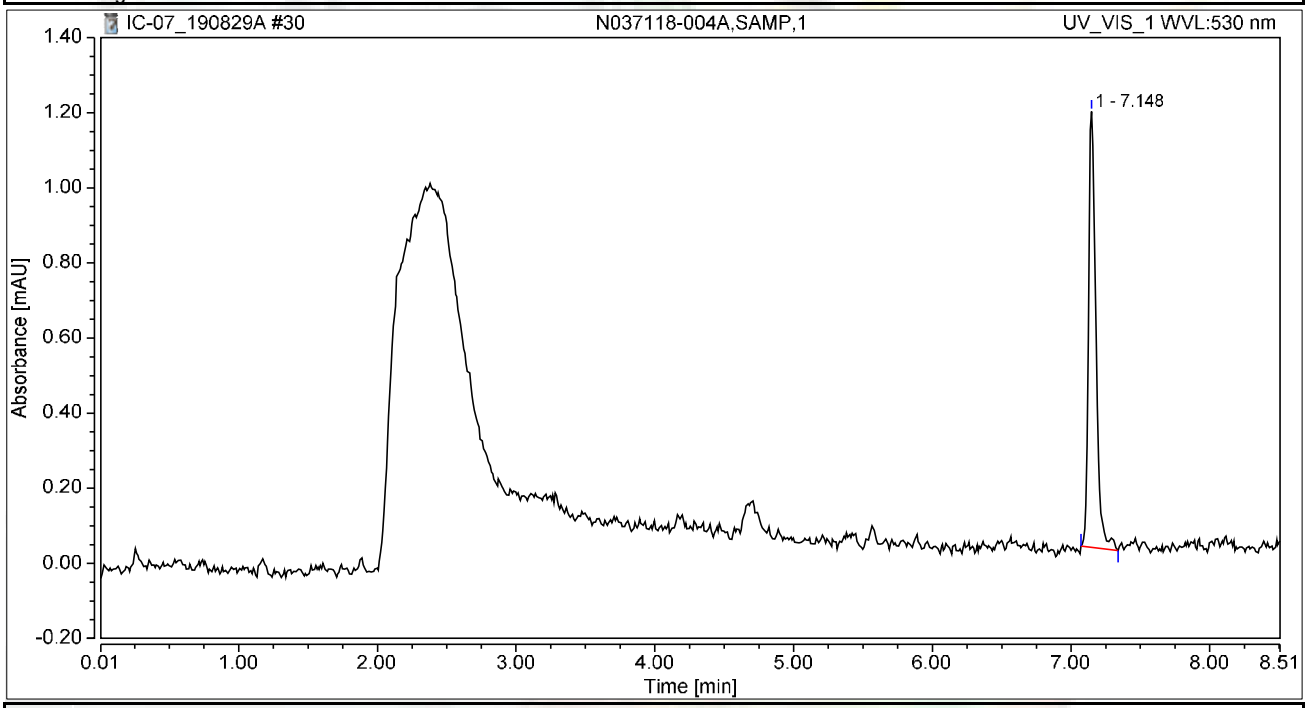
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 12:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

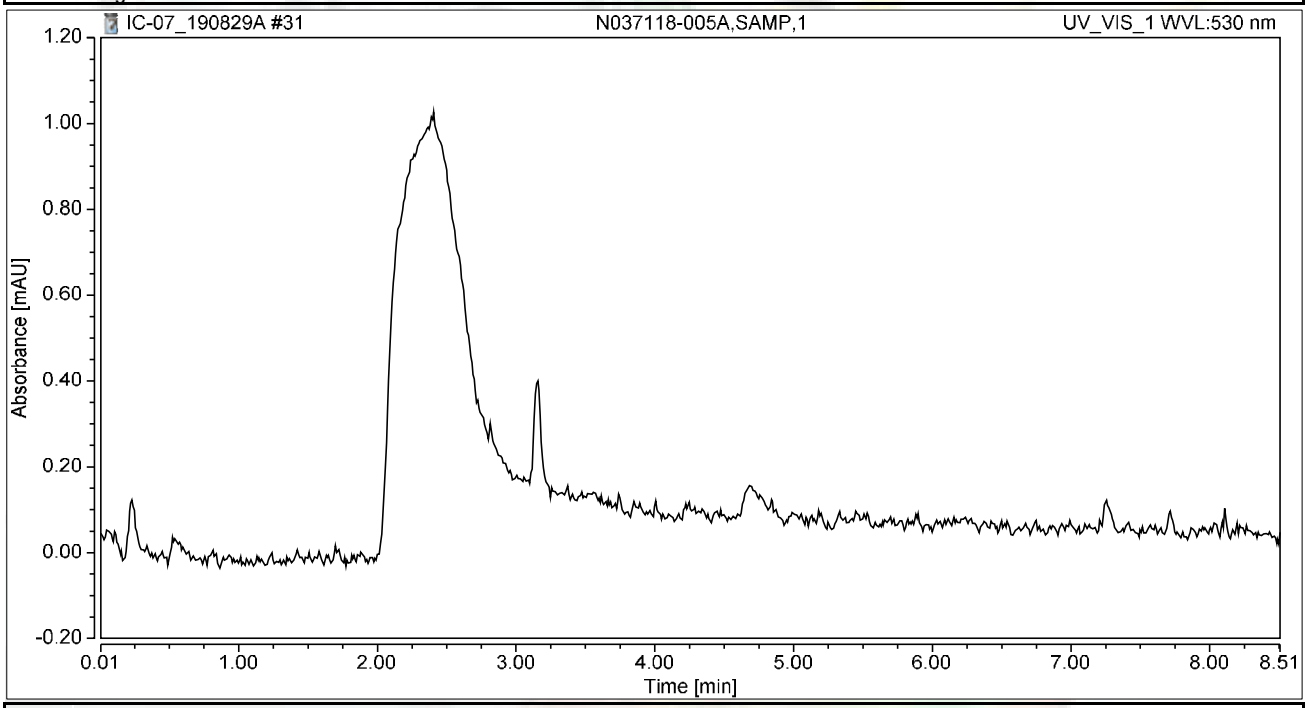
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.148	0.072	1.160	100.00	100.00	n.a.
Total:			**0.072**	**1.160**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 12:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

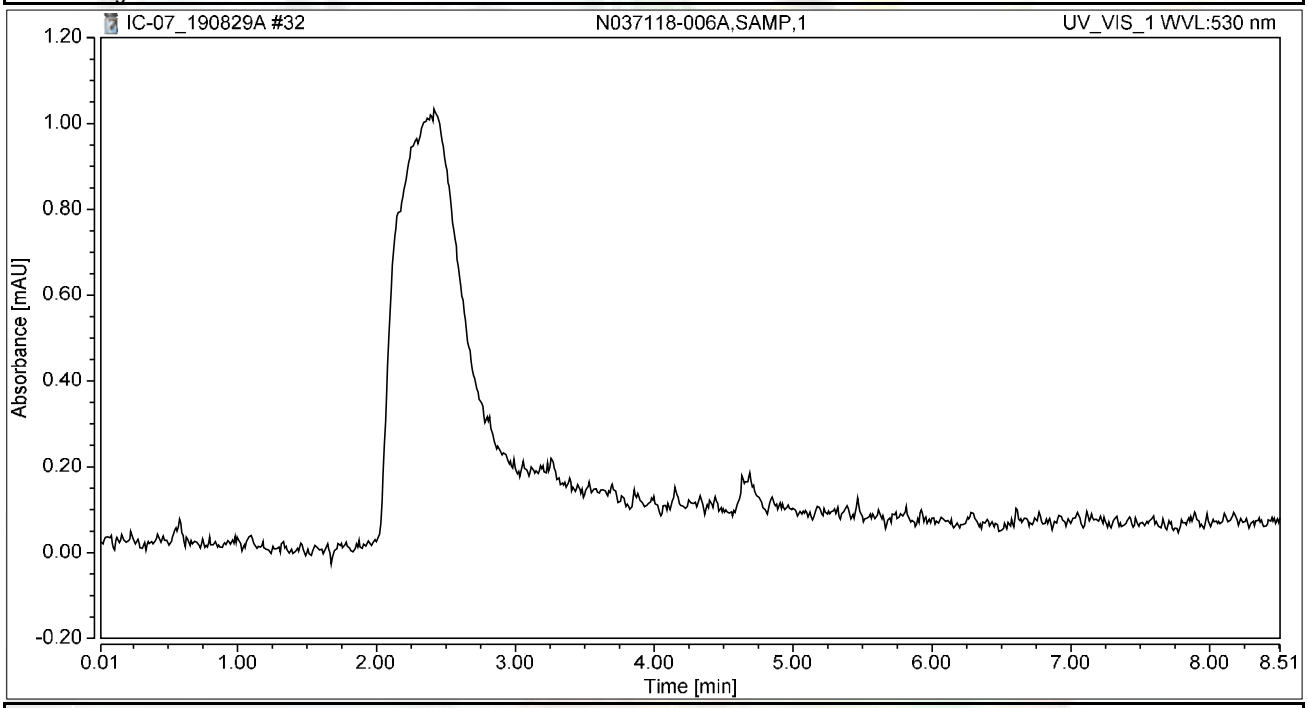
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-006A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 13:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

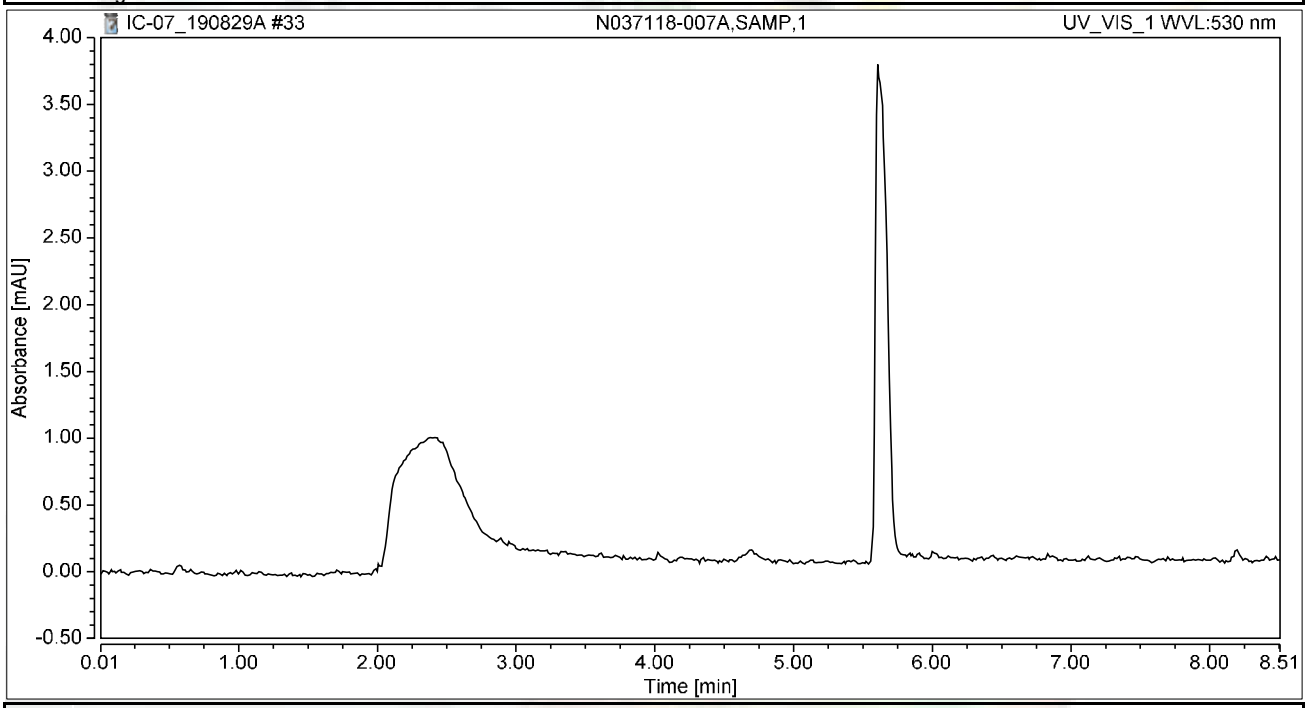
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 13:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

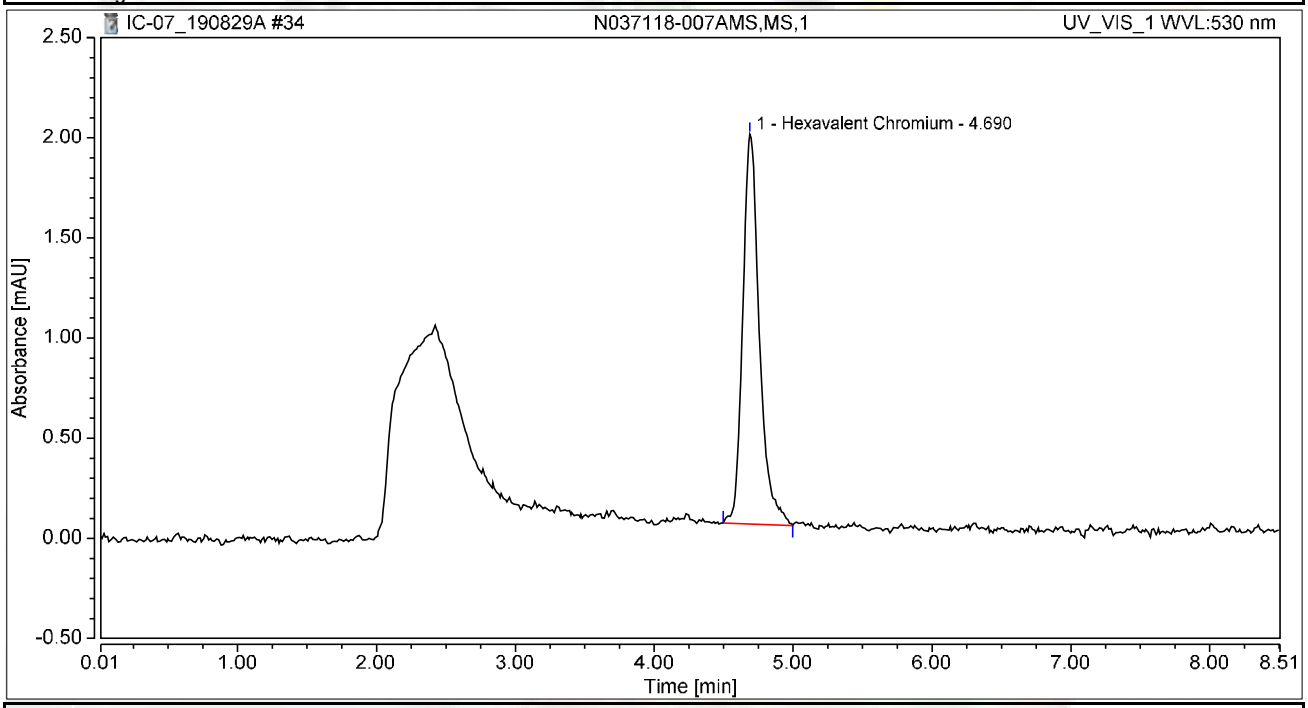
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-007AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 13:27**	*Sample Weight:*	**1.0000**

Chromatogram



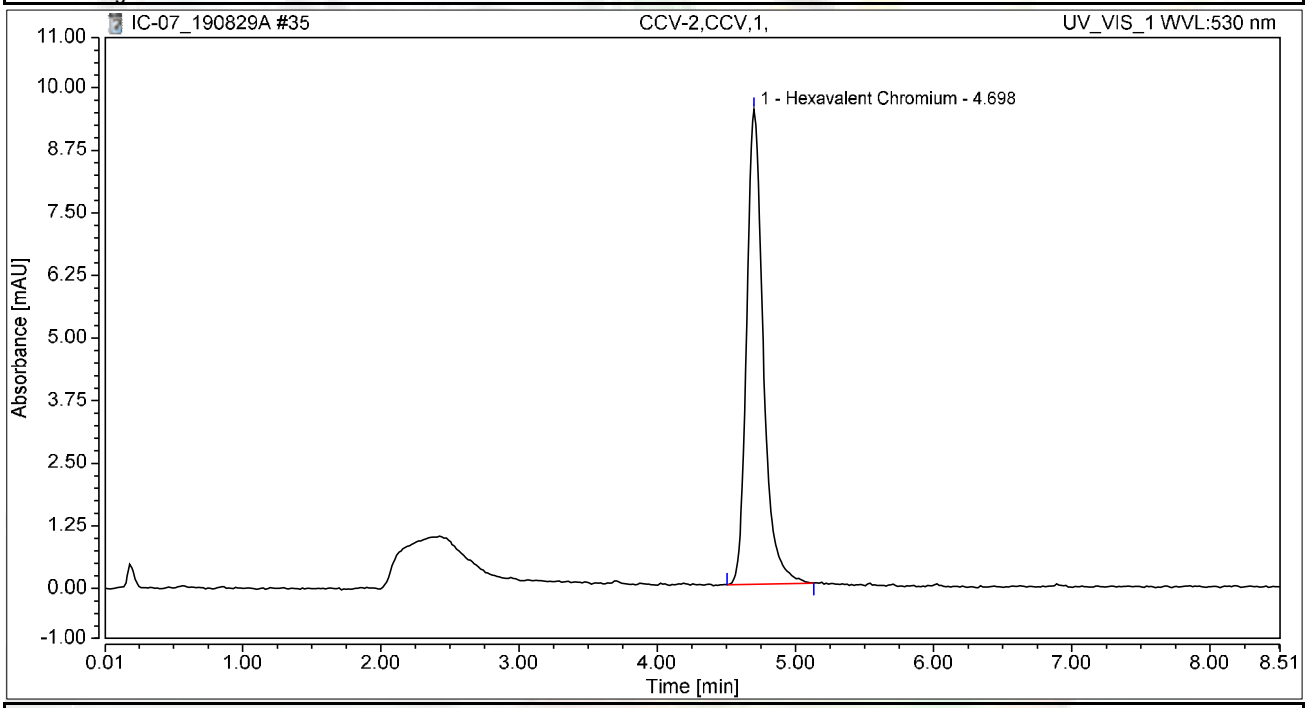
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.271	1.945	100.00	100.00	1.0437
Total:			**0.271**	**1.945**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details	CCV-3		
Injection Name:	~~CCV-2~~,CCV,1,	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 13:36**	*Sample Weight:*	**1.0000**

Chromatogram



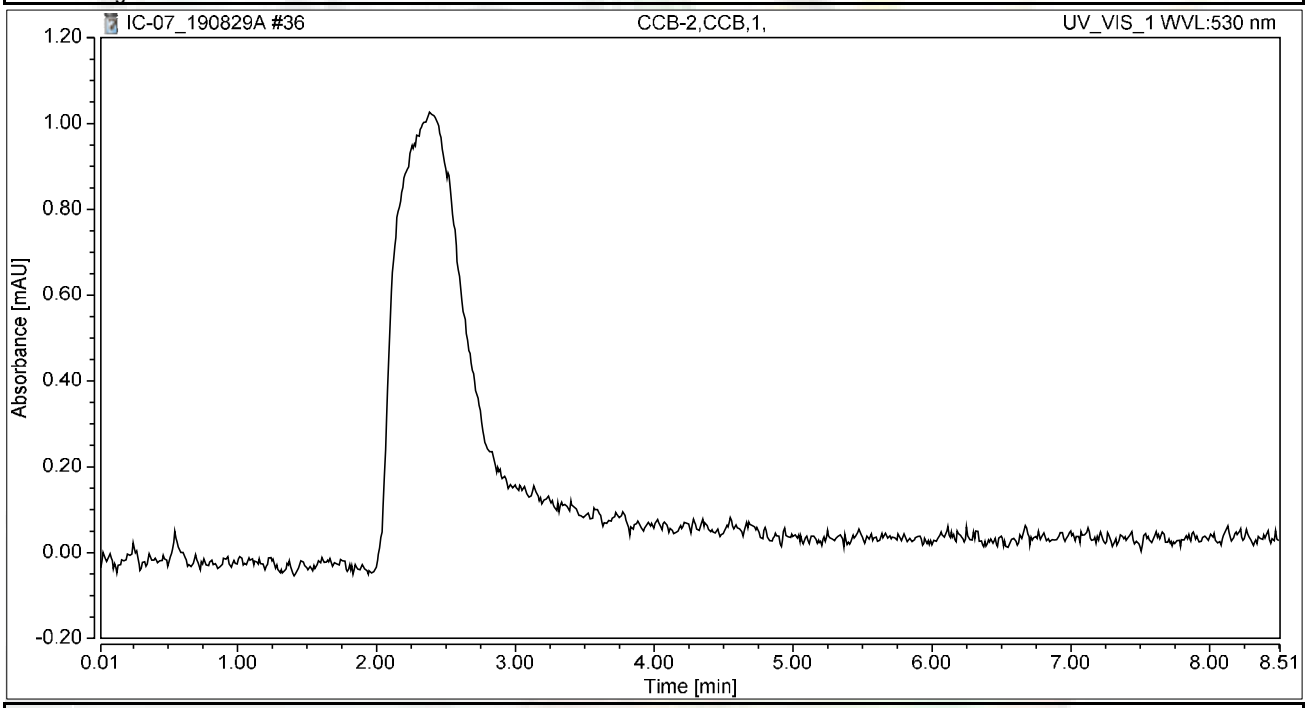
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.325	9.486	100.00	100.00	5.1044
Total:			**1.325**	**9.486**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details	CCB-3		
Injection Name:	~~CCB-~~**2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 13:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

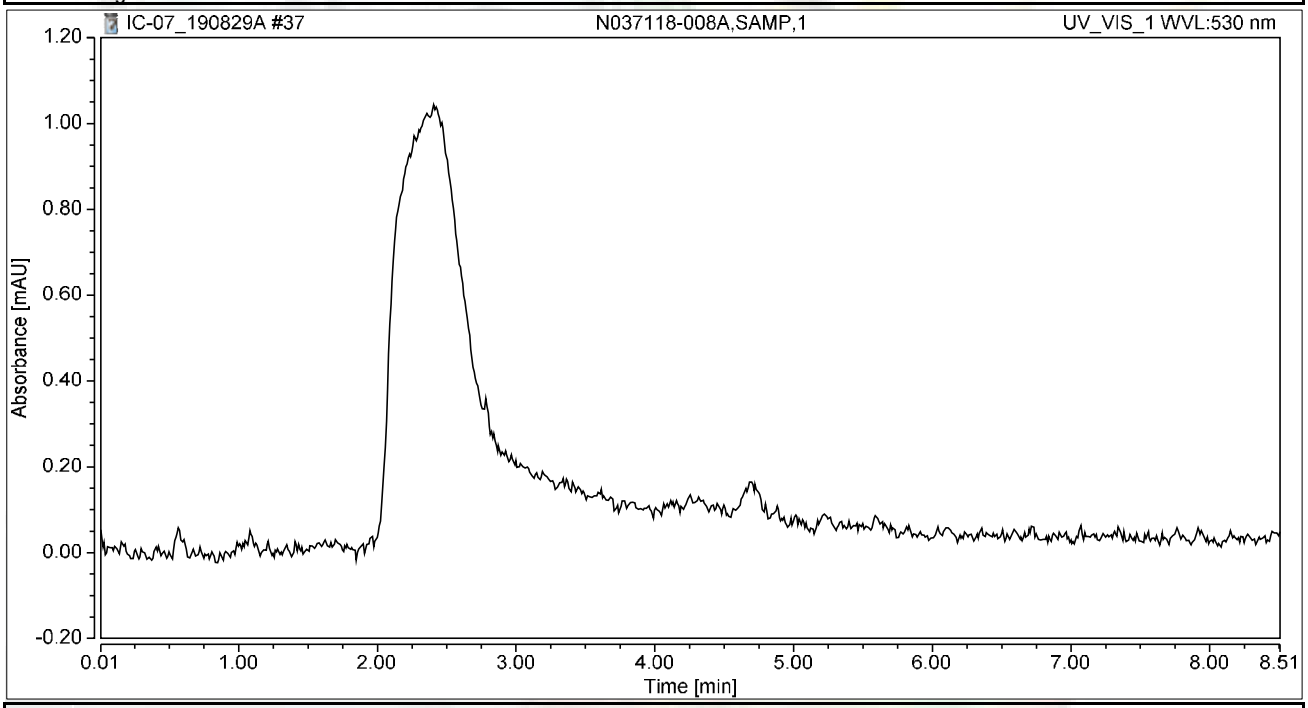
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-008A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 13:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

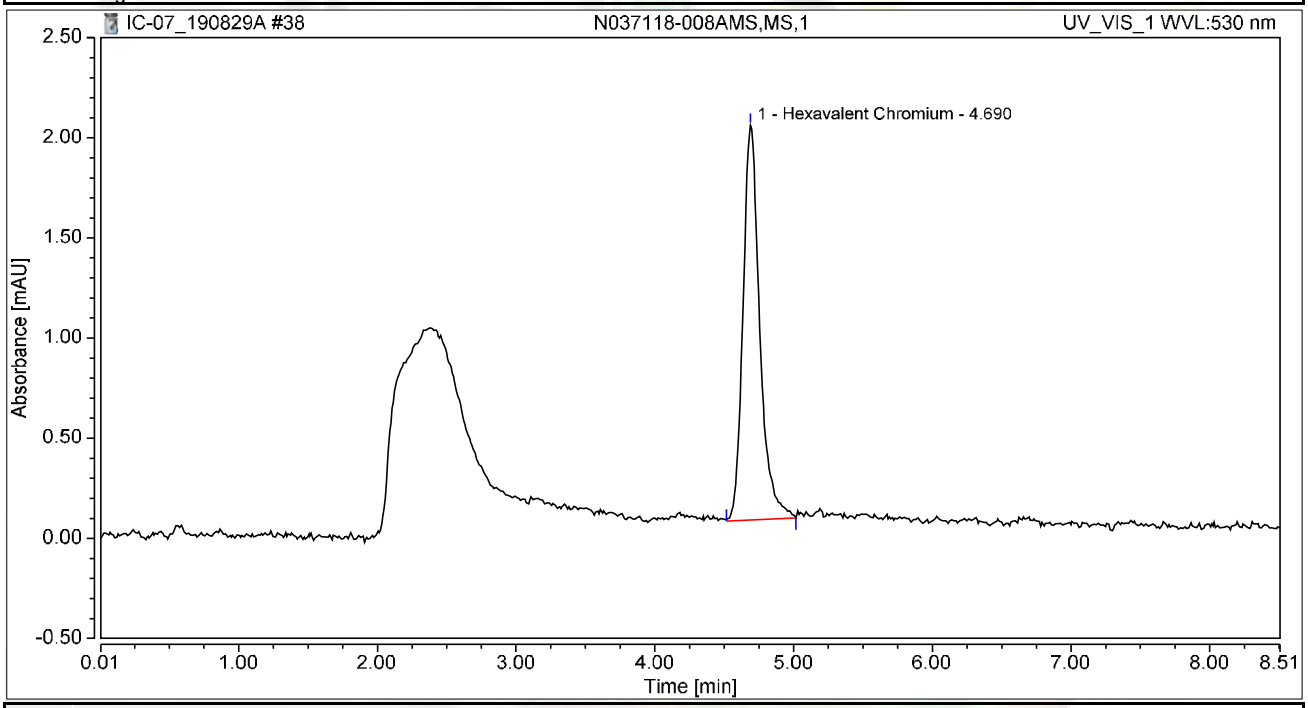
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 14:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

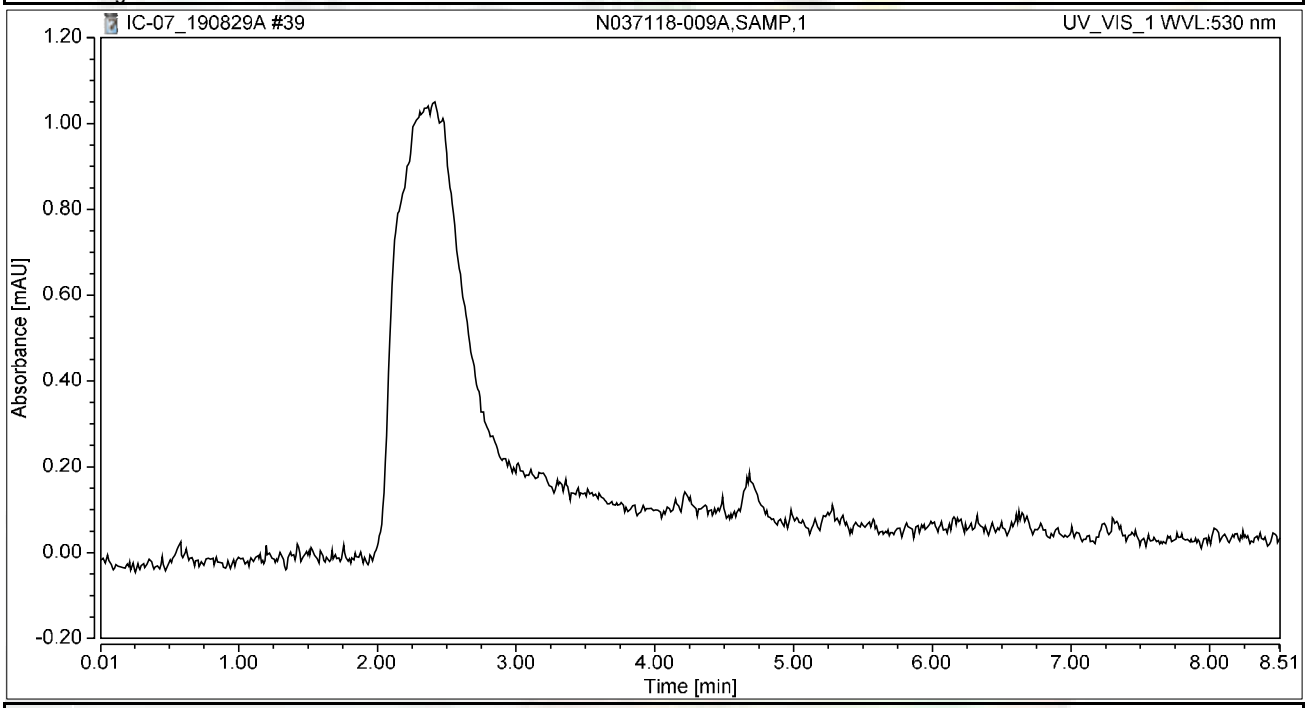
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.276	1.970	100.00	100.00	1.0619
Total:			**0.276**	**1.970**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 14:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

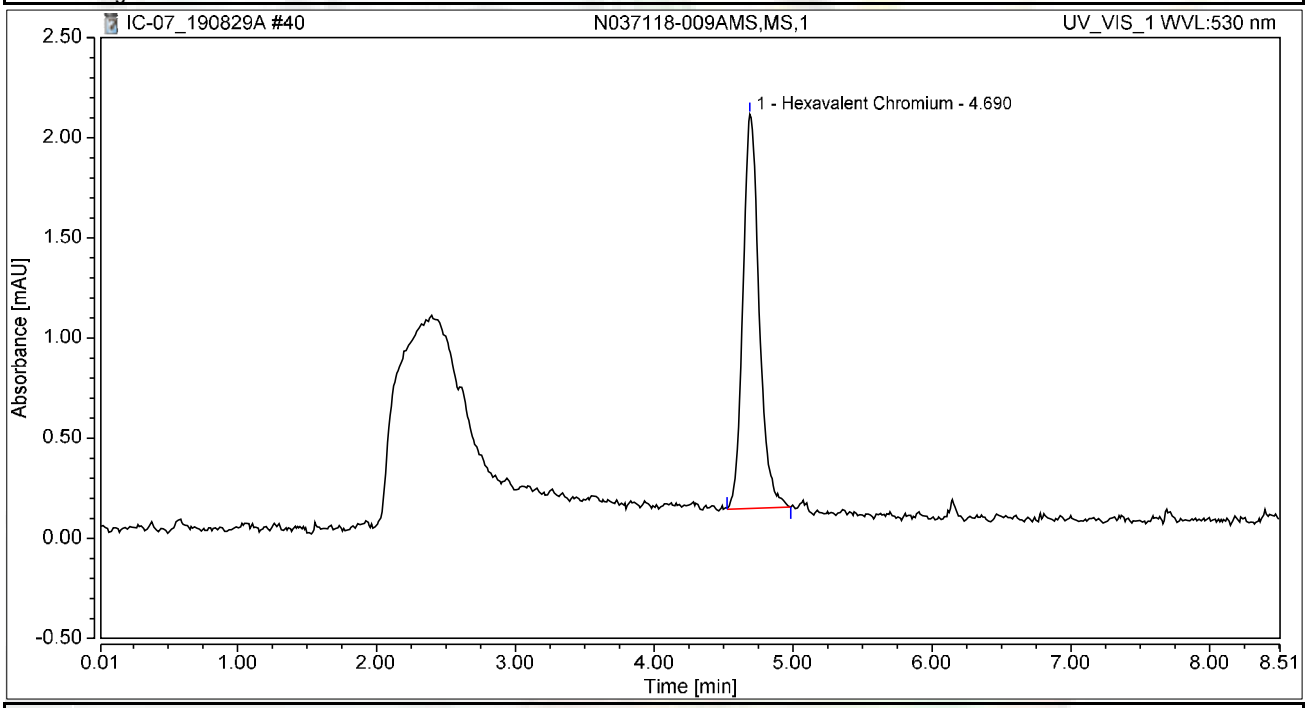
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-009AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 14:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

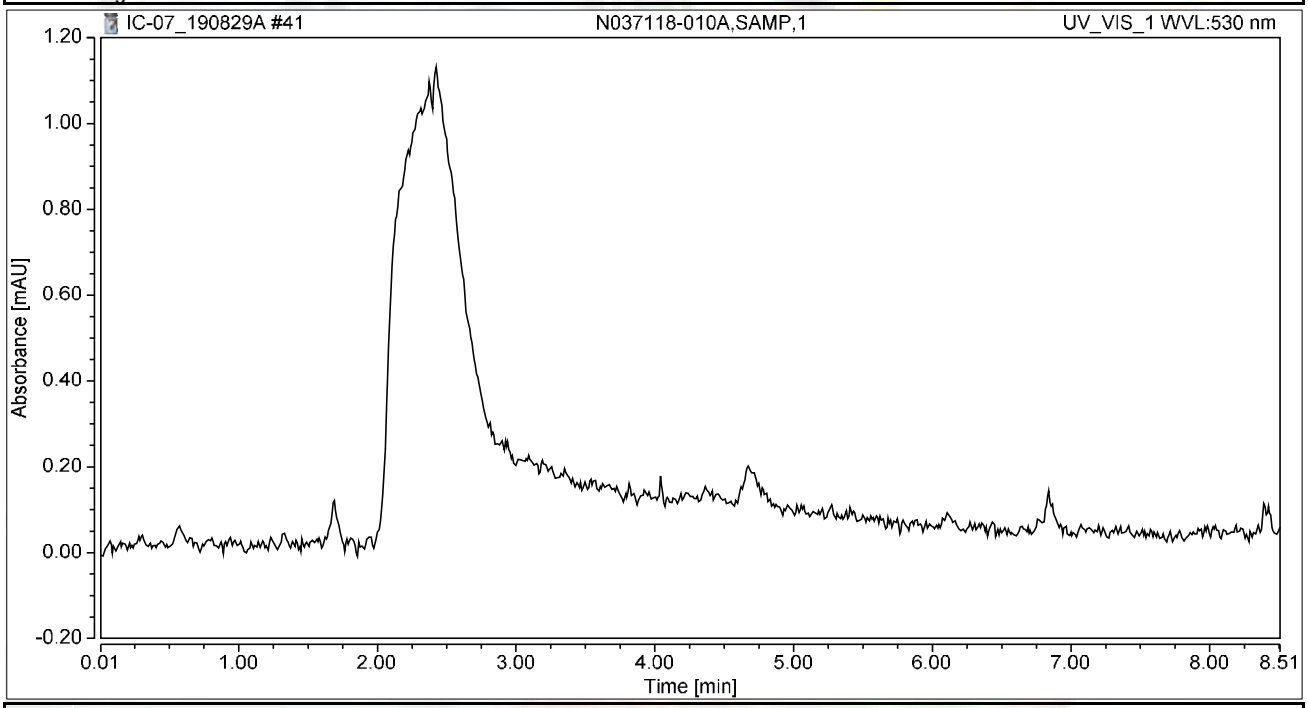
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.268	1.967	100.00	100.00	1.0312
Total:			**0.268**	**1.967**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 14:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

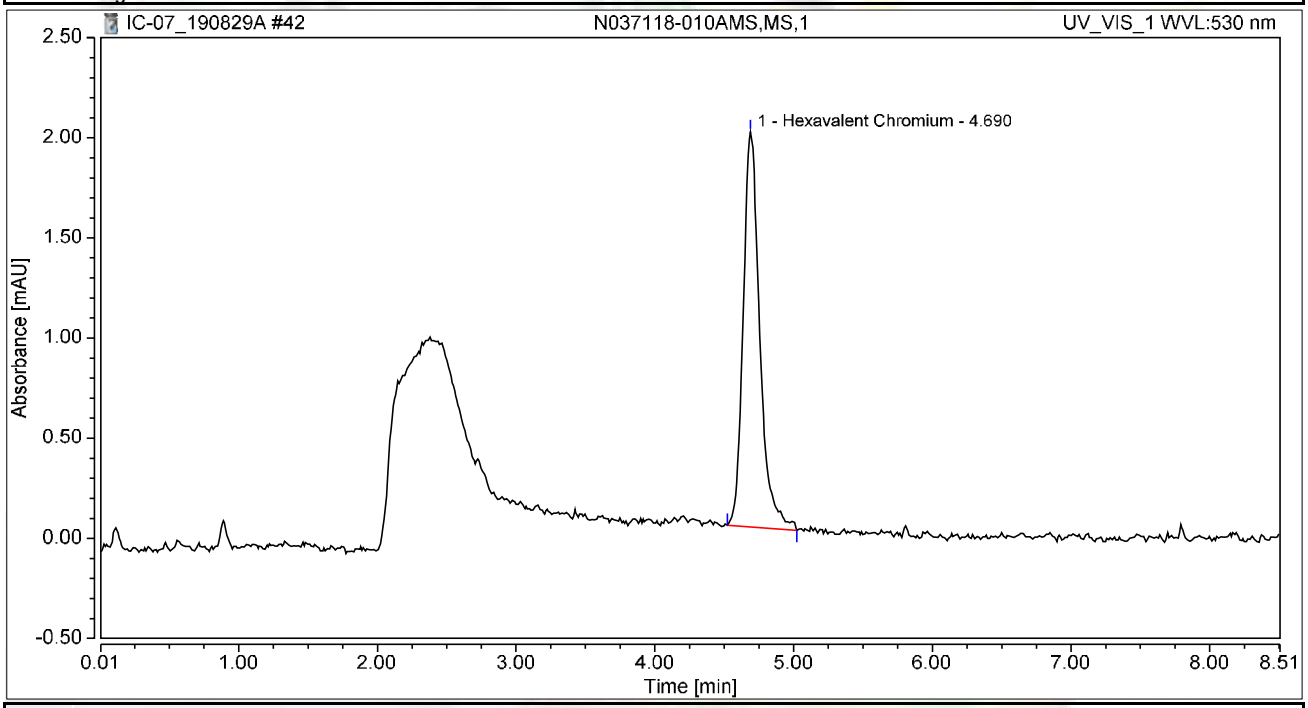
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 14:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

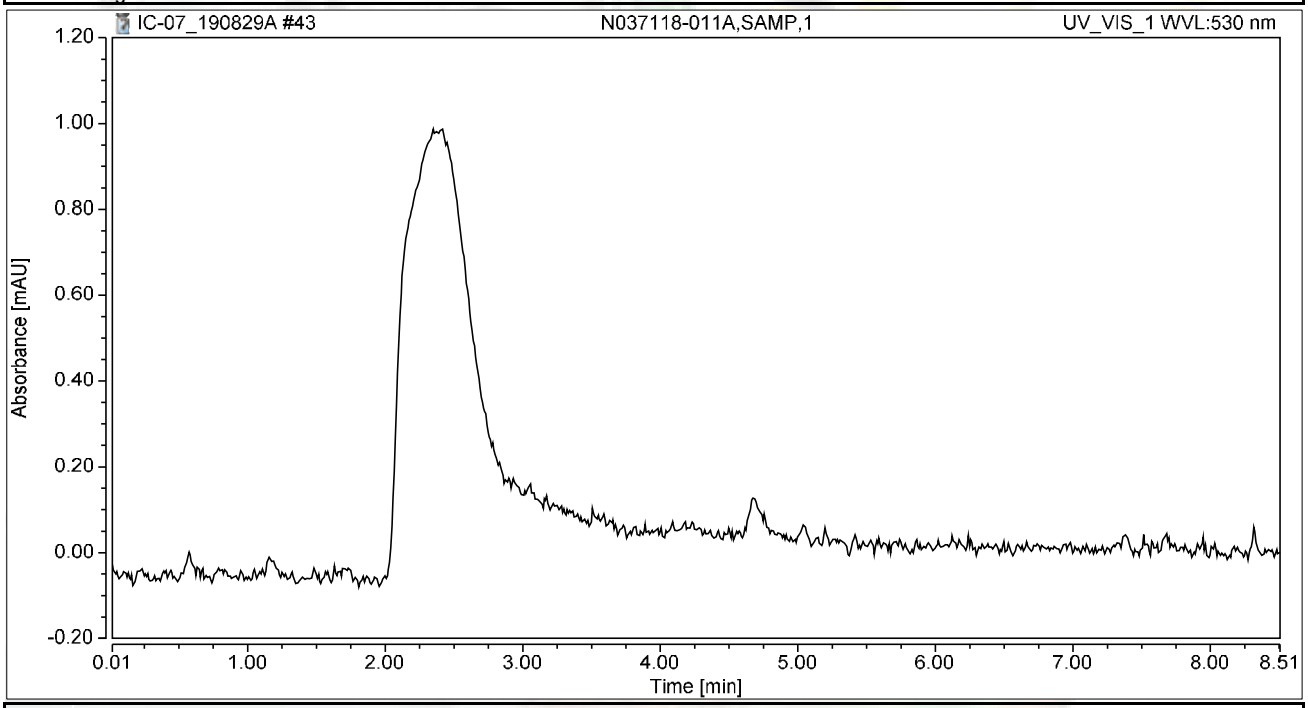
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.273	1.973	100.00	100.00	1.0539
Total:			**0.273**	**1.973**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 14:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

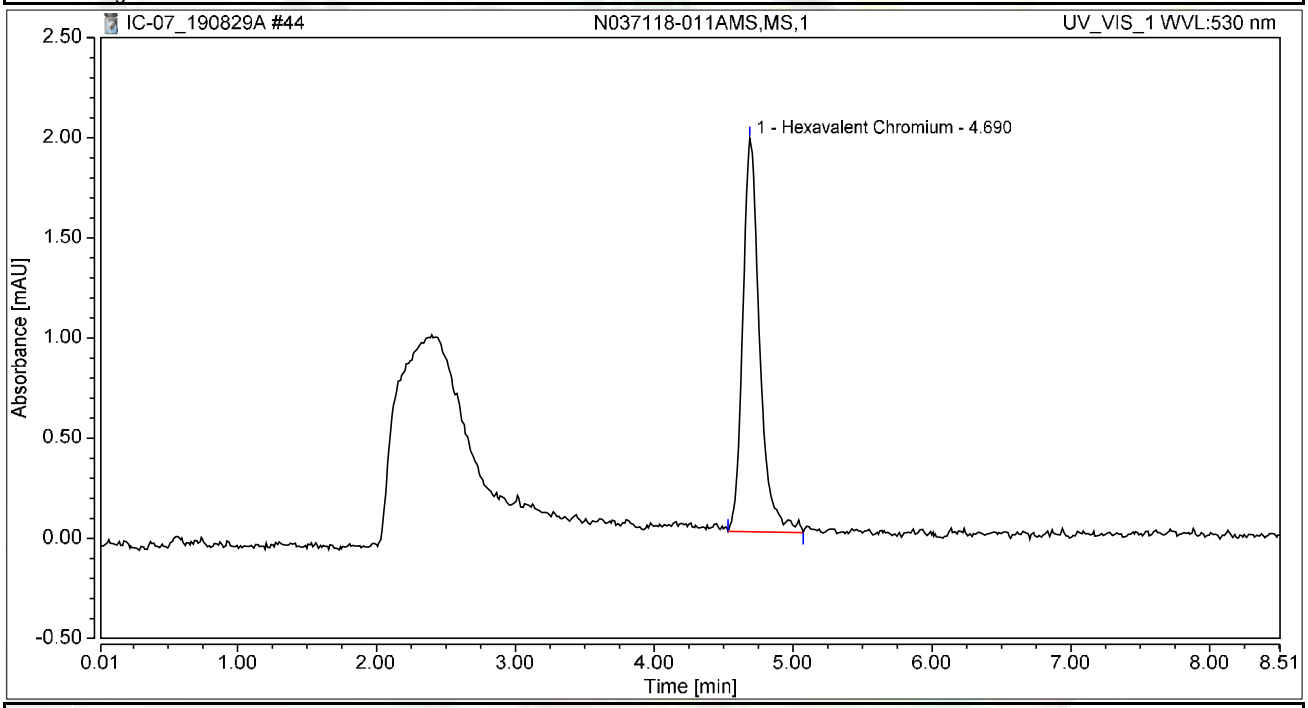
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 15:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

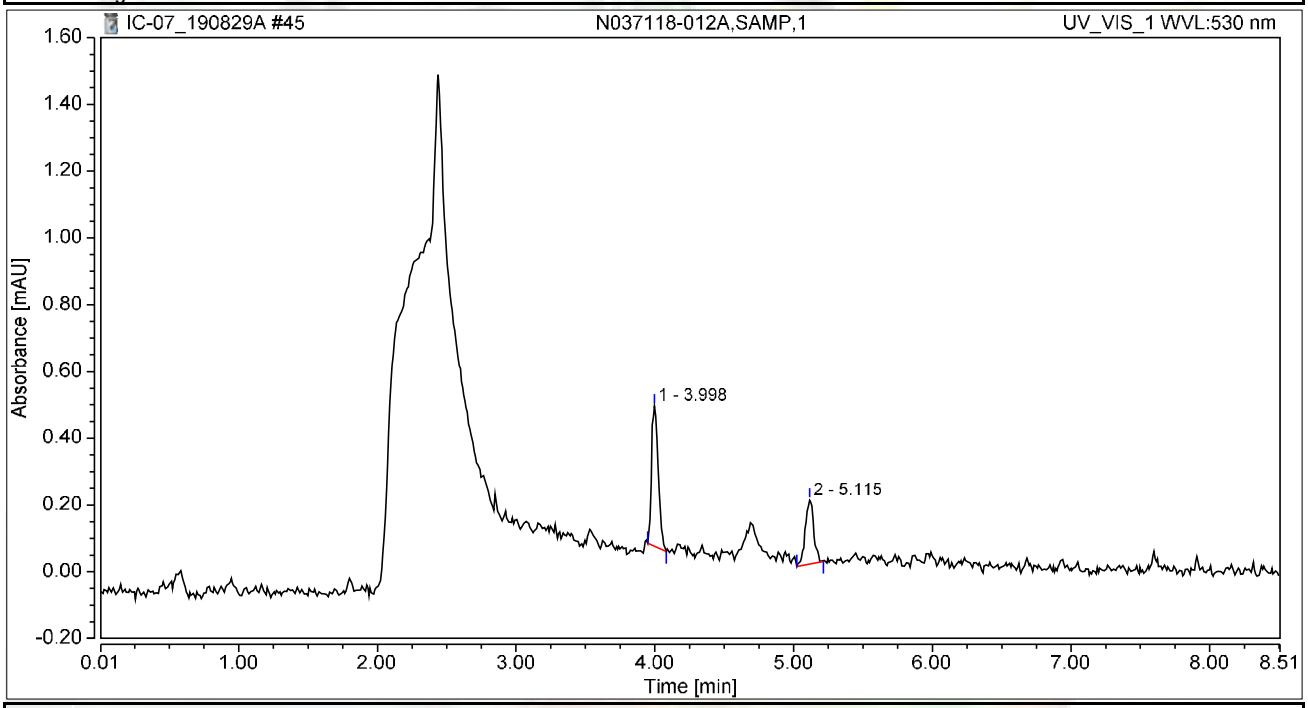
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.278	1.962	100.00	100.00	1.0700
Total:			**0.278**	**1.962**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 15:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

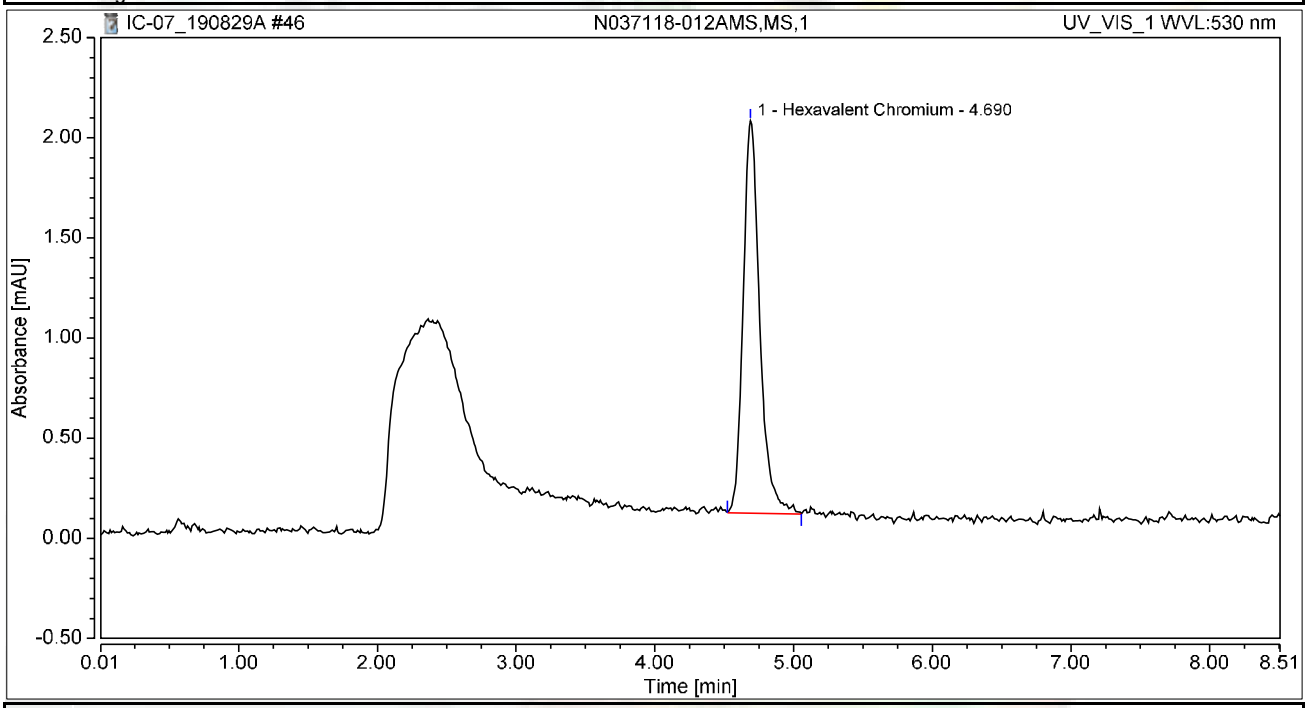
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.998	0.023	0.421	63.27	68.73	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		5.115	0.014	0.191	36.73	31.27	n.a.
Total:			**0.037**	**0.612**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 15:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.272	1.959	100.00	100.00	1.0474
Total:			**0.272**	**1.959**	**100.00**	**100.00**	

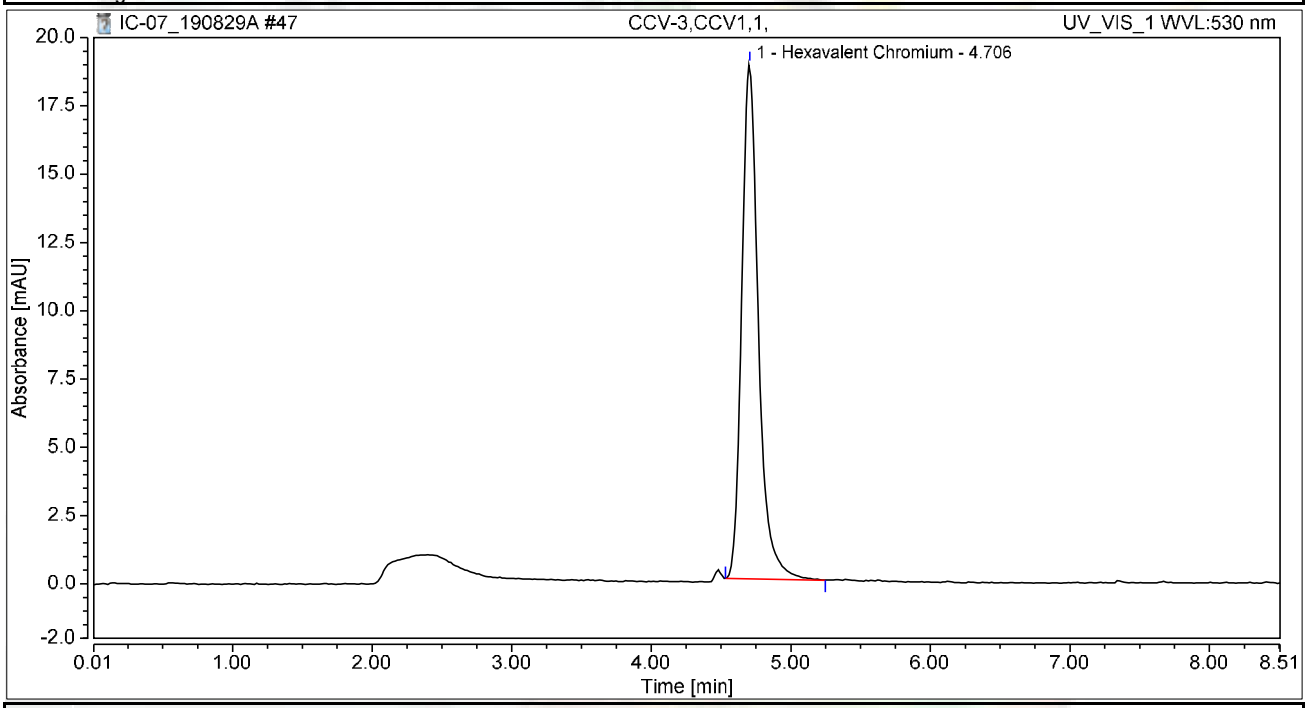
Chromatogram and Results

Injection Details

CCV-4

Injection Name:	~~CCV-3,~~**CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 15:30**	*Sample Weight:*	**1.0000**

Chromatogram



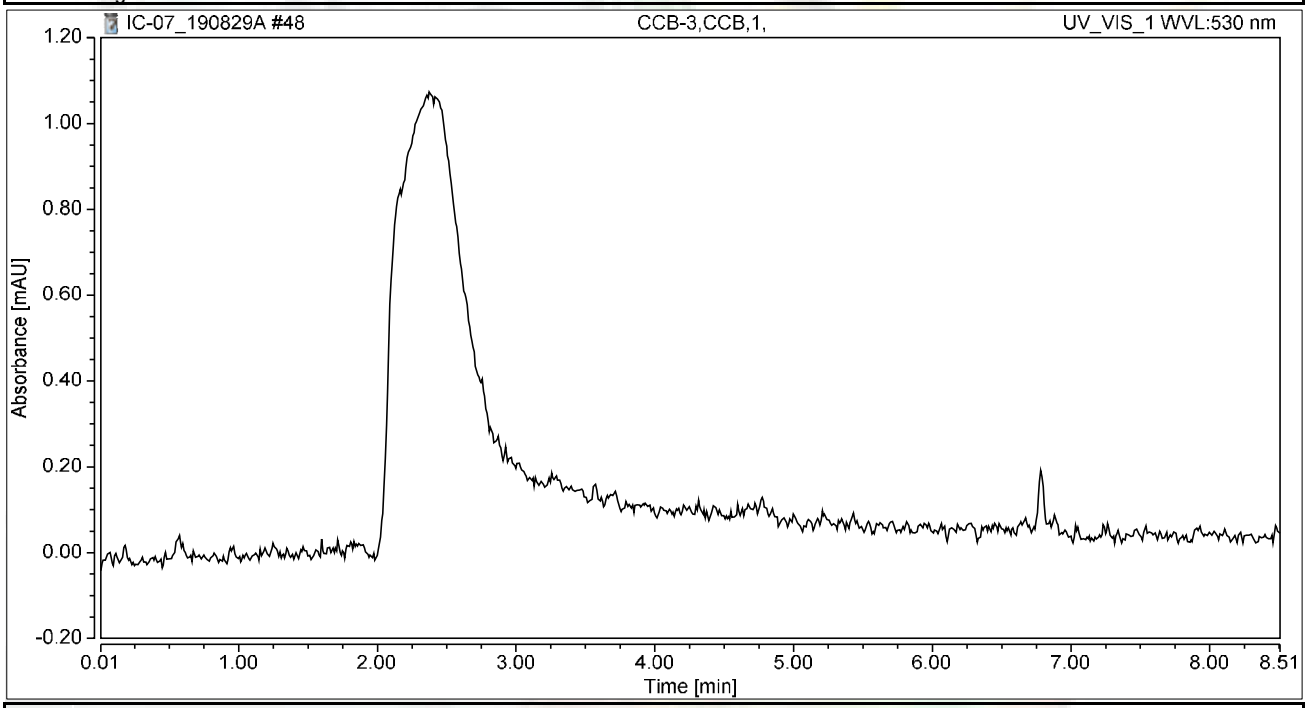
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.626	18.865	100.00	100.00	10.1191
Total:			**2.626**	**18.865**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details	CCB-4		
Injection Name:	~~CCB-3~~,CCB,1,	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 15:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

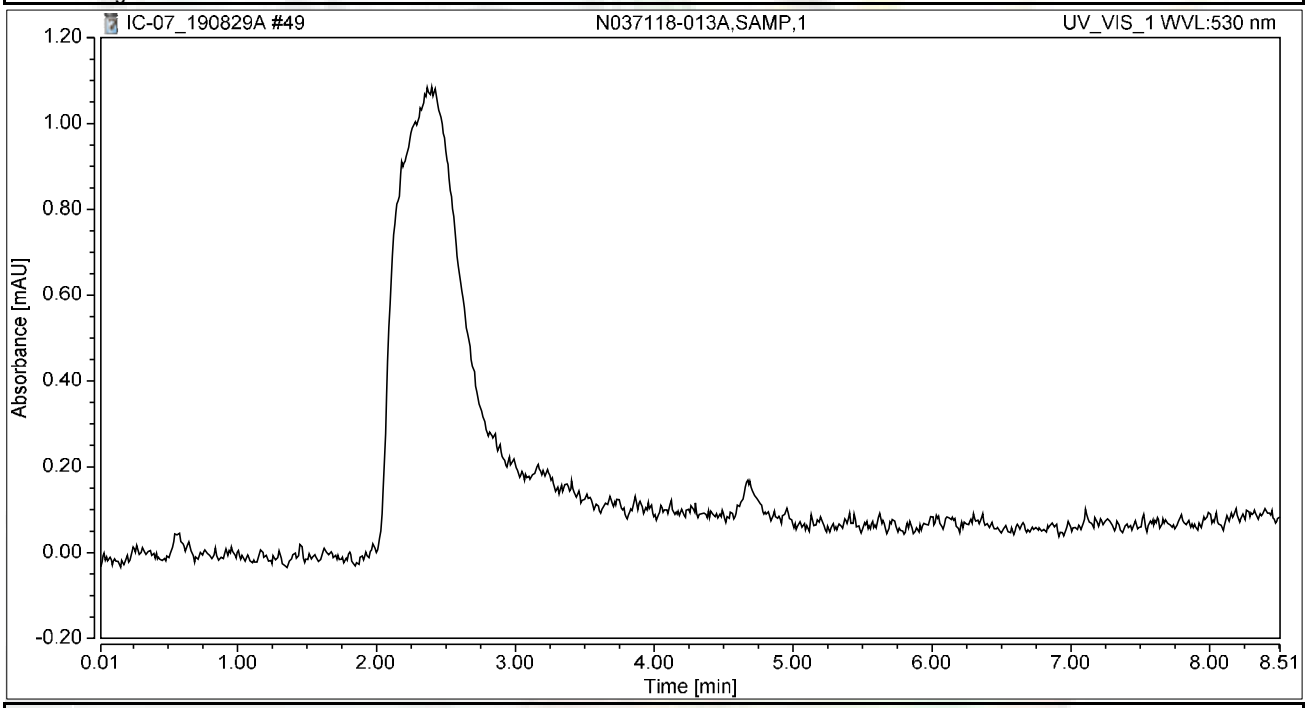
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-013A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 15:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

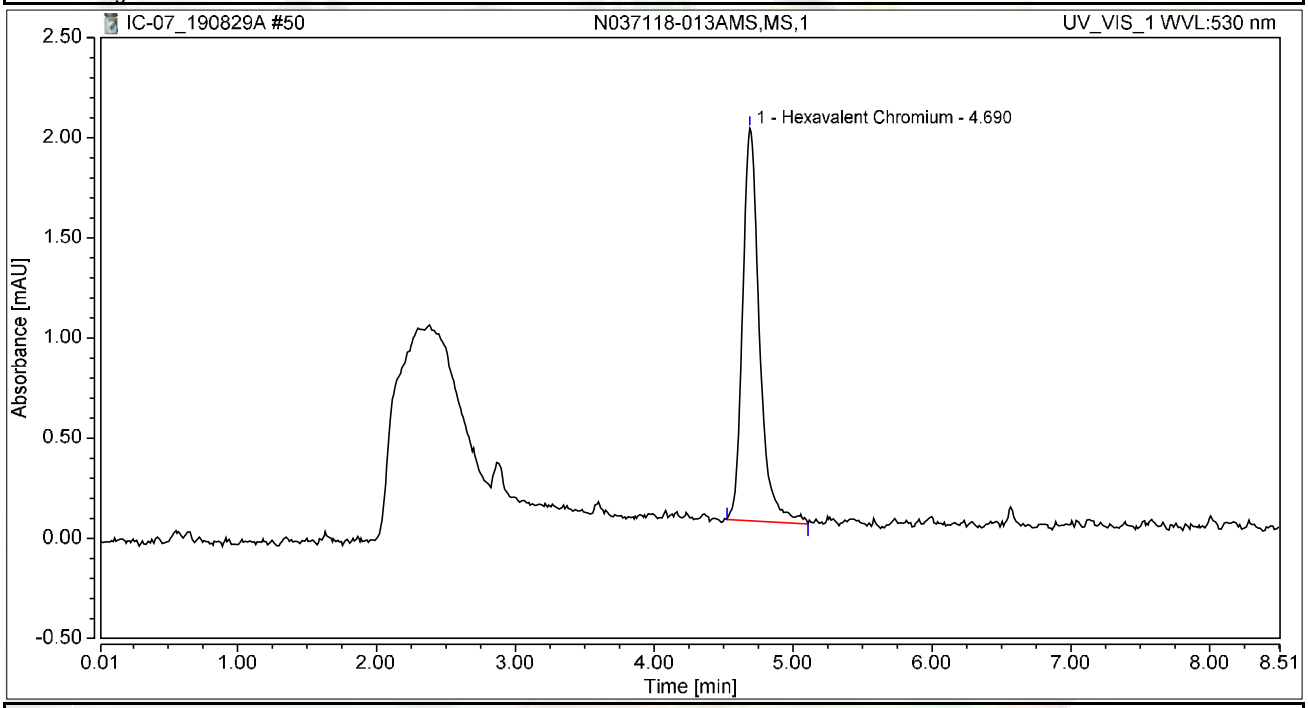
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-013AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 16:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

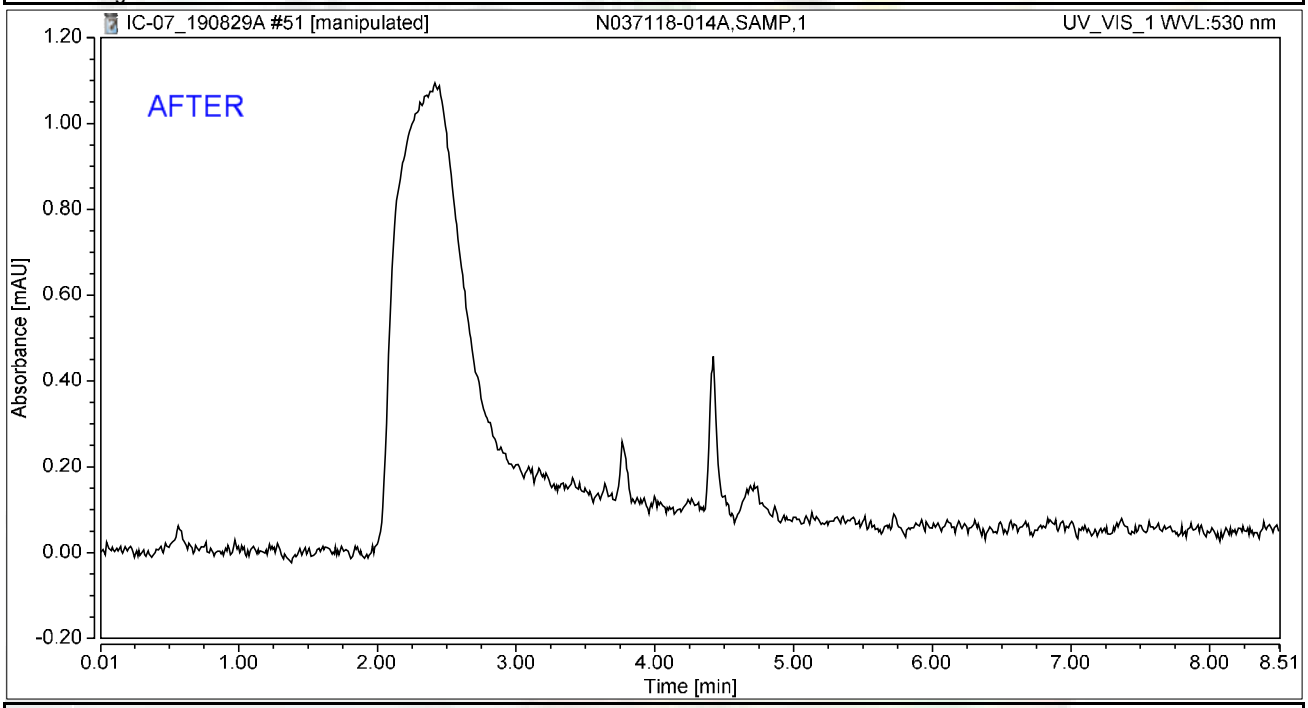
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.277	1.961	100.00	100.00	1.0682
Total:			**0.277**	**1.961**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 16:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

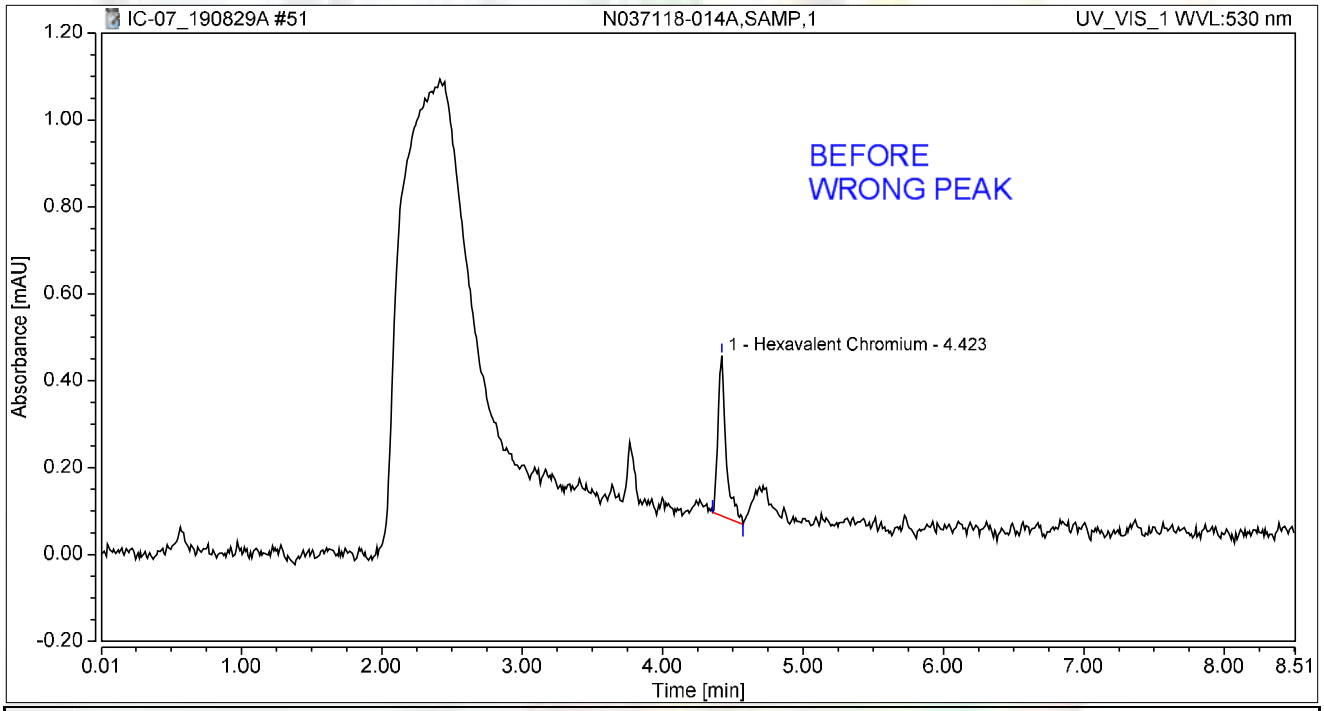
NS 9/6/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037118-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 16:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

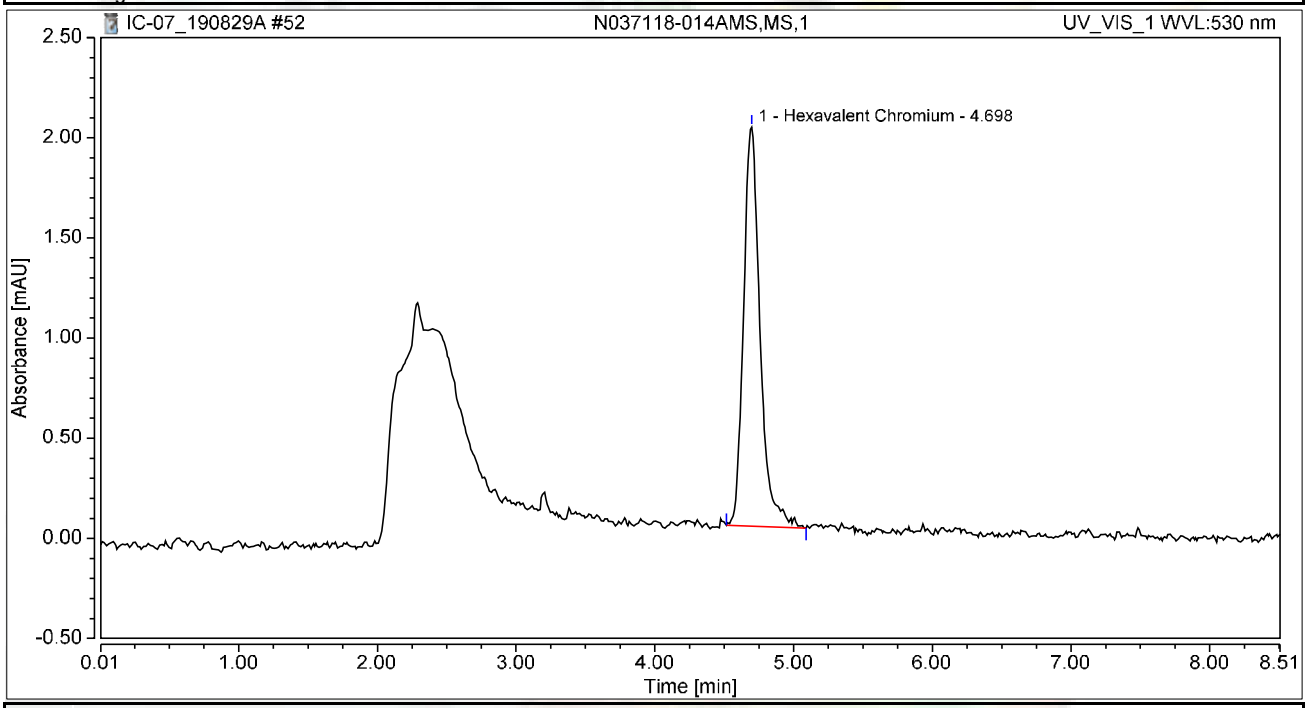
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.423	0.025	0.369	100.00	100.00	0.0945
Total:			**0.025**	**0.369**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 16:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

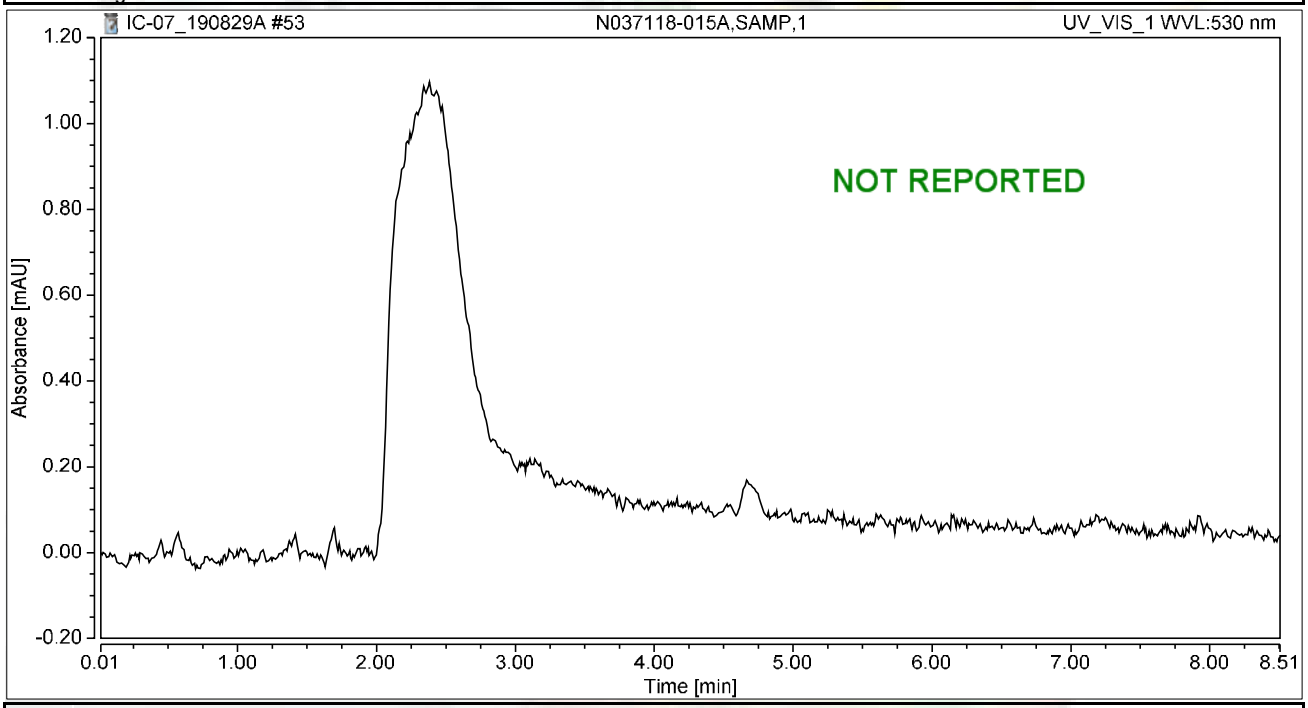
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.276	1.993	100.00	100.00	1.0626
Total:			**0.276**	**1.993**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-015A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 16:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

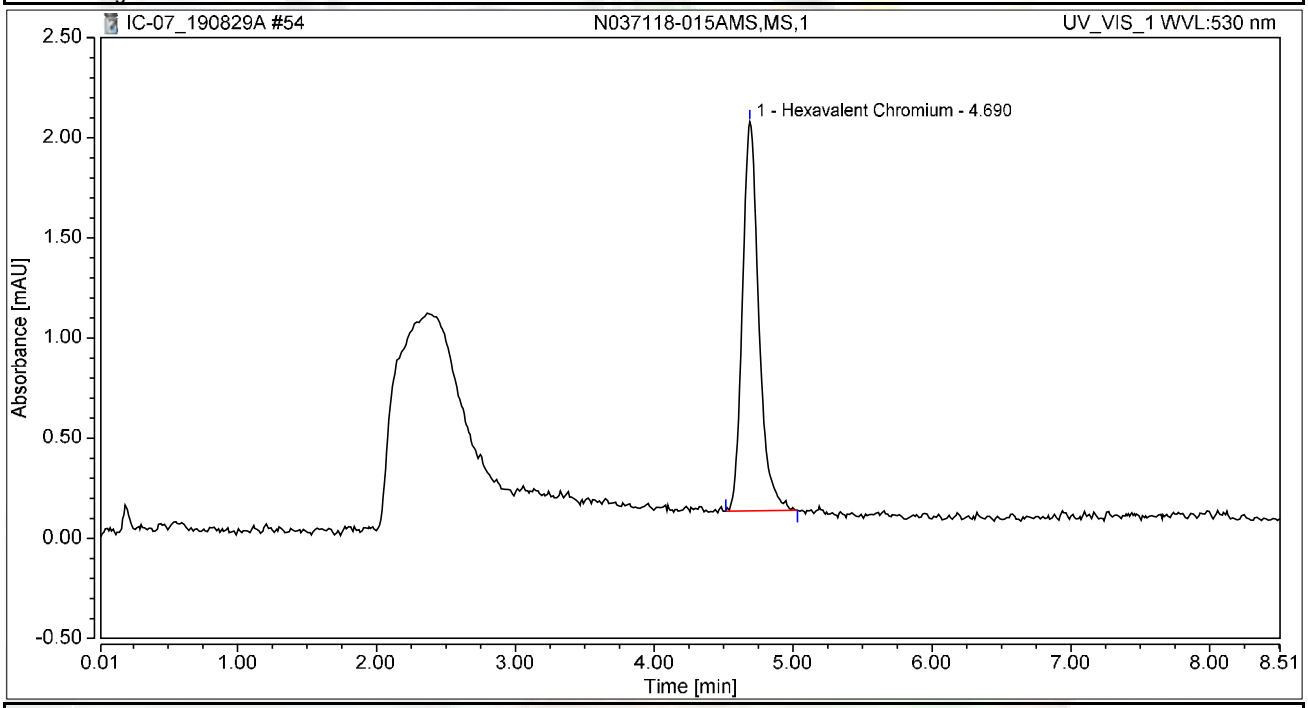
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037118-015AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

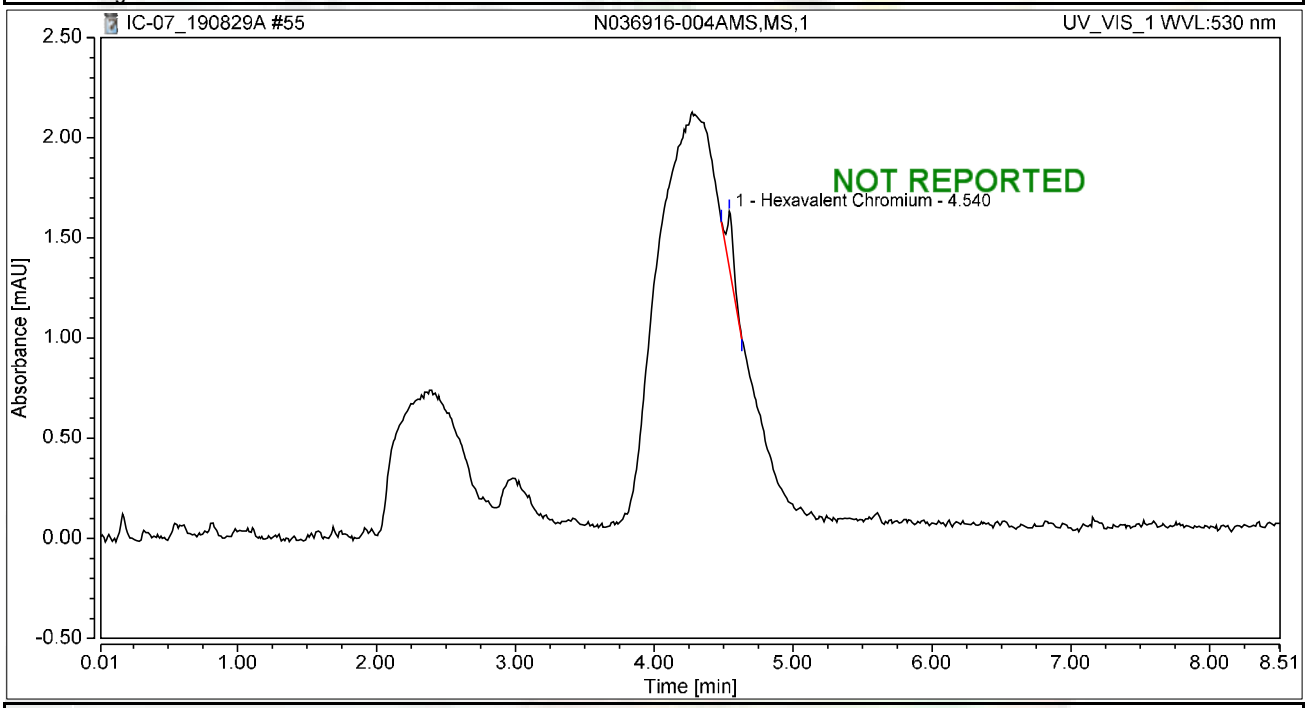
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.267	1.944	100.00	100.00	1.0286
Total:			**0.267**	**1.944**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036916-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

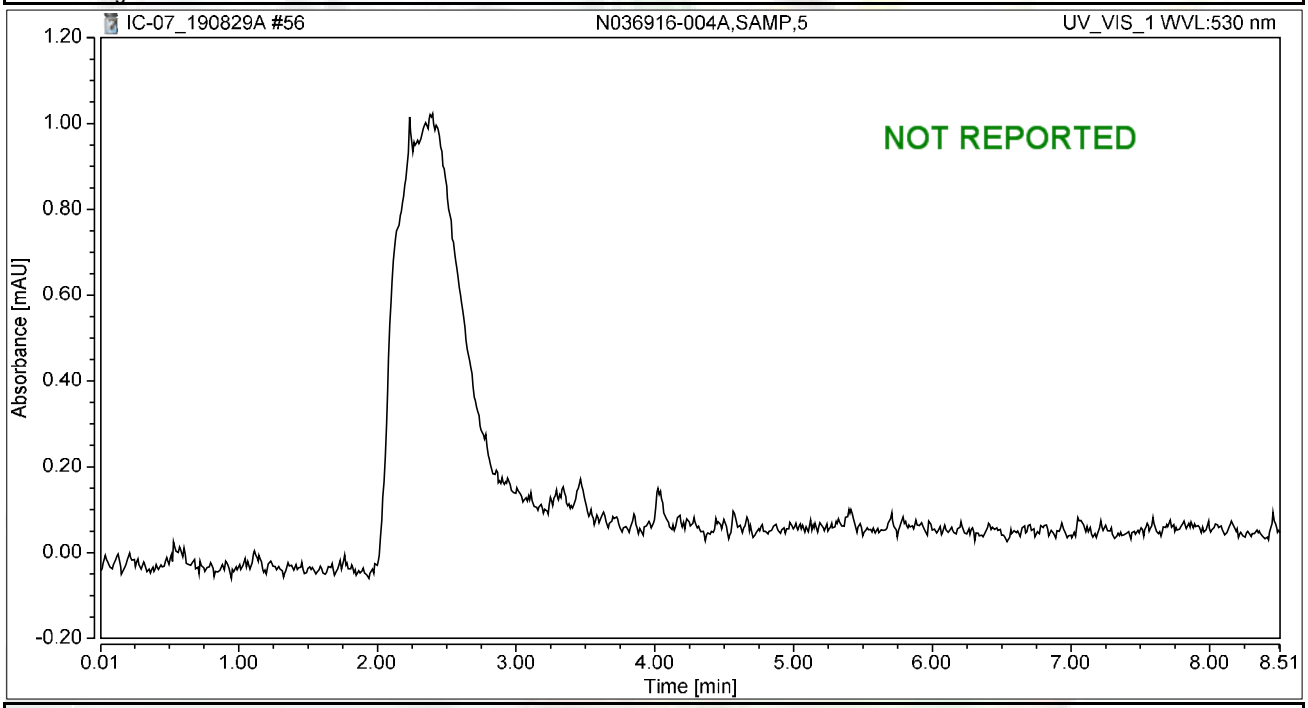
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.540	0.016	0.279	100.00	100.00	0.0629
Total:			**0.016**	**0.279**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036916-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 17:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

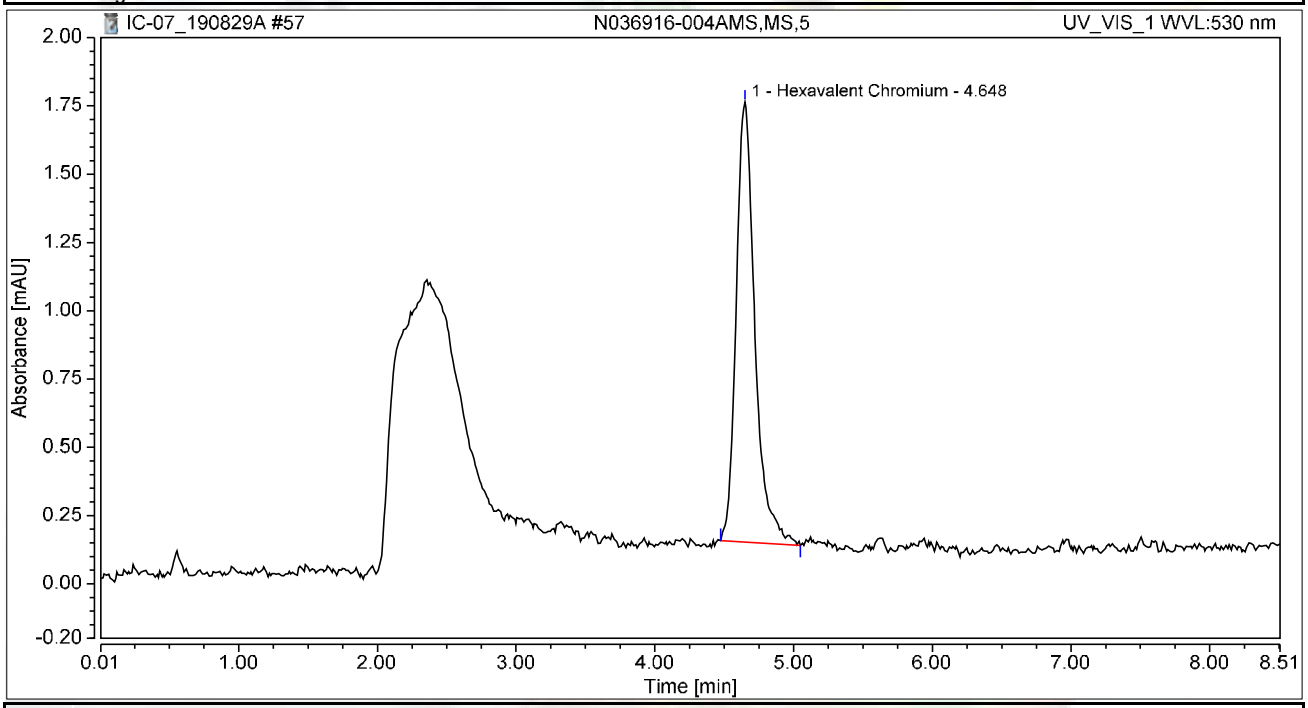
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036916-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 18:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.251	1.611	100.00	100.00	0.9683
Total:			**0.251**	**1.611**	**100.00**	**100.00**	

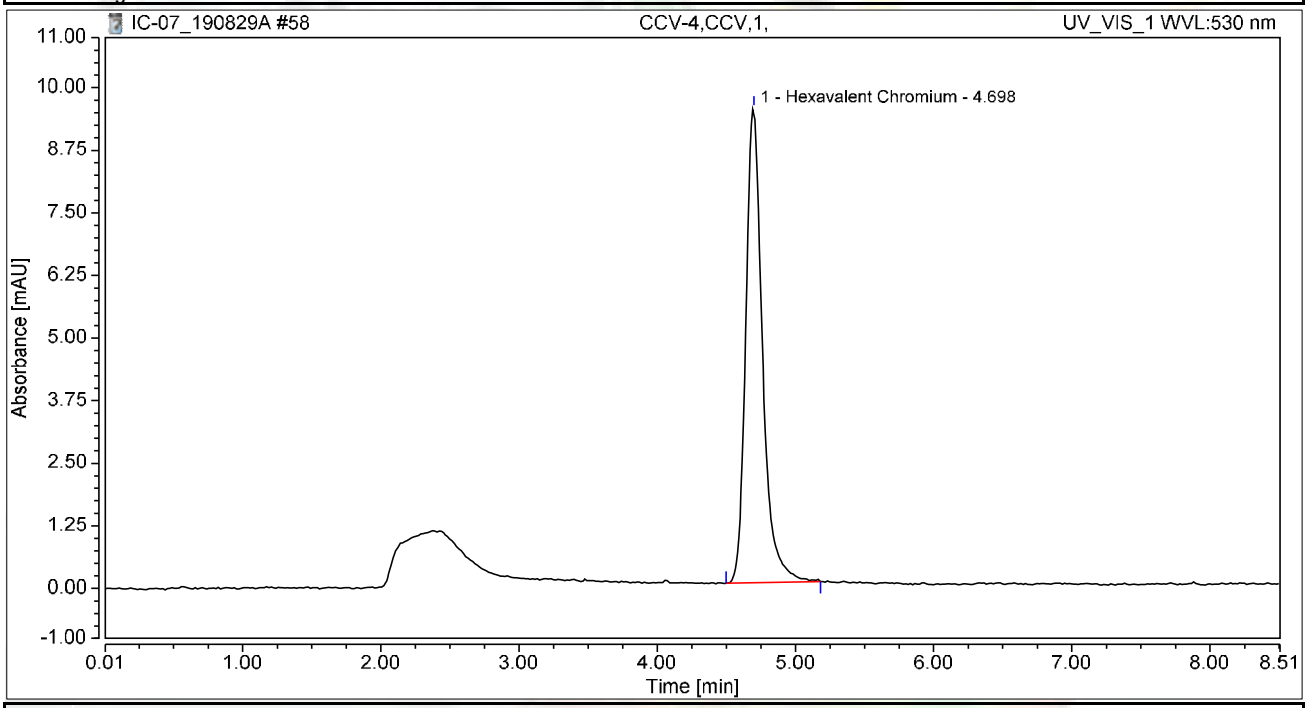
Chromatogram and Results

Injection Details

CCV-5

Injection Name:	~~CCV-4~~,CCV,1,	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 18:16**	*Sample Weight:*	**1.0000**

Chromatogram



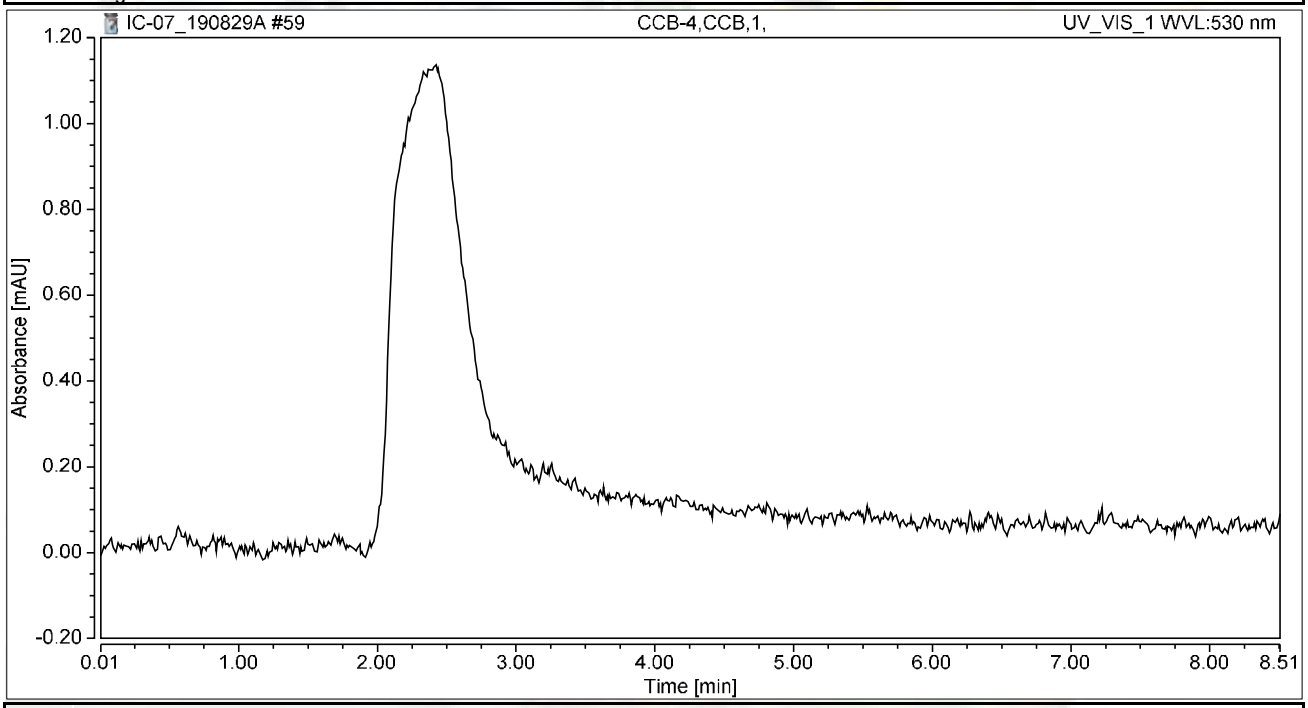
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.330	9.481	100.00	100.00	5.1259
Total:			**1.330**	**9.481**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details	CCB-5		
Injection Name:	~~CCB-4~~,CCB,1,	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Aug/19 18:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136417 **Analyst:** ~~RBA~~ MBC

ASSET #: N037107, 117, 118, 147 **Date Analyzed:** 9/11/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer RBA Date: 9/17/2019

2nd Level Reviewer NS 9/17/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037118-002E**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.3871	*	1
	=	0.3871	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.39 mg/L

NS 9/23/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

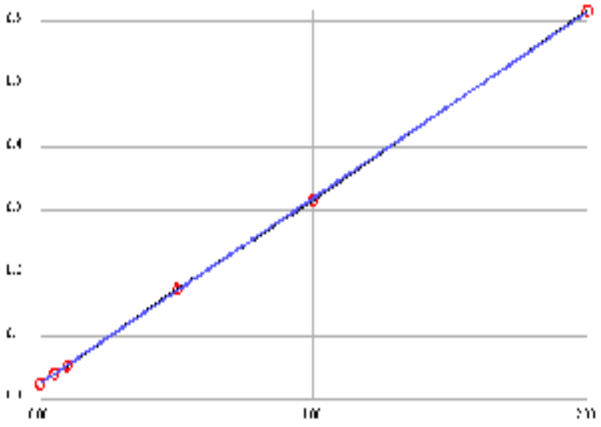
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2953x + 0.0254
Correlation	.999963

Calibrant	Energy	Set	Conc
1	0.0261	0.0000	0.0024
2	0.0408	0.0500	0.0522
3	0.0546	0.1000	0.0989
4	0.1742	0.5000	0.5039
5	0.3169	1.0000	0.9870
6	0.6177	2.0000	2.0055

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **ICV**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.514	0.050	0.5000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **CCV**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.488	0.050	0.5000	0	97.5	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **CCV**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.504	0.050	0.5000	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **CCV**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.489	0.050	0.5000	0	97.9	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **ICB**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **CCB**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **CCB**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136417**
Client ID: **CCB**	Batch ID: **R136417**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2019**	SeqNo: **3510950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 09-11-2019 14:44
Time end: 09-11-2019 17:42

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	17:00:41	0.0085		0.0279
2	<BLANK>	17:01:40	0.0031		0.0263
3	<CAL1>	17:02:36	0.0024	[0]	0.0261
4	<CAL2>	17:03:31	0.0522	[0.05]	0.0408
5	<CAL3>	17:04:32	0.0989	[0.1]	0.0546
6	<CAL4>	17:05:26	0.5039	[0.5]	0.1742
7	<CAL5>	17:06:22	0.9870	[1]	0.3169
8	<CAL6>	17:07:17	2.0055	[2]	0.6177
9	,BLANK,BLANK,1, NOT REPORTED	17:08:17	0.0414		0.0376
10	,ICV,ICV,1,	17:09:13	0.5137		0.1771
11	,ICB,ICB,1,	17:10:08	0.0143		0.0296
12	,MB-H2O,MBLK,1,	17:11:10	0.0041		0.0266
13	,LCS-H2O,LCS,1,	17:12:04	0.5262		0.1808
14	,N037107-002B,SAMP,1,	17:13:00	0.9576		0.3082
15	,N037107-002BDUP,DUP,1,	17:13:55	1.0493		0.3353
16	,N037147-001B,SAMP,10,	17:14:56	0.7145		0.2364
17	,N037147-001BMS,MS,10,	17:15:51	1.2210		0.3860
18	,N037147-001BMSD,MSD,10,	17:16:47	1.2880		0.4058
19	,N037118-002E,SAMP,1,	17:17:49	0.3871		0.1397
20	,N037118-003E,SAMP,1,	17:18:43	0.3908		0.1408
21	,BLANK, NOT REPORTED	17:19:38	0.0119		0.0289
22	,CCV-1,CCV,1,	17:20:34	0.4876		0.1694
23	,CCB-1,CCB,1,	17:21:34	0.0133		0.0293
24	,N037118-004E,SAMP,1,	17:22:30	0.3898		0.1405
25	,N037118-005E,SAMP,1,	17:23:31	0.3485		0.1283

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N037118-006E,SAMP,1,	17:24:27	0.3769		0.1367
27	,N037118-007E,SAMP,1,	17:25:21	0.3722		0.1353
28	,N037118-008E,SAMP,1,	17:26:22	0.3393		0.1256
29	,N037118-009E,SAMP,1,	17:27:06	0.3542		0.1300
30	,N037118-010E,SAMP,1,	17:27:48	0.3715		0.1351
31	,N037118-011E,SAMP,1,	17:28:38	0.3508		0.1290
32	,N037118-012E,SAMP,1,	17:29:20	0.3712		0.1350
33	,BLANK, NOT REPORTED	17:30:03	0.0092		0.0281
34	,CCV-2,CCV,1,	17:30:51	0.5039		0.1742
35	,CCB-2,CCB,1,	17:31:35	0.0089		0.0280
36	,N037118-013E,SAMP,1,	17:32:16	0.3282		0.1223
37	,N037117-001B,SAMP,1,	17:33:06	0.0204		0.0314
38	,N037117-002B,SAMP,1,	17:33:49	0.0133		0.0293
39	,N037117-003B,SAMP,1,	17:34:31	0.3336		0.1239
40	,N037117-004B,SAMP,1,	17:35:15	0.0620		0.0437
41	,N037117-005B,SAMP,1,	17:36:03	1.9070		0.5886
42	,N037117-008B,SAMP,1,	17:36:46	0.4206		0.1496
43	,N037118-001E,SAMP,1,	17:37:28	1.7671		0.5473
44	,N037147-002B,SAMP,1,	17:38:18	0.4649		0.1627
45	,BLANK, NOT REPORTED	17:39:01	0.0038		0.0265
46	,CCV-3,CCV,1,	17:39:43	0.4893		0.1699
47	,CCB-3,CCB,1,	17:40:27	0.0048		0.0268

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/11/2019
Time Analyzed: 2:44 PM ; 5:42 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190904A
Color reagent R190904C
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037107-002B		8.20							
N027147-001B		8.95							
N037118-002E		5.32							
N037118-003E		7.78							
N037118-004E		8.27							
N037118-005E		7.90							
N037118-006E		7.77							
N037118-007E		7.52							
N037118-008E		5.87							
N037118-009E		7.17							
N037118-010E		8.43							
N037118-011E		8.18							
N037118-012E		8.15							
N037118-013E		7.86							
N037117-001B		7.72							
N037117-002B		5.57							
N037117-003B		5.96							
N037117-004B		7.35							
N037117-005B		8.32							Not reported
N037117-008B		8.96							Not reported
N037118-001E		7.48							
N037147-002B		8.6							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75133
ASSET #: N037118
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/4/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?		X			X	
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Sample 3B has a higher concentration than 3C. For confirmation.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75133
ASSET #: N037118

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/9/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?	X			X		
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits			X			X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Fe rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/11/2019

2nd Level Reviewer NS 9/11/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N037118-003B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = -0.0013 * 1 * (25/25) * 1000

Iron , ug/L = -1.3

Reporting results in two significant figures,

Iron , ug/L = -1.3

Since PQL of Iron , in ug/L = 20

Iron , ug/L = ND

NS 9/17/2019

% RSD SUMMARY

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	69.68	15	<PQL
Standard1	ICAL	1	Fe	0.02	9.58	15	PASS
Standard2	ICAL	1	Fe	0.05	2.28	15	PASS
Standard3	ICAL	1	Fe	2	0.19	15	PASS
Standard4	ICAL	1	Fe	5	0.1	15	PASS
Standard5	ICAL	1	Fe	7.5	0.13	15	PASS
Standard6	ICAL	1	Fe	10	0.1	15	PASS
Standard7	ICAL	1	Fe	20	0.34	15	PASS
ICV	ICV	1	Fe	9.99	0.13	15	PASS
ICB	ICB	1	Fe	-0.0024	33.24	15	<PQL
LLICV	CCV1	1	Fe	0.017	4.59	20	PASS
ICSA1	ICSA	1	Fe	172.04	0.24	15	PASS
ICSAB1	ICSAB	1	Fe	187.24	0.4	15	PASS
MB-75133	MBLK	1	Fe	0.052	27.8	15	NR!
LCS-75133	LCS	1	Fe	0.14	14.85	15	PASS
MB-75133	MBLK	1	Fe	-0.0029	67.67	15	<PQL
LCS-75133	LCS	1	Fe	0.093	0.93	15	PASS
N037118-001B	SAMP	1	Fe	0.016	2.062	15	PASS
N037118-001B	SAMP	5	Fe	-0.0044	8.83	15	PASS
N037118-001B-PS	PS	1	Fe	0.11	0.4	15	PASS
N037118-001B-MS	MS	1	Fe	0.099	0.71	15	PASS
N037118-001B-MSD	MSD	1	Fe	0.098	0.73	15	PASS
N037118-002B	SAMP	1	Fe	0.00066	69.37	15	<PQL
CCV1	CCV	1	Fe	9.91	0.18	15	PASS
CCB1	CCB	1	Fe	-0.0011	21.041	15	<PQL
N037118-003B	SAMP	1	Fe	0.2	0.37	15	PASS
N037118-004B	SAMP	1	Fe	-0.00094	42.95	15	<PQL
N037118-005B	SAMP	1	Fe	0.0046	10.35	15	PASS
N037118-006B	SAMP	1	Fe	0.0016	9.33	15	PASS
N037118-007B	SAMP	1	Fe	-0.00004	932.56	15	<PQL
N037118-008B	SAMP	1	Fe	-0.0012	17	15	<PQL
N037118-009B	SAMP	1	Fe	-0.0035	11.67	15	PASS
N037118-010B	SAMP	1	Fe	-0.0037	8.31	15	PASS
N037118-011B	SAMP	1	Fe	0.0023	27.54	15	<PQL
N037118-012B	SAMP	1	Fe	0.0048	10.2	15	PASS
CCV2	CCV	1	Fe	9.9	0.18	15	PASS
CCB2	CCB	1	Fe	-0.00007	1335.15	15	<PQL
N037118-013B	SAMP	1	Fe	-0.0036	12.98	15	PASS
N037148-001B	SAMP	1	Fe	-0.0019	17.4	15	<PQL
N037148-002B	SAMP	1	Fe	0.0073	2.068	15	PASS
N037148-003B	SAMP	1	Fe	0.055	0.77	15	PASS
N037148-004B	SAMP	1	Fe	0.019	2.66	15	PASS

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037148-005B	SAMP	1	Fe	-0.0034	18.077	15	<PQL
N037148-006B	SAMP	1	Fe	-0.0032	17.76	15	<PQL
N037148-007B	SAMP	1	Fe	-0.0034	19.56	15	<PQL
CCV3	CCV	1	Fe	9.98	0.061	15	PASS
CCB3	CCB	1	Fe	0.00016	298.51	15	<PQL
CCV4	CCV	1	Fe	9.9	0.041	15	PASS
CCB4	CCB	1	Fe	0.0009	140.28	15	<PQL
ICSA2	ICSA	1	Fe	170.94	0.33	15	PASS
ICSAB2	ICSAB	1	Fe	185.76	0.62	15	PASS
CCV5	CCV	1	Fe	9.87	0.053	15	PASS
CCB5	CCB	1	Fe	0.0016	68.27	15	<PQL
CCV6	CCV	1	Fe	9.86	0.077	15	PASS
CCB6	CCB	1	Fe	0.00088	142.45	15	<PQL
ICSA3	ICSA	1	Fe	170.14	0.14	15	PASS
ICSAB3	ICSAB	1	Fe	185.04	0.84	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	803.87	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.63	15	PASS
Standard2	ICAL	1	Fe	0.05	1.13	15	PASS
Standard3	ICAL	1	Fe	2	0.045	15	PASS
Standard4	ICAL	1	Fe	5	0.033	15	PASS
Standard5	ICAL	1	Fe	7.5	0.076	15	PASS
Standard6	ICAL	1	Fe	10	0.62	15	PASS
Standard7	ICAL	1	Fe	20	0.022	15	PASS
ICV	ICV	1	Fe	10.15	0.23	15	PASS
ICB	ICB	1	Fe	-0.00055	68.3	15	<PQL
LLICV	CCV1	1	Fe	0.027	1.91	20	PASS
LLICV	CCV1	1	Fe	0.02	4.66	20	PASS
ICSA1	ICSA	1	Fe	176.61	0.72	15	PASS
ICSAB1	ICSAB	1	Fe	177.52	0.41	15	PASS
CCV1	CCV	1	Fe	11.56	0.49	15	PASS
CCV1	CCV	1	Fe	10.63	0.33	15	PASS
CCB1	CCB	1	Fe	-0.0006	106.015	15	<PQL
CCB1	CCB	1	Fe	-0.00051	14.76	15	PASS
N037118-003B	SAMP	1	Fe	-0.0013	48.22	15	<PQL
CCV2	CCV	1	Fe	10.16	0.11	15	PASS
CCB2	CCB	1	Fe	-0.001	7.72	15	PASS
CCV3	CCV	1	Fe	10.33	0.086	15	PASS
CCB3	CCB	1	Fe	-0.0011	4.48	15	PASS
ICSA2	ICSA	1	Fe	179.66	0.19	15	PASS
ICSAB2	ICSAB	1	Fe	185.35	0.39	15	PASS
CCV4	CCV	1	Fe	10.18	0.087	15	PASS
CCB4	CCB	1	Fe	-0.00012	467.49	15	<PQL
CCV5	CCV	1	Fe	10.48	0.038	15	PASS
CCB5	CCB	1	Fe	0.0064	15.8	15	<PQL
ICSA3	ICSA	1	Fe	177.7	0.35	15	PASS
ICSAB3	ICSAB	1	Fe	183.6	0.35	15	PASS
CCV6	CCV	1	Fe	10.2	0.12	15	PASS
CCB6	CCB	1	Fe	0.007	9.11	15	PASS
CCB6	CCB	1	Fe	0.0043	29.3	15	<PQL
CCV7	CCV	1	Fe	10.37	0.098	15	PASS
CCB7	CCB	1	Fe	0.0083	18.85	15	<PQL
CCV8	CCV	1	Fe	10.35	0.091	15	PASS
CCB8	CCB	1	Fe	0.0078	12.62	15	PASS
ICSA4	ICSA	1	Fe	177.14	0.25	15	PASS
ICSA4	ICSA	1	Fe	203.97	0.018	15	PASS
ICSAB4	ICSAB	1	Fe	153.4	0.39	15	PASS
ICSAB4	ICSAB	1	Fe	171.94	0.5	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV9	CCV	1	Fe	10.49	0.037	15	PASS
CCB9	CCB	1	Fe	-0.0023	7.76	15	PASS
ICSA5	ICSA	1	Fe	205.75	0.6	15	PASS
ICSAB5	ICSAB	1	Fe	175.06	0.32	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190904C

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

MWST-190820D,0.5<50mL
MWST-190820I
MWST-190820N,5<50mL
MWST-190820N,12.5<50mL
MWST-190820N,15<40mL
MWST-190820N,25<50mL
MWST-190820N
MWST-190820S
MWST-190820N,25<50mL
MWST-190820T/U
MSST-190708A
MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/04/2019	10:18:01 PM
2	Standard1	ICAL	1	09/04/2019	10:22:27 PM
3	Standard2	ICAL	1	09/04/2019	10:26:50 PM
4	Standard3	ICAL	1	09/04/2019	10:31:15 PM
5	Standard4	ICAL	1	09/04/2019	10:35:43 PM
6	Standard5	ICAL	1	09/04/2019	10:40:12 PM
7	Standard6	ICAL	1	09/04/2019	10:44:41 PM
8	Standard7	ICAL	1	09/04/2019	10:49:10 PM
250	ICV	ICV	1	09/04/2019	10:55:13 PM
1	ICB	ICB	1	09/04/2019	11:01:14 PM
2	LLICV	CCV1	1	09/04/2019	11:05:39 PM
9	ICSA1	ICSA	1	09/04/2019	11:10:02 PM
10	ICSAB1	ICSAB	1	09/04/2019	11:16:41 PM
71	MB-75133	MBLK	1	09/04/2019	11:22:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:27:15 PM
71	MB-75133	MBLK	1	09/04/2019	11:35:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:40:16 PM
73	N037118-001B	SAMP	1	09/04/2019	11:44:41 PM
74	N037118-001B	SAMP	5	09/04/2019	11:49:06 PM
75	N037118-001B-PS	PS	1	09/04/2019	11:53:29 PM
76	N037118-001B-MS	MS	1	09/04/2019	11:57:54 PM
77	N037118-001B-MSD	MSD	1	09/05/2019	12:02:19 AM
78	N037118-002B	SAMP	1	09/05/2019	12:06:45 AM
7	CCV1	CCV	1	09/05/2019	12:11:11 AM
1	CCB1	CCB	1	09/05/2019	12:15:39 AM
79	N037118-003B	SAMP	1	09/05/2019	12:20:03 AM
80	N037118-004B	SAMP	1	09/05/2019	12:24:29 AM
81	N037118-005B	SAMP	1	09/05/2019	12:28:55 AM

NS 9/17/2019

for CEI

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
82	N037118-006B	SAMP	1	09/05/2019	12:33:22 AM
83	N037118-007B	SAMP	1	09/05/2019	12:37:48 AM
84	N037118-008B	SAMP	1	09/05/2019	12:42:13 AM
85	N037118-009B	SAMP	1	09/05/2019	12:46:38 AM
86	N037118-010B	SAMP	1	09/05/2019	12:51:03 AM
87	N037118-011B	SAMP	1	09/05/2019	12:55:27 AM
88	N037118-012B	SAMP	1	09/05/2019	12:59:54 AM
7	CCV2	CCV	1	09/05/2019	01:04:19 AM
1	CCB2	CCB	1	09/05/2019	01:08:49 AM
89	N037118-013B	SAMP	1	09/05/2019	01:13:13 AM
90	N037148-001B	SAMP	1	09/05/2019	01:17:38 AM
91	N037148-002B	SAMP	1	09/05/2019	01:22:04 AM
92	N037148-003B	SAMP	1	09/05/2019	01:26:28 AM
93	N037148-004B	SAMP	1	09/05/2019	01:30:53 AM
94	N037148-005B	SAMP	1	09/05/2019	01:35:19 AM
95	N037148-006B	SAMP	1	09/05/2019	01:39:44 AM
96	N037148-007B	SAMP	1	09/05/2019	01:44:09 AM
97	MB-75132	MBLK	1	09/05/2019	01:48:34 AM
98	LCS-75132	LCS	1	09/05/2019	01:52:58 AM
7	CCV3	CCV	1	09/05/2019	01:57:23 AM
1	CCB3	CCB	1	09/05/2019	02:01:51 AM
99	N037118-001C	SAMP	1	09/05/2019	02:06:14 AM
100	N037118-001C	SAMP	5	09/05/2019	02:10:38 AM
101	N037118-001C-PS	PS	1	09/05/2019	02:15:02 AM
102	N037118-001C-MS	MS	1	09/05/2019	02:19:27 AM
103	N037118-001C-MSD	MSD	1	09/05/2019	02:23:52 AM
104	N037118-002C	SAMP	1	09/05/2019	02:28:18 AM
105	N037118-003C	SAMP	1	09/05/2019	02:32:43 AM
106	N037118-004C	SAMP	1	09/05/2019	02:37:08 AM
107	N037118-005C	SAMP	1	09/05/2019	02:41:34 AM
108	N037118-006C	SAMP	1	09/05/2019	02:45:58 AM
7	CCV4	CCV	1	09/05/2019	02:50:22 AM
1	CCB4	CCB	1	09/05/2019	02:54:50 AM
9	ICSA2	ICSA	1	09/05/2019	02:59:11 AM
10	ICSAB2	ICSAB	1	09/05/2019	03:05:49 AM
109	N037118-007C	SAMP	1	09/05/2019	03:11:59 AM
110	N037118-008C	SAMP	1	09/05/2019	03:16:22 AM
111	N037118-009C	SAMP	1	09/05/2019	03:20:47 AM
112	N037118-010C	SAMP	1	09/05/2019	03:25:12 AM
113	N037118-011C	SAMP	1	09/05/2019	03:29:37 AM
114	N037118-012C	SAMP	1	09/05/2019	03:34:02 AM
115	N037118-013C	SAMP	1	09/05/2019	03:38:28 AM
116	N037148-001C	SAMP	1	09/05/2019	03:42:53 AM
117	N037148-002C	SAMP	1	09/05/2019	03:47:18 AM
118	N037148-003C	SAMP	1	09/05/2019	03:51:43 AM
7	CCV5	CCV	1	09/05/2019	03:56:10 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	09/05/2019	04:00:38 AM
119	N037148-004C	SAMP	1	09/05/2019	04:05:00 AM
120	N037148-005C	SAMP	1	09/05/2019	04:09:25 AM
121	N037148-006C	SAMP	1	09/05/2019	04:13:51 AM
122	N037148-007C	SAMP	1	09/05/2019	04:18:15 AM
7	CCV6	CCV	1	09/05/2019	04:22:41 AM
1	CCB6	CCB	1	09/05/2019	04:27:09 AM
9	ICSA3	ICSA	1	09/05/2019	04:31:31 AM
10	ICSAB3	ICSAB	1	09/05/2019	04:38:08 AM

INJECTION LOG: 190909B

Instrument ID: ICP-02

STANDARD CODE		
Standard1	MWST-190401G,0.5<50mL	MWST-190820D,0.5<50mL
Standard2	MWST-190401L	MWST-190820I
Standard3	MWST-190401Q,5<50mL	MWST-190820N,5<50mL
Standard4	MWST-190401Q,12.5<50mL	MWST-190820N,12.5<50mL
Standard5	MWST-190401Q,15<40mL	MWST-190820N,15<40mL
Standard6	MWST-190401Q,25<50mL	MWST-190820N,25<50mL
Standard7	MWST-190401Q	MWST-190820N
ICV	MWST-190401V	MWST-190820S
CCV	MWST-190401Q,25<50mL	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190401W/X	MWST-190820T/U
Int. Std. (Y)	MSST-190315A	MSST-190708A
PS Spike	MWST-190401D/E/F	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/09/2019	04:41:18 PM
2	Standard1	ICAL	1	09/09/2019	04:45:40 PM
3	Standard2	ICAL	1	09/09/2019	04:50:03 PM
4	Standard3	ICAL	1	09/09/2019	04:53:57 PM
5	Standard4	ICAL	1	09/09/2019	04:57:54 PM
6	Standard5	ICAL	1	09/09/2019	05:02:51 PM
7	Standard6	ICAL	1	09/09/2019	05:07:48 PM
8	Standard7	ICAL	1	09/09/2019	05:12:46 PM
250	ICV	ICV	1	09/09/2019	05:15:41 PM
1	ICB	ICB	1	09/09/2019	05:27:19 PM
2	LLICV	CCV1	1	09/09/2019	05:44:10 PM
2	LLICV	CCV1	1	09/09/2019	05:58:56 PM
9	ICSA1	ICSA	1	09/09/2019	06:03:19 PM
10	ICSAB1	ICSAB	1	09/09/2019	06:07:25 PM
11	MB-75121	MBLK	1	09/09/2019	06:17:33 PM
12	N037107-002D	SAMP	5	09/09/2019	06:22:16 PM
13	N037107-005D	SAMP	1	09/09/2019	06:26:08 PM
14	N037107-006D	SAMP	1	09/09/2019	06:30:01 PM
15	N037107-007D	SAMP	1	09/09/2019	06:34:55 PM
16	N037107-008D	SAMP	1	09/09/2019	06:39:48 PM
17	N037147-002D	SAMP	1	09/09/2019	06:44:42 PM
18	N037107-002E	SAMP	5	09/09/2019	06:49:36 PM
19	N037107-006E	SAMP	1	09/09/2019	06:53:30 PM
20	N037147-001E	SAMP	1	09/09/2019	06:58:02 PM
7	CCV1	CCV	1	09/09/2019	07:02:57 PM
7	CCV1	CCV	1	09/09/2019	07:07:20 PM
1	CCB1	CCB	1	09/09/2019	07:12:19 PM
1	CCB1	CCB	1	09/09/2019	07:20:11 PM

NS 9/18/2019
for CEI

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
21	N037118-003B	SAMP	1	09/09/2019	07:24:33 PM
22	MB-75308	MBLK	1	09/09/2019	07:28:27 PM
23	LCS-75308	LCS	1	09/09/2019	07:32:26 PM
24	N037355-001A	SAMP	1	09/09/2019	07:37:19 PM
25	N037355-001A	SAMP	5	09/09/2019	07:41:11 PM
26	N037355-001A-PS	PS	1	09/09/2019	07:45:03 PM
27	N037355-001A-MS	MS	1	09/09/2019	07:49:58 PM
28	N037355-001A-MSD	MSD	1	09/09/2019	07:54:52 PM
29	MB-75187	MBLK	1	09/09/2019	07:59:48 PM
30	LCS1-75187	LCS	1	09/09/2019	08:04:12 PM
7	CCV2	CCV	1	09/09/2019	08:09:10 PM
1	CCB2	CCB	1	09/09/2019	08:17:30 PM
31	N037148-008B	SAMP	1	09/09/2019	08:21:53 PM
32	N037148-008B	SAMP	5	09/09/2019	08:25:48 PM
33	N037148-008B-PS	PS	1	09/09/2019	08:29:42 PM
34	N037148-008B-MS1	MS	1	09/09/2019	08:34:40 PM
35	N037148-008B-MSD1	MSD	1	09/09/2019	08:39:36 PM
36	N037148-009B	SAMP	1	09/09/2019	08:44:30 PM
37	N037148-010B	SAMP	1	09/09/2019	08:48:24 PM
38	N037148-011B	SAMP	1	09/09/2019	08:52:18 PM
39	N037148-012B	SAMP	1	09/09/2019	08:56:11 PM
40	N037176-001D	SAMP	1	09/09/2019	09:00:04 PM
7	CCV3	CCV	1	09/09/2019	09:04:57 PM
1	CCB3	CCB	1	09/09/2019	09:09:56 PM
9	ICSA2	ICSA	1	09/09/2019	09:28:33 PM
10	ICSAB2	ICSAB	1	09/09/2019	09:33:42 PM
44	N037181-001E	SAMP	1	09/09/2019	09:59:40 PM
45	N037225-001E	SAMP	1	09/09/2019	10:18:38 PM
46	MB-75186	MBLK	1	09/09/2019	10:23:33 PM
47	LCS-75186	LCS	1	09/09/2019	10:27:57 PM
48	N037148-008C	SAMP	1	09/09/2019	10:32:51 PM
49	N037148-009C	SAMP	1	09/09/2019	10:36:43 PM
50	N037148-010C	SAMP	1	09/09/2019	10:40:34 PM
7	CCV4	CCV	1	09/09/2019	10:44:46 PM
1	CCB4	CCB	1	09/09/2019	10:52:38 PM
51	N037148-011C	SAMP	1	09/09/2019	10:57:01 PM
52	N037148-012C	SAMP	1	09/09/2019	11:00:53 PM
53	N037176-001E	SAMP	1	09/09/2019	11:04:46 PM
54	N037176-001E	SAMP	5	09/09/2019	11:09:40 PM
55	N037176-001E-PS	PS	1	09/09/2019	11:13:34 PM
56	N037176-001E-MS	MS	1	09/09/2019	11:18:29 PM
57	N037176-001E-MSD	MSD	1	09/09/2019	11:23:24 PM
58	N037176-002E	SAMP	1	09/09/2019	11:28:18 PM
7	CCV5	CCV	1	09/10/2019	04:26:03 AM
1	CCB5	CCB	1	09/10/2019	04:47:58 AM
9	ICSA3	ICSA	1	09/10/2019	04:52:21 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB3	ICSAB	1	09/10/2019	04:57:59 AM
61	N037181-001F	SAMP	1	09/10/2019	05:27:15 AM
62	N037225-001F	SAMP	1	09/10/2019	05:32:08 AM
63	MB-75296	MBLK	1	09/10/2019	05:36:59 AM
64	LCS1-75296	LCS	1	09/10/2019	05:41:21 AM
65	N037313-001C	SAMP	1	09/10/2019	05:46:15 AM
66	N037313-001C	SAMP	5	09/10/2019	05:51:08 AM
67	N037313-001C-PS	PS	1	09/10/2019	05:55:03 AM
68	N037313-001C-MS1	MS	1	09/10/2019	05:59:57 AM
69	N037313-001C-MSD1	MSD	1	09/10/2019	06:04:52 AM
7	CCV6	CCV	1	09/10/2019	06:09:48 AM
1	CCB6	CCB	1	09/10/2019	06:14:43 AM
1	CCB6	CCB	1	09/10/2019	06:19:23 AM
70	N037313-002E	SAMP	1	09/10/2019	06:23:43 AM
71	N037314-001B	SAMP	1	09/10/2019	06:28:39 AM
72	N037314-002B	SAMP	1	09/10/2019	06:33:32 AM
73	N037176-002D	SAMP	5	09/10/2019	06:38:25 AM
74	N037176-002E	SAMP	5	09/10/2019	06:43:31 AM
75	N037176-003D	SAMP	5	09/10/2019	06:48:23 AM
76	N037176-003E	SAMP	5	09/10/2019	06:52:16 AM
77	N037176-004D	SAMP	5	09/10/2019	06:56:08 AM
78	N037176-004E	SAMP	5	09/10/2019	07:00:01 AM
79	N037181-001E	SAMP	5	09/10/2019	07:03:53 AM
7	CCV7	CCV	1	09/10/2019	07:07:46 AM
1	CCB7	CCB	1	09/10/2019	07:12:44 AM
80	N037181-001F	SAMP	5	09/10/2019	07:17:05 AM
81	N037225-001F	SAMP	5	09/10/2019	07:20:59 AM
82	N037225-001E	SAMP	5	09/10/2019	07:24:55 AM
7	CCV8	CCV	1	09/10/2019	07:43:38 AM
1	CCB8	CCB	1	09/10/2019	07:48:37 AM
9	ICSA4	ICSA	1	09/10/2019	07:52:58 AM
9	ICSA4	ICSA	1	09/10/2019	08:03:44 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:11:08 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:14:38 AM
73	N037176-002D	SAMP	5	09/10/2019	08:34:18 AM
75	N037176-003D	SAMP	5	09/10/2019	08:39:11 AM
77	N037176-004D	SAMP	5	09/10/2019	08:43:05 AM
45	N037225-001E	SAMP	1	09/10/2019	08:46:58 AM
76	N037176-003E	SAMP	5	09/10/2019	09:05:32 AM
78	N037176-004E	SAMP	5	09/10/2019	09:09:26 AM
62	N037225-001F	SAMP	1	09/10/2019	09:13:18 AM
71	N037314-001B	SAMP	1	09/10/2019	09:18:11 AM
74	N037176-002E	SAMP	5	09/10/2019	09:23:06 AM
7	CCV9	CCV	1	09/10/2019	09:27:58 AM
1	CCB9	CCB	1	09/10/2019	09:32:57 AM
9	ICSA5	ICSA	1	09/10/2019	09:37:19 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB5	ICSAB	1	09/10/2019	09:42:28 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:32:07**
Prep End Date: **8/23/2019 4:00:00 P**
Reviewed/ Date: NS 9/17/2019
Initials/ Date: for

Prep Batch **75133** Prep Code: **3010_W_DISS** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75133	Aqueous		25	☐	25	1.000		
MB-75133	Aqueous		25	☐	25	1.000		
N037118-001B	Groundwater	<2	25	☐	25	1.000		
N037118-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037118-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037118-002B	Groundwater	<2	25	☐	25	1.000		
N037118-003B	Groundwater	<2	25	☐	25	1.000		
N037118-004B	Groundwater	<2	25	☐	25	1.000		
N037118-005B	Groundwater	<2	25	☐	25	1.000		
N037118-006B	Groundwater	<2	25	☐	25	1.000		
N037118-007B	Groundwater	<2	25	☐	25	1.000		
N037118-008B	Groundwater	<2	25	☐	25	1.000		
N037118-009B	Groundwater	<2	25	☐	25	1.000		
N037118-010B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:32:07**
Prep End Date: **8/23/2019 4:00:00 P**
Reviewed/ Date: NS 9/17/2019
Initials/ Date: for

Prep Batch **75133** Prep Code: **3010_W_DISS** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037118-011B	Groundwater	<2	25	☐	25	1.000		
N037118-012B	Groundwater	<2	25	☐	25	1.000		
N037118-013B	Groundwater	<2	25	☐	25	1.000		
N037148-001B	Groundwater	<2	25	☐	25	1.000		
N037148-002B	Groundwater	<2	25	☐	25	1.000		
N037148-003B	Groundwater	<2	25	☐	25	1.000		
N037148-004B	Groundwater	<2	25	☐	25	1.000		
N037148-005B	Groundwater	<2	25	☐	25	1.000		
N037148-006B	Groundwater	<2	25	☐	25	1.000		
N037148-007B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190904C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	09/04/2019	10:18:01 PM	Fe	273.952	227	0.00	mg/L	
Standard1	09/04/2019	10:22:27 PM	Fe	273.952	642	0.0200	mg/L	
Standard2	09/04/2019	10:26:50 PM	Fe	273.952	2782	0.050	mg/L	
Standard3	09/04/2019	10:31:15 PM	Fe	273.952	69970	2.000	mg/L	
Standard4	09/04/2019	10:35:43 PM	Fe	273.952	174507	5.000	mg/L	
Standard5	09/04/2019	10:40:12 PM	Fe	273.952	262065	7.500	mg/L	
Standard6	09/04/2019	10:44:41 PM	Fe	273.952	349932	10.000	mg/L	
Standard7	09/04/2019	10:49:10 PM	Fe	273.952	702701	20.000	mg/L	1.0000

INITIAL CALIBRATION SUMMARY: 190909B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	09/09/2019	04:41:18 PM	Fe	273.953	-4	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Fe	273.953	878	0.0200	mg/L	
Standard2	09/09/2019	04:50:03 PM	Fe	273.953	3433	0.050	mg/L	
Standard3	09/09/2019	04:53:57 PM	Fe	273.953	77194	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Fe	273.953	191558	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Fe	273.953	284880	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Fe	273.953	370595	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Fe	273.953	733877	20.000	mg/L	0.9999

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503509**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9986.707	20	10000	0	99.9	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ZZZZZZ**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	16.527	20	20.00	0	82.6	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9905.213	20	10000	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9903.189	20	10000	0	99.0	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9979.845	20	10000	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9896.735	20	10000	0	99.0	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9869.618	20	10000	0	98.7	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9861.773	20	10000	0	98.6	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10145.634	20	10000	0	101	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ZZZZZZ**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.180	20	20.00	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10629.151	20	10000	0	106	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10156.018	20	10000	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10333.730	20	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10183.943	20	10000	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10484.217	20	10000	0	105	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10194.776	20	10000	0	102	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10370.201	20	10000	0	104	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10349.223	20	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10490.518	20	10000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503510**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.443695	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.057013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.070013	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.161	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.899	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.593	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.883	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.546229	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.50566	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.019549	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.082524	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.122665	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.357	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.294	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	8.310	20									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	7.814	20									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.288973	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	490975.853	50	500000	0	98.2	80	120				
Calcium	482097.695	500	500000	0	96.4	80	120				
Iron	172044.933	20	200000	0	86.0	80	120				
Magnesium	464555.890	100	500000	0	92.9	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	558087.825	50	500000	0	112	80	120				
Calcium	539864.099	500	500000	0	108	80	120				
Iron	187244.002	20	200000	0	93.6	80	120				
Magnesium	520825.447	100	500000	0	104	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	488002.179	50	500000	0	97.6	80	120				
Calcium	478001.222	500	500000	0	95.6	80	120				
Iron	170944.688	20	200000	0	85.5	80	120				
Magnesium	462500.949	100	500000	0	92.5	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555227.252	50	500000	0	111	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	535336.022	500	500000	0	107	80	120				
Iron	185764.730	20	200000	0	92.9	80	120				
Magnesium	517525.081	100	500000	0	104	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSA**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	487888.676	50	500000	0	97.6	80	120				
Calcium	478039.662	500	500000	0	95.6	80	120				
Iron	170140.522	20	200000	0	85.1	80	120				
Magnesium	460689.818	100	500000	0	92.1	80	120				

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555988.214	50	500000	0	111	80	120				
Calcium	536182.813	500	500000	0	107	80	120				
Iron	185044.175	20	200000	0	92.5	80	120				
Magnesium	516232.857	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	432172.882	50	500000	0	86.4	80	120				
Boron	32.194	100									
Calcium	451248.823	500	500000	0	90.2	80	120				
Iron	176608.945	20	200000	0	88.3	80	120				
Magnesium	422453.611	100	500000	0	84.5	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSAB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537522.587	50	500000	0	108	80	120				
Boron	1098.965	100	1000	0	110	80	120				
Calcium	540411.013	500	500000	0	108	80	120				
Iron	177524.526	20	200000	0	88.8	80	120				
Magnesium	489947.416	100	500000	0	98.0	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	438080.196	50	500000	0	87.6	80	120				
Boron	45.048	100									
Calcium	452586.666	500	500000	0	90.5	80	120				
Iron	179658.561	20	200000	0	89.8	80	120				
Magnesium	431237.860	100	500000	0	86.2	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136383
Client ID:	ICSAB	Batch ID:	R136383	TestNo:	EPA 6010B			Analysis Date:	9/9/2019	SeqNo:	3507189

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548650.224	50	500000	0	110	80	120				
Boron	1171.131	100	1000	0	117	80	120				
Calcium	543441.252	500	500000	0	109	80	120				
Iron	185348.223	20	200000	0	92.7	80	120				
Magnesium	519646.112	100	500000	0	104	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136383
Client ID:	ICSA	Batch ID:	R136383	TestNo:	EPA 6010B			Analysis Date:	9/10/2019	SeqNo:	3507209

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	439389.151	50	500000	0	87.9	80	120				
Boron	59.422	100									
Calcium	463999.151	500	500000	0	92.8	80	120				
Iron	177701.597	20	200000	0	88.9	80	120				
Magnesium	423680.292	100	500000	0	84.7	80	120				

Sample ID	ICSAB3	SampType:	ICSAB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136383
Client ID:	ICSAB	Batch ID:	R136383	TestNo:	EPA 6010B			Analysis Date:	9/10/2019	SeqNo:	3507210

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532531.801	50	500000	0	107	80	120				
Boron	1139.626	100	1000	0	114	80	120				
Calcium	552296.183	500	500000	0	110	80	120				
Iron	183598.987	20	200000	0	91.8	80	120				
Magnesium	512710.436	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

B in ICSA3 is > 1/2 RL. Non-target analyte. NS 9/17/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	469455.949	50	500000	0	93.9	80	120				
Boron	37.479	100									
Calcium	474962.568	500	500000	0	95.0	80	120				
Iron	203968.861	20	200000	0	102	80	120				
Magnesium	446658.290	100	500000	0	89.3	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSAB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	519299.378	50	500000	0	104	80	120				
Boron	1096.405	100	1000	0	110	80	120				
Calcium	511111.484	500	500000	0	102	80	120				
Iron	171943.188	20	200000	0	86.0	80	120				
Magnesium	473905.331	100	500000	0	94.8	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	473868.575	50	500000	0	94.8	80	120				
Boron	44.107	100									
Calcium	478274.388	500	500000	0	95.7	80	120				
Iron	205745.822	20	200000	0	103	80	120				
Magnesium	451472.669	100	500000	0	90.3	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSAB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	526926.600	50	500000	0	105	80	120				
Boron	1119.889	100	1000	0	112	80	120				
Calcium	516800.291	500	500000	0	103	80	120				
Iron	175059.002	20	200000	0	87.5	80	120				
Magnesium	484974.023	100	500000	0	97.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.86	65-125	PASS
Standard2	ICAL	1	1.0002	100.02	65-125	PASS
Standard3	ICAL	1	1	99.88	65-125	PASS
Standard4	ICAL	1	0.98	98.37	65-125	PASS
Standard5	ICAL	1	0.99	98.91	65-125	PASS
Standard6	ICAL	1	0.98	98.015	65-125	PASS
Standard7	ICAL	1	0.95	95.009	65-125	PASS
ICV	ICV	1	0.99	98.5	65-125	PASS
ICB	ICB	1	1	99.95	65-125	PASS
LLICV	CCV1	1	1	99.54	65-125	PASS
ICSA1	ICSA	1	0.99	99.062	65-125	PASS
ICSAB1	ICSAB	1	0.86	86.086	65-125	PASS
MB-75133	MBLK	1	1.0038	100.38	65-125	PASS
LCS-75133	LCS	1	0.94	93.57	65-125	PASS
MB-75133	MBLK	1	1	99.72	65-125	PASS
LCS-75133	LCS	1	0.94	94.44	65-125	PASS
N037118-001B	SAMP	1	1.032	103.15	65-125	PASS
N037118-001B	SAMP	5	1.0053	100.53	65-125	PASS
N037118-001B-PS	PS	1	1.035	103.51	65-125	PASS
N037118-001B-MS	MS	1	1.019	101.86	65-125	PASS
N037118-001B-MSD	MSD	1	1.024	102.45	65-125	PASS
N037118-002B	SAMP	1	1.03	102.95	65-125	PASS
CCV1	CCV	1	0.99	99.48	65-125	PASS
CCB1	CCB	1	1.0046	100.46	65-125	PASS
N037118-003B	SAMP	1	1.049	104.94	65-125	PASS
N037118-004B	SAMP	1	1.033	103.27	65-125	PASS
N037118-005B	SAMP	1	1.039	103.94	65-125	PASS
N037118-006B	SAMP	1	1.052	105.21	65-125	PASS
N037118-007B	SAMP	1	1.06	105.98	65-125	PASS
N037118-008B	SAMP	1	1.045	104.49	65-125	PASS
N037118-009B	SAMP	1	1.042	104.22	65-125	PASS
N037118-010B	SAMP	1	1.06	106.01	65-125	PASS
N037118-011B	SAMP	1	1.06	105.98	65-125	PASS
N037118-012B	SAMP	1	1.059	105.9	65-125	PASS
CCV2	CCV	1	1.004	100.4	65-125	PASS
CCB2	CCB	1	1.016	101.55	65-125	PASS
N037118-013B	SAMP	1	1.056	105.56	65-125	PASS
N037148-001B	SAMP	1	1.032	103.24	65-125	PASS
N037148-002B	SAMP	1	1.053	105.28	65-125	PASS
N037148-003B	SAMP	1	1.034	103.42	65-125	PASS

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037148-004B	SAMP	1	1.057	105.7	65-125	PASS
N037148-005B	SAMP	1	1.05	104.98	65-125	PASS
N037148-006B	SAMP	1	1.029	102.88	65-125	PASS
N037148-007B	SAMP	1	1.026	102.62	65-125	PASS
CCV3	CCV	1	0.99	98.95	65-125	PASS
CCB3	CCB	1	1	99.91	65-125	PASS
CCV4	CCV	1	1.0081	100.81	65-125	PASS
CCB4	CCB	1	1.0094	100.94	65-125	PASS
ICSA2	ICSA	1	1.017	101.72	65-125	PASS
ICSAB2	ICSAB	1	0.88	88.18	65-125	PASS
CCV5	CCV	1	1.018	101.78	65-125	PASS
CCB5	CCB	1	1.019	101.93	65-125	PASS
CCV6	CCV	1	1.014	101.38	65-125	PASS
CCB6	CCB	1	1.017	101.74	65-125	PASS
ICSA3	ICSA	1	1.022	102.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.055	65-125	PASS

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0061	100.61	65-125	PASS
Standard2	ICAL	1	1.055	105.47	65-125	PASS
Standard3	ICAL	1	1	99.67	65-125	PASS
Standard4	ICAL	1	0.98	98.43	65-125	PASS
Standard5	ICAL	1	0.99	98.73	65-125	PASS
Standard6	ICAL	1	0.98	97.76	65-125	PASS
Standard7	ICAL	1	0.97	96.52	65-125	PASS
ICV	ICV	1	0.98	98.019	65-125	PASS
ICB	ICB	1	0.99	99.21	65-125	PASS
LLICV	CCV1	1	1.0095	100.95	65-125	PASS
LLICV	CCV1	1	0.99	99.38	65-125	PASS
ICSA1	ICSA	1	1.22	121.63	65-125	PASS
ICSAB1	ICSAB	1	0.84	83.9	65-125	PASS
CCV1	CCV	1	0.92	91.61	65-125	PASS
CCV1	CCV	1	0.96	95.87	65-125	PASS
CCB1	CCB	1	1.024	102.38	65-125	PASS
CCB1	CCB	1	1	99.98	65-125	PASS
N037118-003B	SAMP	1	1.025	102.52	65-125	PASS
CCV2	CCV	1	0.99	98.54	65-125	PASS
CCB2	CCB	1	1.0023	100.23	65-125	PASS
CCV3	CCV	1	0.98	98.17	65-125	PASS
CCB3	CCB	1	1	99.99	65-125	PASS
ICSA2	ICSA	1	1.23	122.96	65-125	PASS
ICSAB2	ICSAB	1	0.85	84.59	65-125	PASS
CCV4	CCV	1	1	99.55	65-125	PASS
CCB4	CCB	1	1.012	101.25	65-125	PASS
CCV5	CCV	1	0.96	95.84	65-125	PASS
CCB5	CCB	1	0.99	98.84	65-125	PASS
ICSA3	ICSA	1	1.23	123.06	65-125	PASS
ICSAB3	ICSAB	1	0.85	85.24	65-125	PASS
CCV6	CCV	1	1.032	103.25	65-125	PASS
CCB6	CCB	1	1.019	101.93	65-125	PASS
CCB6	CCB	1	1.017	101.7	65-125	PASS
CCV7	CCV	1	1.022	102.17	65-125	PASS
CCB7	CCB	1	1.041	104.14	65-125	PASS
CCV8	CCV	1	1.031	103.07	65-125	PASS
CCB8	CCB	1	1.043	104.32	65-125	PASS
ICSA4	ICSA	1	1.3	129.92	65-125	NR!
ICSA4	ICSA	1	1.21	120.88	65-125	PASS
ICSAB4	ICSAB	1	1.071	107.1	65-125	PASS

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
ICSAB4	ICSAB	1	0.94	94.18	65-125	PASS
CCV9	CCV	1	1.02	101.96	65-125	PASS
CCB9	CCB	1	1	99.59	65-125	PASS
ICSA5	ICSA	1	1.19	119.17	65-125	PASS
ICSAB5	ICSAB	1	0.92	92.082	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037118
Test Method: EPA 6010B
Analysis Date: 9/4/2019

Matrix: Groundwater
Batch No.: 75133

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037118-001B DT 5x	Iron	Fe	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**N037118-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID:	**ZZZZZZ**	Batch ID: **75133**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/4/2019**	SeqNo: **3503520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	113.136	20	100.0	0	113	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6010B

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75132
ASSET #: N037118
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/4/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?		X			X	
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Fe in N037118-001C-PS/MS/MSD failed, low bias. However, LCS passed criteria.
Sample 3B has a higher concentration than 3C. For confirmation.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N037118-001C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.03558 * 1 *(25/25) * 1000

Iron , ug/L = 35.58

Reporting results in two significant figures,

Iron , ug/L = 36

NS 9/18/2019

% RSD SUMMARY

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	69.68	15	<PQL
Standard1	ICAL	1	Fe	0.02	9.58	15	PASS
Standard2	ICAL	1	Fe	0.05	2.28	15	PASS
Standard3	ICAL	1	Fe	2	0.19	15	PASS
Standard4	ICAL	1	Fe	5	0.1	15	PASS
Standard5	ICAL	1	Fe	7.5	0.13	15	PASS
Standard6	ICAL	1	Fe	10	0.1	15	PASS
Standard7	ICAL	1	Fe	20	0.34	15	PASS
ICV	ICV	1	Fe	9.99	0.13	15	PASS
ICB	ICB	1	Fe	-0.0024	33.24	15	<PQL
LLICV	CCV1	1	Fe	0.017	4.59	20	PASS
ICSA1	ICSA	1	Fe	172.04	0.24	15	PASS
ICSAB1	ICSAB	1	Fe	187.24	0.4	15	PASS
CCV1	CCV	1	Fe	9.91	0.18	15	PASS
CCB1	CCB	1	Fe	-0.0011	21.041	15	<PQL
CCV2	CCV	1	Fe	9.9	0.18	15	PASS
CCB2	CCB	1	Fe	-0.00007	1335.15	15	<PQL
MB-75132	MBLK	1	Fe	-0.0083	5.76	15	PASS
LCS-75132	LCS	1	Fe	0.089	0.29	15	PASS
CCV3	CCV	1	Fe	9.98	0.061	15	PASS
CCB3	CCB	1	Fe	0.00016	298.51	15	<PQL
N037118-001C	SAMP	1	Fe	0.036	0.72	15	PASS
N037118-001C	SAMP	5	Fe	0.0013	54.76	15	<PQL
N037118-001C-PS	PS	1	Fe	0.11	0.65	15	PASS
N037118-001C-MS	MS	1	Fe	0.11	0.8	15	PASS
N037118-001C-MSD	MSD	1	Fe	0.11	1.25	15	PASS
N037118-002C	SAMP	1	Fe	0.014	3.15	15	PASS
N037118-003C	SAMP	1	Fe	0.0046	2.17	15	PASS
N037118-004C	SAMP	1	Fe	0.018	3.9	15	PASS
N037118-005C	SAMP	1	Fe	0.014	1.11	15	PASS
N037118-006C	SAMP	1	Fe	0.033	2.27	15	PASS
CCV4	CCV	1	Fe	9.9	0.041	15	PASS
CCB4	CCB	1	Fe	0.0009	140.28	15	<PQL
ICSA2	ICSA	1	Fe	170.94	0.33	15	PASS
ICSAB2	ICSAB	1	Fe	185.76	0.62	15	PASS
N037118-007C	SAMP	1	Fe	0.043	4.44	15	PASS
N037118-008C	SAMP	1	Fe	0.027	4.81	15	PASS
N037118-009C	SAMP	1	Fe	0.012	5.91	15	PASS
N037118-010C	SAMP	1	Fe	0.015	3.57	15	PASS
N037118-011C	SAMP	1	Fe	0.023	1.64	15	PASS
N037118-012C	SAMP	1	Fe	0.014	5.36	15	PASS
N037118-013C	SAMP	1	Fe	0.016	3.0024	15	PASS

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037148-001C	SAMP	1	Fe	0.012	3.29	15	PASS
N037148-002C	SAMP	1	Fe	0.013	2.48	15	PASS
N037148-003C	SAMP	1	Fe	0.29	0.47	15	PASS
CCV5	CCV	1	Fe	9.87	0.053	15	PASS
CCB5	CCB	1	Fe	0.0016	68.27	15	<PQL
N037148-004C	SAMP	1	Fe	0.22	0.38	15	PASS
N037148-005C	SAMP	1	Fe	0.01	1.58	15	PASS
N037148-006C	SAMP	1	Fe	0.0037	3.35	15	PASS
N037148-007C	SAMP	1	Fe	0.01	4.16	15	PASS
CCV6	CCV	1	Fe	9.86	0.077	15	PASS
CCB6	CCB	1	Fe	0.00088	142.45	15	<PQL
ICSA3	ICSA	1	Fe	170.14	0.14	15	PASS
ICSAB3	ICSAB	1	Fe	185.04	0.84	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190904C

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

MWST-190820D,0.5<50mL
MWST-190820I
MWST-190820N,5<50mL
MWST-190820N,12.5<50mL
MWST-190820N,15<40mL
MWST-190820N,25<50mL
MWST-190820N
MWST-190820S
MWST-190820N,25<50mL
MWST-190820T/U
MSST-190708A
MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/04/2019	10:18:01 PM
2	Standard1	ICAL	1	09/04/2019	10:22:27 PM
3	Standard2	ICAL	1	09/04/2019	10:26:50 PM
4	Standard3	ICAL	1	09/04/2019	10:31:15 PM
5	Standard4	ICAL	1	09/04/2019	10:35:43 PM
6	Standard5	ICAL	1	09/04/2019	10:40:12 PM
7	Standard6	ICAL	1	09/04/2019	10:44:41 PM
8	Standard7	ICAL	1	09/04/2019	10:49:10 PM
250	ICV	ICV	1	09/04/2019	10:55:13 PM
1	ICB	ICB	1	09/04/2019	11:01:14 PM
2	LLICV	CCV1	1	09/04/2019	11:05:39 PM
9	ICSA1	ICSA	1	09/04/2019	11:10:02 PM
10	ICSAB1	ICSAB	1	09/04/2019	11:16:41 PM
71	MB-75133	MBLK	1	09/04/2019	11:22:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:27:15 PM
71	MB-75133	MBLK	1	09/04/2019	11:35:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:40:16 PM
73	N037118-001B	SAMP	1	09/04/2019	11:44:41 PM
74	N037118-001B	SAMP	5	09/04/2019	11:49:06 PM
75	N037118-001B-PS	PS	1	09/04/2019	11:53:29 PM
76	N037118-001B-MS	MS	1	09/04/2019	11:57:54 PM
77	N037118-001B-MSD	MSD	1	09/05/2019	12:02:19 AM
78	N037118-002B	SAMP	1	09/05/2019	12:06:45 AM
7	CCV1	CCV	1	09/05/2019	12:11:11 AM
1	CCB1	CCB	1	09/05/2019	12:15:39 AM
79	N037118-003B	SAMP	1	09/05/2019	12:20:03 AM
80	N037118-004B	SAMP	1	09/05/2019	12:24:29 AM
81	N037118-005B	SAMP	1	09/05/2019	12:28:55 AM

NS 9/18/2019
for CEI

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
82	N037118-006B	SAMP	1	09/05/2019	12:33:22 AM
83	N037118-007B	SAMP	1	09/05/2019	12:37:48 AM
84	N037118-008B	SAMP	1	09/05/2019	12:42:13 AM
85	N037118-009B	SAMP	1	09/05/2019	12:46:38 AM
86	N037118-010B	SAMP	1	09/05/2019	12:51:03 AM
87	N037118-011B	SAMP	1	09/05/2019	12:55:27 AM
88	N037118-012B	SAMP	1	09/05/2019	12:59:54 AM
7	CCV2	CCV	1	09/05/2019	01:04:19 AM
1	CCB2	CCB	1	09/05/2019	01:08:49 AM
89	N037118-013B	SAMP	1	09/05/2019	01:13:13 AM
90	N037148-001B	SAMP	1	09/05/2019	01:17:38 AM
91	N037148-002B	SAMP	1	09/05/2019	01:22:04 AM
92	N037148-003B	SAMP	1	09/05/2019	01:26:28 AM
93	N037148-004B	SAMP	1	09/05/2019	01:30:53 AM
94	N037148-005B	SAMP	1	09/05/2019	01:35:19 AM
95	N037148-006B	SAMP	1	09/05/2019	01:39:44 AM
96	N037148-007B	SAMP	1	09/05/2019	01:44:09 AM
97	MB-75132	MBLK	1	09/05/2019	01:48:34 AM
98	LCS-75132	LCS	1	09/05/2019	01:52:58 AM
7	CCV3	CCV	1	09/05/2019	01:57:23 AM
1	CCB3	CCB	1	09/05/2019	02:01:51 AM
99	N037118-001C	SAMP	1	09/05/2019	02:06:14 AM
100	N037118-001C	SAMP	5	09/05/2019	02:10:38 AM
101	N037118-001C-PS	PS	1	09/05/2019	02:15:02 AM
102	N037118-001C-MS	MS	1	09/05/2019	02:19:27 AM
103	N037118-001C-MSD	MSD	1	09/05/2019	02:23:52 AM
104	N037118-002C	SAMP	1	09/05/2019	02:28:18 AM
105	N037118-003C	SAMP	1	09/05/2019	02:32:43 AM
106	N037118-004C	SAMP	1	09/05/2019	02:37:08 AM
107	N037118-005C	SAMP	1	09/05/2019	02:41:34 AM
108	N037118-006C	SAMP	1	09/05/2019	02:45:58 AM
7	CCV4	CCV	1	09/05/2019	02:50:22 AM
1	CCB4	CCB	1	09/05/2019	02:54:50 AM
9	ICSA2	ICSA	1	09/05/2019	02:59:11 AM
10	ICSAB2	ICSAB	1	09/05/2019	03:05:49 AM
109	N037118-007C	SAMP	1	09/05/2019	03:11:59 AM
110	N037118-008C	SAMP	1	09/05/2019	03:16:22 AM
111	N037118-009C	SAMP	1	09/05/2019	03:20:47 AM
112	N037118-010C	SAMP	1	09/05/2019	03:25:12 AM
113	N037118-011C	SAMP	1	09/05/2019	03:29:37 AM
114	N037118-012C	SAMP	1	09/05/2019	03:34:02 AM
115	N037118-013C	SAMP	1	09/05/2019	03:38:28 AM
116	N037148-001C	SAMP	1	09/05/2019	03:42:53 AM
117	N037148-002C	SAMP	1	09/05/2019	03:47:18 AM
118	N037148-003C	SAMP	1	09/05/2019	03:51:43 AM
7	CCV5	CCV	1	09/05/2019	03:56:10 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	09/05/2019	04:00:38 AM
119	N037148-004C	SAMP	1	09/05/2019	04:05:00 AM
120	N037148-005C	SAMP	1	09/05/2019	04:09:25 AM
121	N037148-006C	SAMP	1	09/05/2019	04:13:51 AM
122	N037148-007C	SAMP	1	09/05/2019	04:18:15 AM
7	CCV6	CCV	1	09/05/2019	04:22:41 AM
1	CCB6	CCB	1	09/05/2019	04:27:09 AM
9	ICSA3	ICSA	1	09/05/2019	04:31:31 AM
10	ICSAB3	ICSAB	1	09/05/2019	04:38:08 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:27:30**
Prep End Date: **8/23/2019 4:00:00 P**
Prep Batch **75132** Prep Code: **3010_W**

Reviewed/ Date: NS 9/18/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**01-12**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75132	Aqueous		25	☐	25	1.000		
MB-75132	Aqueous		25	☐	25	1.000		
N037118-001C	Groundwater	<2	25	☐	25	1.000		
N037118-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037118-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037118-002C	Groundwater	<2	25	☐	25	1.000		
N037118-003C	Groundwater	<2	25	☐	25	1.000		
N037118-004C	Groundwater	<2	25	☐	25	1.000		
N037118-005C	Groundwater	<2	25	☐	25	1.000		
N037118-006C	Groundwater	<2	25	☐	25	1.000		
N037118-007C	Groundwater	<2	25	☐	25	1.000		
N037118-008C	Groundwater	<2	25	☐	25	1.000		
N037118-009C	Groundwater	<2	25	☐	25	1.000		
N037118-010C	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:27:30**
Prep End Date: **8/23/2019 4:00:00 P**
Prep Batch **75132** Prep Code: **3010_W**

Reviewed/ Date: NS 9/18/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**01-12**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037118-011C	Groundwater	<2	25	☐	25	1.000		
N037118-012C	Groundwater	<2	25	☐	25	1.000		
N037118-013C	Groundwater	<2	25	☐	25	1.000		
N037148-001C	Groundwater	<2	25	☐	25	1.000		
N037148-002C	Groundwater	<2	25	☐	25	1.000		
N037148-003C	Groundwater	<2	25	☐	25	1.000		
N037148-004C	Groundwater	<2	25	☐	25	1.000		
N037148-005C	Groundwater	<2	25	☐	25	1.000		
N037148-006C	Groundwater	<2	25	☐	25	1.000		
N037148-007C	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190904C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	09/04/2019	10:18:01 PM	Fe	273.952	227	0.00	mg/L	
Standard1	09/04/2019	10:22:27 PM	Fe	273.952	642	0.0200	mg/L	
Standard2	09/04/2019	10:26:50 PM	Fe	273.952	2782	0.050	mg/L	
Standard3	09/04/2019	10:31:15 PM	Fe	273.952	69970	2.000	mg/L	
Standard4	09/04/2019	10:35:43 PM	Fe	273.952	174507	5.000	mg/L	
Standard5	09/04/2019	10:40:12 PM	Fe	273.952	262065	7.500	mg/L	
Standard6	09/04/2019	10:44:41 PM	Fe	273.952	349932	10.000	mg/L	
Standard7	09/04/2019	10:49:10 PM	Fe	273.952	702701	20.000	mg/L	1.0000

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9986.707	20	10000	0	99.9	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ZZZZZZ**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	16.527	20	20.00	0	82.6	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503448**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9905.213	20	10000	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503460**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9903.189	20	10000	0	99.0	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503472**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9979.845	20	10000	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503484**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9896.735	20	10000	0	99.0	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9869.618	20	10000	0	98.7	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9861.773	20	10000	0	98.6	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.443695	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.057013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503461**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.070013	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503473**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.161	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.899	20									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.593	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.883	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	490975.853	50	500000	0	98.2	80	120				
Calcium	482097.695	500	500000	0	96.4	80	120				
Iron	172044.933	20	200000	0	86.0	80	120				
Magnesium	464555.890	100	500000	0	92.9	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	558087.825	50	500000	0	112	80	120				
Calcium	539864.099	500	500000	0	108	80	120				
Iron	187244.002	20	200000	0	93.6	80	120				
Magnesium	520825.447	100	500000	0	104	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	488002.179	50	500000	0	97.6	80	120				
Calcium	478001.222	500	500000	0	95.6	80	120				
Iron	170944.688	20	200000	0	85.5	80	120				
Magnesium	462500.949	100	500000	0	92.5	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555227.252	50	500000	0	111	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	535336.022	500	500000	0	107	80	120				
Iron	185764.730	20	200000	0	92.9	80	120				
Magnesium	517525.081	100	500000	0	104	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSA**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	487888.676	50	500000	0	97.6	80	120				
Calcium	478039.662	500	500000	0	95.6	80	120				
Iron	170140.522	20	200000	0	85.1	80	120				
Magnesium	460689.818	100	500000	0	92.1	80	120				

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503507**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555988.214	50	500000	0	111	80	120				
Calcium	536182.813	500	500000	0	107	80	120				
Iron	185044.175	20	200000	0	92.5	80	120				
Magnesium	516232.857	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.86	65-125	PASS
Standard2	ICAL	1	1.0002	100.02	65-125	PASS
Standard3	ICAL	1	1	99.88	65-125	PASS
Standard4	ICAL	1	0.98	98.37	65-125	PASS
Standard5	ICAL	1	0.99	98.91	65-125	PASS
Standard6	ICAL	1	0.98	98.015	65-125	PASS
Standard7	ICAL	1	0.95	95.009	65-125	PASS
ICV	ICV	1	0.99	98.5	65-125	PASS
ICB	ICB	1	1	99.95	65-125	PASS
LLICV	CCV1	1	1	99.54	65-125	PASS
ICSA1	ICSA	1	0.99	99.062	65-125	PASS
ICSAB1	ICSAB	1	0.86	86.086	65-125	PASS
CCV1	CCV	1	0.99	99.48	65-125	PASS
CCB1	CCB	1	1.0046	100.46	65-125	PASS
CCV2	CCV	1	1.004	100.4	65-125	PASS
CCB2	CCB	1	1.016	101.55	65-125	PASS
MB-75132	MBLK	1	0.99	99.43	65-125	PASS
LCS-75132	LCS	1	0.93	92.8	65-125	PASS
CCV3	CCV	1	0.99	98.95	65-125	PASS
CCB3	CCB	1	1	99.91	65-125	PASS
N037118-001C	SAMP	1	1.028	102.77	65-125	PASS
N037118-001C	SAMP	5	1.0021	100.21	65-125	PASS
N037118-001C-PS	PS	1	1.029	102.86	65-125	PASS
N037118-001C-MS	MS	1	1.063	106.28	65-125	PASS
N037118-001C-MSD	MSD	1	1.039	103.87	65-125	PASS
N037118-002C	SAMP	1	1.054	105.45	65-125	PASS
N037118-003C	SAMP	1	1.055	105.54	65-125	PASS
N037118-004C	SAMP	1	1.067	106.71	65-125	PASS
N037118-005C	SAMP	1	1.061	106.13	65-125	PASS
N037118-006C	SAMP	1	1.058	105.76	65-125	PASS
CCV4	CCV	1	1.0081	100.81	65-125	PASS
CCB4	CCB	1	1.0094	100.94	65-125	PASS
ICSA2	ICSA	1	1.017	101.72	65-125	PASS
ICSAB2	ICSAB	1	0.88	88.18	65-125	PASS
N037118-007C	SAMP	1	1.036	103.61	65-125	PASS
N037118-008C	SAMP	1	1.057	105.72	65-125	PASS
N037118-009C	SAMP	1	1.055	105.5	65-125	PASS
N037118-010C	SAMP	1	1.056	105.62	65-125	PASS
N037118-011C	SAMP	1	1.049	104.86	65-125	PASS
N037118-012C	SAMP	1	1.041	104.13	65-125	PASS

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037118-013C	SAMP	1	1.045	104.5	65-125	PASS
N037148-001C	SAMP	1	1.046	104.57	65-125	PASS
N037148-002C	SAMP	1	1.066	106.56	65-125	PASS
N037148-003C	SAMP	1	1.09	109.03	65-125	PASS
CCV5	CCV	1	1.018	101.78	65-125	PASS
CCB5	CCB	1	1.019	101.93	65-125	PASS
N037148-004C	SAMP	1	1.081	108.07	65-125	PASS
N037148-005C	SAMP	1	1.068	106.85	65-125	PASS
N037148-006C	SAMP	1	1.074	107.42	65-125	PASS
N037148-007C	SAMP	1	1.083	108.28	65-125	PASS
CCV6	CCV	1	1.014	101.38	65-125	PASS
CCB6	CCB	1	1.017	101.74	65-125	PASS
ICSA3	ICSA	1	1.022	102.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.055	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037118
Test Method: EPA 6010B
Analysis Date: 9/4/2019

Matrix: Groundwater
Batch No.: 75132

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037118-001C DT 5x	Iron	Fe	ug/L	0	NA	35.57993	100.00%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **N037118-001C-PS** SampType: **PS** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ZZZZZZ** Batch ID: **75132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **9/5/2019** SeqNo: **3503476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.722	20	100.0	35.58	72.1	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75129
ASSET #: N037118
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/5/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)		X			X	
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?		X			X	
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).		X			X	
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Se in CCV6 / CCV9 / CCV11 / CCV12 failed, low bias. Samples affected are for rerun.
IS of Se in CCV5/CCV7/CCV9/CCV10/CCV12/CCB12/CCV13/CCB13/ICSAB4 failed. Samples affected are for rerun.
% RSD of Se in LLICV failed. However, % Recovery passed criteria.
% Rec of Ba in N037118-001B-PS failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/6/2019

2nd Level Reviewer NS 9/6/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75129
ASSET #: N037118

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/9/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in LLICV failed. However, % Recovery passed criteria.
% RSD of Se in N037118-004B/007B/010B/013B failed, For rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/11/2019

2nd Level Reviewer NS 9/11/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75129
ASSET #: N037118

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/10/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits			X			X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Se rerun

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/12/2019

2nd Level Reviewer NS 9/12/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Barium concentration, in ug/L , in the original sample as follows:

Barium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037118-001B** , the concentration in ug/L is calculated as follows:

Barium , ug/L = 117.358 * 1 *(25 / 25)

Barium , ug/L = 117.358

Reporting results in two significant figures,

Barium , ug/L = 120

NS 9/18/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.099	15.016	15	<PQL	0.092	13.32	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	2.64	15	PASS	0.54	7.27	15	PASS
Std3-5/50 ppb	ICAL	1	4.92	1.81	15	PASS	5.025	2.14	15	PASS
Std4-10/100 ppb	ICAL	1	9.99	1.41	15	PASS	10.12	1.33	15	PASS
Std5-20/200 ppb	ICAL	1	20.14	1.66	15	PASS	19.96	1.82	15	PASS
Std6-40/400 ppb	ICAL	1	40.42	1.32	15	PASS	40.27	1.0042	15	PASS
Std7-100/1000 ppb	ICAL	1	100.23	0.7	15	PASS	101.57	1.22	15	PASS
Std8-200/2000 ppb	ICAL	1	199.79	0.37	15	PASS	199.16	1.16	15	PASS
ICV	ICV	1	9.96	1.27	15	PASS	10.19	0.24	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.0039	301.67	15	<PQL
LLICV	CCV1	1	1.041	6.83	20	PASS	1.054	2.73	20	PASS
ICSA1	ICSA	1	0.29	10.73	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.15	0.8	15	PASS	20.3	1.33	15	PASS
LLICV	CCV1	1	1.063	3	20	PASS	1.051	2.16	20	PASS
MB-75122	MBLK	1	<0.000	N/A	15	<PQL	0.0022	140.16	15	<PQL
CCV1	CCV	1	20.56	0.75	15	PASS	19.66	2.07	15	PASS
CCB1	CCB	1	0.019	32.23	15	<PQL	0.018	90.017	15	<PQL
CCV2	CCV	1	20.9	1.57	15	PASS	19.76	0.92	15	PASS
CCB2	CCB	1	0.012	33.8	15	<PQL	0.0026	261.84	15	<PQL
CCV3	CCV	1	20.75	0.94	15	PASS	19.79	1.38	15	PASS
CCB3	CCB	1	0.031	22.36	15	<PQL	0.0087	124.75	15	<PQL
CCV4	CCV	1	21.28	2.69	15	PASS	19.72	2.23	15	PASS
CCB4	CCB	1	0.012	18.96	15	<PQL	0.00073	10.067	15	PASS
ICSA2	ICSA	1	0.33	6.12	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.83	1.49	15	PASS	19.6	0.55	15	PASS
CCV5	CCV	1	21.58	1.66	15	PASS	19.29	0.78	15	PASS
CCB5	CCB	1	0.037	32.61	15	<PQL	<0.000	N/A	15	<PQL
MB-75124	MBLK	1	0.013	74.48	15	<PQL	0.0016	265.26	15	<PQL
CCV6	CCV	1	21.28	0.85	15	PASS	19.49	1.73	15	PASS
CCB6	CCB	1	0.029	29.7	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	21.28	0.8	15	PASS	19.2	0.45	15	PASS
CCB7	CCB	1	0.04	28.16	15	<PQL	0.0064	78.52	15	<PQL
CCV8	CCV	1	21.39	1.32	15	PASS	19.52	0.61	15	PASS
CCB8	CCB	1	0.02	33.99	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.31	4.43	15	PASS	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	21.8	0.63	15	PASS	19.58	1.39	15	PASS
CCV9	CCV	1	21.53	0.45	15	PASS	19.32	0.42	15	PASS
CCB9	CCB	1	0.035	16.24	15	<PQL	<0.000	N/A	15	<PQL
CCV10	CCV	1	21.58	0.42	15	PASS	19.25	1.6	15	PASS
CCB10	CCB	1	0.027	23.077	15	<PQL	0.02	15.27	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.34	2.76	15	PASS	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	22.28	0.36	15	PASS	19.51	1.1	15	PASS
MB-75129	MBLK	1	0.021	46.07	15	<PQL	0.0049	106.69	15	<PQL
LCS-75129	LCS	1	10.9	2.84	15	PASS	9.78	3.13	15	PASS
N037118-001B	SAMP	1	117.36	0.52	15	PASS	<0.000	N/A	15	<PQL
N037118-001B	SAMP	5	24.52	1.17	15	PASS	<0.000	N/A	15	<PQL
N037118-001B-PS	PS	1	122.45	0.72	15	PASS	9.33	0.27	15	PASS
N037118-001B-MS	MS	1	127.49	0.12	15	PASS	9.35	2.68	15	PASS
N037118-001B-MSD	MSD	1	127	0.56	15	PASS	9.36	0.44	15	PASS
N037118-002B	SAMP	1	120.13	0.62	15	PASS	0.022	6.78	15	PASS
N037118-003B	SAMP	1	120.13	0.22	15	PASS	0.0054	173.89	15	<PQL
N037118-004B	SAMP	1	123.29	0.49	15	PASS	0.023	26.99	15	<PQL
CCV11	CCV	1	21.94	0.85	15	PASS	19.37	1.14	15	PASS
CCB11	CCB	1	0.035	27.51	15	<PQL	0.0021	244.0003	15	<PQL
N037118-005B	SAMP	1	118.84	0.53	15	PASS	0.014	36.81	15	<PQL
N037118-006B	SAMP	1	118.75	0.5	15	PASS	0.012	84.12	15	<PQL
N037118-007B	SAMP	1	117.83	0.71	15	PASS	0.058	13.065	15	PASS
N037118-008B	SAMP	1	117.93	0.92	15	PASS	0.027	36.032	15	<PQL
N037118-009B	SAMP	1	119.17	0.14	15	PASS	0.035	39.64	15	<PQL
N037118-010B	SAMP	1	119.31	1.058	15	PASS	0.018	56.72	15	<PQL
N037118-011B	SAMP	1	156.047	0.6	15	PASS	<0.000	N/A	15	<PQL
N037118-012B	SAMP	1	43.27	0.2	15	PASS	0.62	1.77	15	PASS
N037118-013B	SAMP	1	241.0046	1.39	15	PASS	39.4	1.76	15	PASS
N037118-014B	SAMP	1	124.013	0.21	15	PASS	0.053	16.82	15	<PQL
CCV12	CCV	1	21.9	1.099	15	PASS	19.0011	0.33	15	PASS
CCB12	CCB	1	0.054	19.7	15	<PQL	<0.000	N/A	15	<PQL
N037118-015B	SAMP	1	117.43	0.55	15	PASS	0.056	24.76	15	<PQL
N037140-001A	SAMP	1	115.16	0.92	15	PASS	0.027	7.54	15	PASS
N037140-003A	SAMP	1	120.33	2.31	15	PASS	0.013	54.14	15	<PQL
N037142-001A	SAMP	1	118.27	0.37	15	PASS	0.037	10.34	15	PASS
N037143-001B	SAMP	1	90.75	0.6	15	PASS	<0.000	N/A	15	<PQL
CCV13	CCV	1	21.97	0.42	15	PASS	19.22	1.12	15	PASS
CCB13	CCB	1	0.052	5.85	15	PASS	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	0.32	3.11	15	PASS	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	22.59	0.78	15	PASS	19.47	0.38	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	6.19	15	PASS	0.12	15.24	15	NR!
Std2-0.5/5 ppb	ICAL	1	0.51	3.48	15	PASS	0.5	16.062	15	NR!
Std3-5/50 ppb	ICAL	1	5.053	1.91	15	PASS	5.13	4.23	15	PASS
Std4-10/100 ppb	ICAL	1	10.07	1.018	15	PASS	10.24	1.81	15	PASS
Std5-20/200 ppb	ICAL	1	20.055	0.19	15	PASS	20.015	0.53	15	PASS
Std6-40/400 ppb	ICAL	1	40.23	1.097	15	PASS	39.8	2.005	15	PASS
Std7-100/1000 ppb	ICAL	1	101.11	1.57	15	PASS	100.68	2.27	15	PASS
Std8-200/2000 ppb	ICAL	1	199.39	1.066	15	PASS	199.68	2.095	15	PASS
ICV	ICV	1	102.42	0.82	15	PASS	10.24	4.67	15	PASS
ICB	ICB	1	0.01	106.91	15	<PQL	0.014	45.089	15	<PQL
LLICV	CCV1	1	0.52	6.097	20	PASS	0.12	9.72	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.2	1	15	PASS	20.94	2.85	15	PASS
LLICV	CCV1	1	0.57	2.72	20	PASS	0.12	19.52	20	PASS
MB-75122	MBLK	1	<0.000	N/A	15	<PQL	0.029	22.14	15	<PQL
CCV1	CCV	1	19.86	1.51	15	PASS	20.29	1.87	15	PASS
CCB1	CCB	1	0.002	618.23	15	<PQL	0.028	16.31	15	<PQL
CCV2	CCV	1	20.4	1.28	15	PASS	20.29	0.93	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.028	76.55	15	<PQL
CCV3	CCV	1	20.44	2.28	15	PASS	20.53	2.38	15	PASS
CCB3	CCB	1	0.0076	155.28	15	<PQL	0.022	72.95	15	<PQL
CCV4	CCV	1	19.98	1.56	15	PASS	20.26	1.063	15	PASS
CCB4	CCB	1	0.0048	128.7	15	<PQL	0.038	9.64	15	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	18.79	0.14	15	PASS	21.31	1.44	15	PASS
CCV5	CCV	1	20.36	1.81	15	PASS	20.16	2.45	15	PASS
CCB5	CCB	1	0.011	132.76	15	<PQL	0.024	63.67	15	<PQL
MB-75124	MBLK	1	0.0068	213.22	15	<PQL	0.047	4.016	15	PASS
CCV6	CCV	1	20.4	1.5	15	PASS	20.69	1.36	15	PASS
CCB6	CCB	1	0.03	28.93	15	<PQL	0.03	18.42	15	<PQL
CCV7	CCV	1	20.18	1.29	15	PASS	20.084	2.35	15	PASS
CCB7	CCB	1	0.024	58.95	15	<PQL	0.049	32.53	15	<PQL
CCV8	CCV	1	20.55	0.81	15	PASS	19.81	1.56	15	PASS
CCB8	CCB	1	0.15	17.55	15	<PQL	0.025	29.62	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.43	2.25	15	PASS	21.065	2.16	15	PASS
CCV9	CCV	1	20.56	2.51	15	PASS	19.88	2.21	15	PASS
CCB9	CCB	1	0.12	18.99	15	<PQL	0.017	41.43	15	<PQL
CCV10	CCV	1	20.24	1.19	15	PASS	19.78	1.58	15	PASS
CCB10	CCB	1	0.039	45.94	15	<PQL	0.046	41.52	15	<PQL

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.18	1.52	15	PASS	20.69	0.96	15	PASS
MB-75129	MBLK	1	0.059	38.82	15	<PQL	0.011	81.22	15	<PQL
LCS-75129	LCS	1	101.1	2.35	15	PASS	10.27	3.59	15	PASS
N037118-001B	SAMP	1	<0.000	N/A	15	<PQL	2.36	4.24	15	PASS
N037118-001B	SAMP	5	<0.000	N/A	15	<PQL	0.45	8.64	15	PASS
N037118-001B-PS	PS	1	95.67	1.29	15	PASS	12.23	2.44	15	PASS
N037118-001B-MS	MS	1	97.86	0.7	15	PASS	12.31	1.52	15	PASS
N037118-001B-MSD	MSD	1	96.81	0.92	15	PASS	12.55	0.57	15	PASS
N037118-002B	SAMP	1	<0.000	N/A	15	<PQL	2.37	1.51	15	PASS
N037118-003B	SAMP	1	<0.000	N/A	15	<PQL	2.34	5.99	15	PASS
N037118-004B	SAMP	1	<0.000	N/A	15	<PQL	2.4	4.23	15	PASS
CCV11	CCV	1	20.29	0.24	15	PASS	19.86	0.81	15	PASS
CCB11	CCB	1	0.025	66.44	15	<PQL	0.017	75.16	15	<PQL
N037118-005B	SAMP	1	<0.000	N/A	15	<PQL	2.36	5.6	15	PASS
N037118-006B	SAMP	1	<0.000	N/A	15	<PQL	2.31	2.79	15	PASS
N037118-007B	SAMP	1	<0.000	N/A	15	<PQL	2.28	3.89	15	PASS
N037118-008B	SAMP	1	<0.000	N/A	15	<PQL	2.33	4.94	15	PASS
N037118-009B	SAMP	1	<0.000	N/A	15	<PQL	2.25	1.62	15	PASS
N037118-010B	SAMP	1	<0.000	N/A	15	<PQL	2.45	4.77	15	PASS
N037118-011B	SAMP	1	2227.74	0.25	15	PASS	0.37	4.032	15	PASS
N037118-012B	SAMP	1	3.8	9.08	15	PASS	17.9	0.9	15	PASS
N037118-013B	SAMP	1	449.17	0.96	15	PASS	2.96	2.47	15	PASS
N037118-014B	SAMP	1	<0.000	N/A	15	<PQL	2.4	4.18	15	PASS
CCV12	CCV	1	19.94	1.52	15	PASS	19.93	2.37	15	PASS
CCB12	CCB	1	0.022	15.2	15	<PQL	0.034	30.012	15	<PQL
N037118-015B	SAMP	1	<0.000	N/A	15	<PQL	2.32	4.39	15	PASS
N037140-001A	SAMP	1	<0.000	N/A	15	<PQL	2.15	1.86	15	PASS
N037140-003A	SAMP	1	6.94	1.81	15	PASS	2.47	4.13	15	PASS
N037142-001A	SAMP	1	2.17	5.92	15	PASS	2.24	6.12	15	PASS
N037143-001B	SAMP	1	599.74	0.43	15	PASS	0.8	2.8	15	PASS
CCV13	CCV	1	20.11	1.85	15	PASS	20.0029	0.85	15	PASS
CCB13	CCB	1	0.04	52.54	15	<PQL	0.032	15.85	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	19.45	1.84	15	PASS	20.64	2.42	15	PASS

PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.17	94.21	15	<PQL	0.12	17.81	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.42	26.27	15	<PQL	0.47	4.97	15	PASS
Std3-5/50 ppb	ICAL	1	4.73	5.28	15	PASS	4.94	3.11	15	PASS
Std4-10/100 ppb	ICAL	1	9.49	10.34	15	PASS	9.88	3.14	15	PASS
Std5-20/200 ppb	ICAL	1	18.25	7.93	15	PASS	19.87	1.55	15	PASS
Std6-40/400 ppb	ICAL	1	41.036	7.42	15	PASS	39.95	0.15	15	PASS
Std7-100/1000 ppb	ICAL	1	98.39	1.37	15	PASS	99.46	0.16	15	PASS
Std8-200/2000 ppb	ICAL	1	188.53	2.75	15	PASS	200.3	0.25	15	PASS
ICV	ICV	1	9.97	7.008	15	PASS	9.89	0.59	15	PASS
ICB	ICB	1	0.037	99.91	15	<PQL	0.058	18.84	15	<PQL
LLICV	CCV1	1	0.59	59.063	20	FAIL NR!	0.55	7.88	20	PASS
ICSA1	ICSA	1	0	N/A	15	<PQL	0.03	34.3	15	<PQL
ICSAB1	ICSAB	1	19.83	2.73	15	PASS	21.77	0.91	15	PASS
LLICV	CCV1	1	0.48	61.071	20	<PQL	0.63	8.21	20	PASS
MB-75122	MBLK	1	0.011	173.21	15	<PQL	0.02	34.026	15	<PQL
CCV1	CCV	1	20.23	3.89	15	PASS	20.51	0.97	15	PASS
CCB1	CCB	1	0.037	99.49	15	<PQL	0.14	9.74	15	PASS
CCV2	CCV	1	18.73	2.58	15	PASS	20.42	0.55	15	PASS
CCB2	CCB	1	0.089	21.11	15	<PQL	0.1	11.38	15	PASS
CCV3	CCV	1	19.73	1.63	15	PASS	20.38	0.95	15	PASS
CCB3	CCB	1	0.024	173.21	15	<PQL	0.11	14.2	15	PASS
CCV4	CCV	1	19.23	1.66	15	PASS	20.15	0.86	15	PASS
CCB4	CCB	1	0.044	114.64	15	<PQL	0.12	20.98	15	<PQL
ICSA2	ICSA	1	0	N/A	15	<PQL	0.042	31.99	15	<PQL
ICSAB2	ICSAB	1	20.27	3.74	15	PASS	21.94	1.82	15	PASS
CCV5	CCV	1	18.84	3.64	15	PASS	20.29	1.74	15	PASS
CCB5	CCB	1	0.054	91.077	15	<PQL	0.12	15.91	15	<PQL
MB-75124	MBLK	1	0.022	173.21	15	<PQL	0.036	9.37	15	PASS
CCV6	CCV	1	17.68	5.65	15	PASS	20.22	1.043	15	PASS
CCB6	CCB	1	0	N/A	15	<PQL	0.11	13.8	15	PASS
CCV7	CCV	1	18.59	5.46	15	PASS	20.42	1.011	15	PASS
CCB7	CCB	1	0.021	173.21	15	<PQL	0.17	7.45	15	PASS
CCV8	CCV	1	18.84	1.52	15	PASS	20.2	1.027	15	PASS
CCB8	CCB	1	0.011	173.21	15	<PQL	0.13	12.98	15	PASS
ICSA3	ICSA	1	0.023	173.21	15	<PQL	0.052	9.25	15	PASS
ICSAB3	ICSAB	1	18.81	0.32	15	PASS	22.27	0.75	15	PASS
CCV9	CCV	1	16.41	4.36	15	PASS	20.14	0.3	15	PASS
CCB9	CCB	1	0	N/A	15	<PQL	0.17	8.26	15	PASS
CCV10	CCV	1	18.18	5.8	15	PASS	20.4	1.0038	15	PASS
CCB10	CCB	1	0.042	86.61	15	<PQL	0.15	14.99	15	PASS

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PERCENT RSD SUMMARY: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.096	59.44	15	<PQL	0.073	18.33	15	<PQL
ICSAB4	ICSAB	1	18.14	7.61	15	PASS	22.39	1.21	15	PASS
MB-75129	MBLK	1	0	N/A	15	<PQL	0.0063	115.71	15	<PQL
LCS-75129	LCS	1	9.17	3.67	15	PASS	10.17	1.37	15	PASS
N037118-001B	SAMP	1	1.52	1.58	15	PASS	4.48	2.57	15	PASS
N037118-001B	SAMP	5	0.32	78.55	15	<PQL	0.89	1.55	15	PASS
N037118-001B-PS	PS	1	10.32	2.83	15	PASS	14.91	1.38	15	PASS
N037118-001B-MS	MS	1	11.69	6.026	15	PASS	15.5	1.033	15	PASS
N037118-001B-MSD	MSD	1	9.91	4.42	15	PASS	15.27	0.21	15	PASS
N037118-002B	SAMP	1	1.64	21.98	15	NR!	4.55	3.53	15	PASS
N037118-003B	SAMP	1	1.39	16.52	15	NR!	4.6	1.82	15	PASS
N037118-004B	SAMP	1	1.49	6.87	15	PASS	4.65	1.97	15	PASS
CCV11	CCV	1	17.83	1.58	15	PASS	20.069	1.72	15	PASS
CCB11	CCB	1	0	N/A	15	<PQL	0.13	10.021	15	PASS
N037118-005B	SAMP	1	1.16	11.14	15	PASS	4.47	3.29	15	PASS
N037118-006B	SAMP	1	1.46	15.3	15	NR!	4.52	4.71	15	PASS
N037118-007B	SAMP	1	1.4	2.069	15	PASS	4.45	4.68	15	PASS
N037118-008B	SAMP	1	1.18	23.58	15	NR!	4.53	1.23	15	PASS
N037118-009B	SAMP	1	1.24	6.16	15	PASS	4.41	2.00085	15	PASS
N037118-010B	SAMP	1	1.27	20.14	15	NR!	4.61	3.85	15	PASS
N037118-011B	SAMP	1	0.29	75.17	15	<PQL	35.0064	0.6	15	PASS
N037118-012B	SAMP	1	0.81	6.095	15	PASS	33.42	0.92	15	PASS
N037118-013B	SAMP	1	1.0077	9.63	15	PASS	74.38	0.4	15	PASS
N037118-014B	SAMP	1	1.33	19.085	15	NR!	4.83	3.35	15	PASS
CCV12	CCV	1	17.29	5.88	15	PASS	20.29	2.16	15	PASS
CCB12	CCB	1	0.02	173.21	15	<PQL	0.14	8.38	15	PASS
N037118-015B	SAMP	1	1.35	16.52	15	NR!	4.43	3.83	15	PASS
N037140-001A	SAMP	1	1.26	23.75	15	NR!	4.4	4.63	15	PASS
N037140-003A	SAMP	1	1.43	1.16	15	PASS	4.81	1.95	15	PASS
N037142-001A	SAMP	1	1.096	10.77	15	PASS	4.53	2.32	15	PASS
N037143-001B	SAMP	1	0.32	7.5	15	PASS	24.092	1.42	15	PASS
CCV13	CCV	1	18.44	0.67	15	PASS	20.11	0.63	15	PASS
CCB13	CCB	1	0	N/A	15	<PQL	0.12	8.67	15	PASS
ICSA5	ICSA	1	0.11	128.079	15	<PQL	0.053	16.85	15	<PQL
ICSAB5	ICSAB	1	18.36	4.6	15	PASS	22.28	2.012	15	PASS

PERCENT RSD SUMMARY: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.23	35.19	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	11.31	15	PASS
Std3-5/50 ppb	ICAL	1	4.85	15.46	15	NR!
Std4-10/100 ppb	ICAL	1	9.47	6.47	15	PASS
Std5-20/200 ppb	ICAL	1	20.89	10.18	15	PASS
Std6-40/400 ppb	ICAL	1	38.39	2.86	15	PASS
Std7-100/1000 ppb	ICAL	1	97.043	2.94	15	PASS
Std8-200/2000 ppb	ICAL	1	201.74	1.085	15	PASS
ICV	ICV	1	10.52	10.23	15	PASS
ICB	ICB	1	0.14	21.28	15	<PQL
LLICV	CCV1	1	0.62	37.83	20	NR!
ICSA1	ICSA	1	0.032	173.21	15	<PQL
ICSAB1	ICSAB	1	19.41	4.39	15	PASS
LLICV	CCV1	1	0.59	58.98	20	~~NR!~~ FAIL
MB-75129	MBLK	1	0.029	173.21	15	<PQL
LCS-75129	LCS	1	9.88	8.29	15	PASS
N037118-001B	SAMP	1	1.49	3.89	15	PASS
N037118-001B	SAMP	5	0.52	40.73	15	NR!
N037118-001B-PS	PS	1	11.09	4.18	15	PASS
N037118-001B-MS	MS	1	11.14	13.072	15	PASS
N037118-001B-MSD	MSD	1	11.0019	4.72	15	PASS
N037118-002B	SAMP	1	1.35	7.97	15	PASS
N037118-003B	SAMP	1	1.42	29.11	15	NR!
N037118-004B	SAMP	1	1.62	20.44	15	NR!
CCV1	CCV	1	19.68	7.79	15	PASS
CCB1	CCB	1	0.032	173.21	15	<PQL
N037118-005B	SAMP	1	1.66	10.21	15	PASS
N037118-006B	SAMP	1	1.69	12.8	15	PASS
N037118-007B	SAMP	1	1.6	34.2	15	NR!
N037118-008B	SAMP	1	1.57	29.5	15	NR!
N037118-009B	SAMP	1	1.26	5.93	15	PASS
N037118-010B	SAMP	1	1.3	36.27	15	NR!
N037118-011B	SAMP	1	1.51	18.3	15	NR!
N037118-012B	SAMP	1	1.45	33.27	15	NR!
N037118-013B	SAMP	1	1.79	16.73	15	NR!
N037118-003B	SAMP	1	1.29	13.91	15	PASS
CCV2	CCV	1	19.59	4.6	15	PASS
CCB2	CCB	1	0.088	90.48	15	<PQL
N037118-004B	SAMP	1	1.79	29.51	15	NR!
N037118-007B	SAMP	1	1.63	36.61	15	NR!

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PERCENT RSD SUMMARY: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
N037118-008B	SAMP	1	1.49	6.25	15	PASS
N037118-010B	SAMP	1	1.56	18.29	15	NR!
N037118-011B	SAMP	1	1.86	4.028	15	PASS
N037118-012B	SAMP	1	1.59	33.26	15	NR!
N037118-013B	SAMP	1	1.72	25.077	15	NR!
N037118-004B	SAMP	1	1.52	27.51	15	NR!
N037118-007B	SAMP	1	1.4	26.84	15	NR!
N037118-010B	SAMP	1	1.58	21.08	15	NR!
CCV3	CCV	1	20.8	9.071	15	PASS
CCB3	CCB	1	0.093	91.11	15	<PQL
N037118-012B	SAMP	1	1.73	12.32	15	PASS
N037118-013B	SAMP	1	1.37	18.81	15	NR!
N037118-004B	SAMP	1	1.41	23.38	15	NR!
N037118-007B	SAMP	1	1.72	25.47	15	NR!
N037118-010B	SAMP	1	1.43	35.64	15	NR!
N037118-013B	SAMP	1	1.41	32.33	15	NR!
CCV4	CCV	1	20.12	4.46	15	PASS
CCB4	CCB	1	0.058	1.87	15	PASS
N037118-004B	SAMP	1	1.75	27.43	15	NR!
N037118-007B	SAMP	1	1.62	17.8	15	NR!
N037118-010B	SAMP	1	1.64	17.24	15	NR!
N037118-013B	SAMP	1	1.52	17.33	15	NR!
CCV5	CCV	1	20.92	4.46	15	PASS
CCB5	CCB	1	0	N/A	15	<PQL
ICSA2	ICSA	1	0.043	173.21	15	<PQL
ICSAB2	ICSAB	1	23.19	1.7	15	PASS
CCV6	CCV	1	21.68	6.26	15	PASS
CCB6	CCB	1	0.037	173.21	15	<PQL
CCV7	CCV	1	20.19	5.46	15	PASS
CCB7	CCB	1	0.058	99.97	15	<PQL
CCV8	CCV	1	20.2	4.3	15	PASS
CCB8	CCB	1	0.045	86.62	15	<PQL
ICSA3	ICSA	1	0.11	35.082	15	<PQL
ICSAB3	ICSAB	1	23.92	3.006	15	PASS
CCV9	CCV	1	22.0067	4.85	15	PASS
CCB9	CCB	1	0.043	173.21	15	<PQL
CCV10	CCV	1	19.42	5.41	15	PASS
CCB10	CCB	1	0.076	86.61	15	<PQL
ICSA4	ICSA	1	0	N/A	15	<PQL
ICSAB4	ICSAB	1	21.93	1.32	15	PASS

PERCENT RSD SUMMARY: 190910A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.17	58.023	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	52.44	15	<PQL
Std3-5/50 ppb	ICAL	1	6.16	1.15	15	PASS
Std4-10/100 ppb	ICAL	1	10.086	6.63	15	PASS
Std5-20/200 ppb	ICAL	1	21.36	3.67	15	PASS
Std6-40/400 ppb	ICAL	1	40.29	10.46	15	PASS
Std7-100/1000 ppb	ICAL	1	99.54	0.54	15	PASS
Std8-200/2000 ppb	ICAL	1	199.19	2.41	15	PASS
ICV	ICV	1	10.34	7.54	15	PASS
ICB	ICB	1	0.048	173.21	15	<PQL
LLICV	CCV1	1	0.49	42.8	20	<PQL
ICSA1	ICSA	1	0.043	173.21	15	<PQL
ICSAB1	ICSAB	1	18.56	3.12	15	PASS
LLICV	CCV1	1	0.62	36.76	20	NR!
N037118-004B	SAMP	1	1.66	14.66	15	PASS
N037118-007B	SAMP	1	1.55	6.63	15	PASS
N037118-010B	SAMP	1	0.87	5.71	15	PASS
N037118-013B	SAMP	1	1.21	10.41	15	PASS
CCV1	CCV	1	19.6	3.66	15	PASS
CCB1	CCB	1	0.095	173.21	15	<PQL
CCV2	CCV	1	19.19	9.63	15	PASS
CCB2	CCB	1	0	N/A	15	<PQL
ICSA2	ICSA	1	0	N/A	15	<PQL
ICSAB2	ICSAB	1	18.81	1.42	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905001.D	RINSE	RINSE	1	09/05/19 3:41 PM
C0905002.D	Cal Blank	IBLK	1	09/05/19 3:46 PM
C0905003.D	Std1-0.1/1 ppb	ICAL	1	09/05/19 3:51 PM
C0905004.D	Std2-0.5/5 ppb	ICAL	1	09/05/19 3:55 PM
C0905005.D	Std3-5/50 ppb	ICAL	1	09/05/19 4:00 PM
C0905006.D	Std4-10/100 ppb	ICAL	1	09/05/19 4:04 PM
C0905007.D	Std5-20/200 ppb	ICAL	1	09/05/19 4:09 PM
C0905008.D	Std6-40/400 ppb	ICAL	1	09/05/19 4:14 PM
C0905009.D	Std7-100/1000 ppb	ICAL	1	09/05/19 4:19 PM
C0905010.D	Std8-200/2000 ppb	ICAL	1	09/05/19 4:24 PM
C0905011.D	ICV	ICV	1	09/05/19 4:31 PM
C0905012.D	ICB	ICB	1	09/05/19 4:36 PM
C0905013.D	LLICV	CCV1	1	09/05/19 4:41 PM
C0905014.D	ICSA1	ICSA	1	09/05/19 4:46 PM
C0905015.D	ICSAB1	ICSAB	1	09/05/19 4:51 PM
C0905016.D	LLICV	CCV1	1	09/05/19 4:55 PM
C0905017.D	MB-75122	MBLK	1	09/05/19 5:03 PM
C0905018.D	LCS-75122	LCS	1	09/05/19 5:08 PM
C0905019.D	N037066-001D	SAMP	1	09/05/19 5:12 PM
C0905020.D	N037066-001D	SAMP	5	09/05/19 5:18 PM
C0905021.D	N037066-001D	SAMP	25	09/05/19 5:23 PM
C0905022.D	N037066-001D-PS	PS	1	09/05/19 5:28 PM
C0905023.D	N037066-001D-PS	PS	5	09/05/19 5:33 PM
C0905024.D	N037066-001D-MS	MS	1	09/05/19 5:38 PM
C0905025.D	N037066-001D-MS	MS	5	09/05/19 5:43 PM
C0905026.D	N037066-001D-MSD	MSD	1	09/05/19 5:48 PM
C0905027.D	CCV1	CCV	1	09/05/19 5:53 PM
C0905028.D	CCB1	CCB	1	09/05/19 5:58 PM
C0905029.D	N037066-001D-MSD	MSD	5	09/05/19 6:02 PM
C0905030.D	N037066-002D	SAMP	1	09/05/19 6:07 PM
C0905031.D	N037066-002D	SAMP	5	09/05/19 6:12 PM
C0905032.D	N037067-001F	SAMP	1	09/05/19 6:17 PM
C0905033.D	N037067-001F	SAMP	5	09/05/19 6:22 PM
C0905034.D	N037067-002F	SAMP	1	09/05/19 6:27 PM
C0905035.D	N037067-002F	SAMP	5	09/05/19 6:32 PM
C0905036.D	N037104-001A	SAMP	1	09/05/19 6:37 PM
C0905037.D	N037105-001B	SAMP	1	09/05/19 6:42 PM
C0905038.D	N037107-001D	SAMP	1	09/05/19 6:47 PM
C0905039.D	CCV2	CCV	1	09/05/19 6:52 PM
C0905040.D	CCB2	CCB	1	09/05/19 6:57 PM
C0905041.D	N037107-001D	SAMP	5	09/05/19 7:02 PM
C0905042.D	N037107-002D	SAMP	1	09/05/19 7:07 PM

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905043.D	N037107-002D	SAMP	5	09/05/19 7:12 PM
C0905044.D	N037107-003D	SAMP	1	09/05/19 7:19 PM
C0905045.D	N037107-003D	SAMP	5	09/05/19 7:24 PM
C0905046.D	N037107-004D	SAMP	1	09/05/19 7:29 PM
C0905047.D	N037107-004D	SAMP	5	09/05/19 7:34 PM
C0905048.D	N037107-005D	SAMP	1	09/05/19 7:39 PM
C0905049.D	N037107-005D	SAMP	5	09/05/19 7:44 PM
C0905050.D	N037107-006D	SAMP	1	09/05/19 7:49 PM
C0905051.D	CCV3	CCV	1	09/05/19 7:54 PM
C0905052.D	CCB3	CCB	1	09/05/19 7:59 PM
C0905053.D	N037107-006D	SAMP	5	09/05/19 8:03 PM
C0905054.D	N037107-007D	SAMP	1	09/05/19 8:08 PM
C0905055.D	N037107-007D	SAMP	5	09/05/19 8:13 PM
C0905056.D	N037107-008D	SAMP	1	09/05/19 8:19 PM
C0905057.D	N037107-008D	SAMP	5	09/05/19 8:24 PM
C0905058.D	N037066-001D	SAMP	1	09/05/19 8:29 PM
C0905059.D	N037067-001F	SAMP	1	09/05/19 8:34 PM
C0905060.D	N037067-002F	SAMP	1	09/05/19 8:39 PM
C0905061.D	N037067-002F	SAMP	25	09/05/19 8:44 PM
C0905062.D	N037105-001B	SAMP	5	09/05/19 8:48 PM
C0905063.D	CCV4	CCV	1	09/05/19 8:53 PM
C0905064.D	CCB4	CCB	1	09/05/19 8:58 PM
C0905065.D	ICSA2	ICSA	1	09/05/19 9:03 PM
C0905066.D	ICSAB2	ICSAB	1	09/05/19 9:08 PM
C0905067.D	N037113-001A	SAMP	1	09/05/19 9:12 PM
C0905068.D	N037113-001A	SAMP	5	09/05/19 9:18 PM
C0905069.D	N037115-001A	SAMP	1	09/05/19 9:22 PM
C0905070.D	N037115-001A	SAMP	5	09/05/19 9:27 PM
C0905071.D	N037107-002D	SAMP	1	09/05/19 9:32 PM
C0905072.D	N037107-003D	SAMP	1	09/05/19 9:37 PM
C0905073.D	N037107-006D	SAMP	1	09/05/19 9:42 PM
C0905074.D	N037107-007D	SAMP	1	09/05/19 9:47 PM
C0905075.D	CCV5	CCV	1	09/05/19 9:52 PM
C0905076.D	CCB5	CCB	1	09/05/19 9:57 PM
C0905077.D	MB-75124	MBLK	1	09/05/19 10:02 PM
C0905078.D	LCS-75124	LCS	1	09/05/19 10:07 PM
C0905079.D	N037067-001E	SAMP	1	09/05/19 10:12 PM
C0905080.D	N037067-001E	SAMP	5	09/05/19 10:17 PM
C0905081.D	N037067-001E	SAMP	25	09/05/19 10:22 PM
C0905082.D	N037067-001E-PS	PS	1	09/05/19 10:27 PM
C0905083.D	N037067-001E-PS	PS	5	09/05/19 10:32 PM
C0905084.D	N037067-001E-MS	MS	1	09/05/19 10:37 PM

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905085.D	N037067-001E-MS	MS	5	09/05/19 10:42 PM
C0905086.D	N037067-001E-MSD	MSD	1	09/05/19 10:47 PM
C0905087.D	CCV6	CCV	1	09/05/19 10:52 PM
C0905088.D	CCB6	CCB	1	09/05/19 10:57 PM
C0905089.D	N037067-001E-MSD	MSD	5	09/05/19 11:02 PM
C0905090.D	N037067-002E	SAMP	1	09/05/19 11:07 PM
C0905091.D	N037067-002E	SAMP	5	09/05/19 11:13 PM
C0905092.D	N037107-001E	SAMP	1	09/05/19 11:18 PM
C0905093.D	N037107-001E	SAMP	5	09/05/19 11:22 PM
C0905094.D	N037107-002E	SAMP	1	09/05/19 11:28 PM
C0905095.D	N037107-002E	SAMP	5	09/05/19 11:33 PM
C0905096.D	N037107-003E	SAMP	1	09/05/19 11:38 PM
C0905097.D	N037107-003E	SAMP	5	09/05/19 11:43 PM
C0905098.D	N037107-004E	SAMP	1	09/05/19 11:48 PM
C0905099.D	CCV7	CCV	1	09/05/19 11:53 PM
C0905100.D	CCB7	CCB	1	09/05/19 11:58 PM
C0905101.D	N037107-004E	SAMP	5	09/06/19 12:03 AM
C0905102.D	N037107-005E	SAMP	1	09/06/19 12:08 AM
C0905103.D	N037107-005E	SAMP	5	09/06/19 12:13 AM
C0905104.D	N037107-006E	SAMP	1	09/06/19 12:17 AM
C0905105.D	N037107-006E	SAMP	5	09/06/19 12:22 AM
C0905106.D	N037107-007E	SAMP	1	09/06/19 12:27 AM
C0905107.D	N037107-007E	SAMP	5	09/06/19 12:33 AM
C0905108.D	N037107-008E	SAMP	1	09/06/19 12:38 AM
C0905109.D	N037107-008E	SAMP	5	09/06/19 12:43 AM
C0905110.D	N037117-001E	SAMP	1	09/06/19 12:48 AM
C0905111.D	CCV8	CCV	1	09/06/19 12:53 AM
C0905112.D	CCB8	CCB	1	09/06/19 12:58 AM
C0905113.D	ICSA3	ICSA	1	09/06/19 1:03 AM
C0905114.D	ICSAB3	ICSAB	1	09/06/19 1:07 AM
C0905115.D	N037117-001E	SAMP	5	09/06/19 1:12 AM
C0905116.D	N037117-002E	SAMP	1	09/06/19 1:17 AM
C0905117.D	N037117-002E	SAMP	5	09/06/19 1:22 AM
C0905118.D	N037117-003E	SAMP	1	09/06/19 1:27 AM
C0905119.D	N037117-003E	SAMP	5	09/06/19 1:32 AM
C0905120.D	N037117-004E	SAMP	1	09/06/19 1:37 AM
C0905121.D	N037117-004E	SAMP	5	09/06/19 1:42 AM
C0905122.D	N037117-005E	SAMP	1	09/06/19 1:47 AM
C0905123.D	N037117-005E	SAMP	5	09/06/19 1:52 AM
C0905124.D	N037117-008E	SAMP	1	09/06/19 1:57 AM
C0905125.D	CCV9	CCV	1	09/06/19 2:02 AM
C0905126.D	CCB9	CCB	1	09/06/19 2:07 AM

INJECTION LOG: 190905C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C0905127.D	N037117-008E	SAMP	5	09/06/19 2:12 AM
C0905128.D	N037147-001E	SAMP	1	09/06/19 2:17 AM
C0905129.D	N037147-001E	SAMP	5	09/06/19 2:22 AM
C0905130.D	N037147-002E	SAMP	1	09/06/19 2:27 AM
C0905131.D	N037147-002E	SAMP	5	09/06/19 2:32 AM
C0905132.D	CCV10	CCV	1	09/06/19 2:37 AM
C0905133.D	CCB10	CCB	1	09/06/19 2:43 AM
C0905134.D	ICSA4	ICSA	1	09/06/19 2:48 AM
C0905135.D	ICSAB4	ICSAB	1	09/06/19 2:52 AM
C0905136.D	MB-75129	MBLK	1	09/06/19 2:58 AM
C0905137.D	LCS-75129	LCS	1	09/06/19 3:03 AM
C0905138.D	N037118-001B	SAMP	1	09/06/19 3:08 AM
C0905139.D	N037118-001B	SAMP	5	09/06/19 3:13 AM
C0905140.D	N037118-001B-PS	PS	1	09/06/19 3:18 AM
C0905141.D	N037118-001B-MS	MS	1	09/06/19 3:23 AM
C0905142.D	N037118-001B-MSD	MSD	1	09/06/19 3:28 AM
C0905143.D	N037118-002B	SAMP	1	09/06/19 3:33 AM
C0905144.D	N037118-003B	SAMP	1	09/06/19 3:39 AM
C0905145.D	N037118-004B	SAMP	1	09/06/19 3:44 AM
C0905146.D	CCV11	CCV	1	09/06/19 3:49 AM
C0905147.D	CCB11	CCB	1	09/06/19 3:54 AM
C0905148.D	N037118-005B	SAMP	1	09/06/19 3:59 AM
C0905149.D	N037118-006B	SAMP	1	09/06/19 4:04 AM
C0905150.D	N037118-007B	SAMP	1	09/06/19 4:09 AM
C0905151.D	N037118-008B	SAMP	1	09/06/19 4:14 AM
C0905152.D	N037118-009B	SAMP	1	09/06/19 4:19 AM
C0905153.D	N037118-010B	SAMP	1	09/06/19 4:24 AM
C0905154.D	N037118-011B	SAMP	1	09/06/19 4:29 AM
C0905155.D	N037118-012B	SAMP	1	09/06/19 4:34 AM
C0905156.D	N037118-013B	SAMP	1	09/06/19 4:39 AM
C0905157.D	N037118-014B	SAMP	1	09/06/19 4:44 AM
C0905158.D	CCV12	CCV	1	09/06/19 4:49 AM
C0905159.D	CCB12	CCB	1	09/06/19 4:54 AM
C0905160.D	N037118-015B	SAMP	1	09/06/19 4:59 AM
C0905161.D	N037140-001A	SAMP	1	09/06/19 5:04 AM
C0905162.D	N037140-003A	SAMP	1	09/06/19 5:09 AM
C0905163.D	N037142-001A	SAMP	1	09/06/19 5:14 AM
C0905164.D	N037143-001B	SAMP	1	09/06/19 5:19 AM
C0905165.D	CCV13	CCV	1	09/06/19 5:24 AM
C0905166.D	CCB13	CCB	1	09/06/19 5:29 AM
C0905167.D	ICSA5	ICSA	1	09/06/19 5:34 AM
C0905168.D	ICSAB5	ICSAB	1	09/06/19 5:39 AM

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909001.D	RINSE	RINSE	1	09/09/19 2:22 PM
A0909002.D	Cal Blank	IBLK	1	09/09/19 2:27 PM
A0909003.D	Std1-0.1/1 ppb	ICAL	1	09/09/19 2:32 PM
A0909004.D	Std2-0.5/5 ppb	ICAL	1	09/09/19 2:37 PM
A0909005.D	Std3-5/50 ppb	ICAL	1	09/09/19 2:42 PM
A0909006.D	Std4-10/100 ppb	ICAL	1	09/09/19 2:46 PM
A0909007.D	Std5-20/200 ppb	ICAL	1	09/09/19 2:52 PM
A0909008.D	Std6-40/400 ppb	ICAL	1	09/09/19 2:57 PM
A0909009.D	Std7-100/1000 ppb	ICAL	1	09/09/19 3:02 PM
A0909010.D	Std8-200/2000 ppb	ICAL	1	09/09/19 3:07 PM
A0909011.D	ICV	ICV	1	09/09/19 3:24 PM
A0909012.D	ICB	ICB	1	09/09/19 3:29 PM
A0909013.D	LLICV	CCV1	1	09/09/19 3:34 PM
A0909014.D	ICSA1	ICSA	1	09/09/19 3:39 PM
A0909015.D	ICSAB1	ICSAB	1	09/09/19 3:43 PM
A0909016.D	LLICV	CCV1	1	09/09/19 3:50 PM
A0909017.D	MB-75129	MBLK	1	09/09/19 3:55 PM
A0909018.D	LCS-75129	LCS	1	09/09/19 4:00 PM
A0909019.D	N037118-001B	SAMP	1	09/09/19 4:05 PM
A0909020.D	N037118-001B	SAMP	5	09/09/19 4:10 PM
A0909021.D	N037118-001B-PS	PS	1	09/09/19 4:15 PM
A0909022.D	N037118-001B-MS	MS	1	09/09/19 4:20 PM
A0909023.D	N037118-001B-MSD	MSD	1	09/09/19 4:25 PM
A0909024.D	N037118-002B	SAMP	1	09/09/19 4:30 PM
A0909025.D	N037118-003B	SAMP	1	09/09/19 4:35 PM
A0909026.D	N037118-004B	SAMP	1	09/09/19 4:41 PM
A0909027.D	CCV1	CCV	1	09/09/19 4:46 PM
A0909028.D	CCB1	CCB	1	09/09/19 4:51 PM
A0909029.D	N037118-005B	SAMP	1	09/09/19 4:56 PM
A0909030.D	N037118-006B	SAMP	1	09/09/19 5:01 PM
A0909031.D	N037118-007B	SAMP	1	09/09/19 5:06 PM
A0909032.D	N037118-008B	SAMP	1	09/09/19 5:12 PM
A0909033.D	N037118-009B	SAMP	1	09/09/19 5:17 PM
A0909034.D	N037118-010B	SAMP	1	09/09/19 5:23 PM
A0909035.D	N037118-011B	SAMP	1	09/09/19 5:28 PM
A0909036.D	N037118-012B	SAMP	1	09/09/19 5:33 PM
A0909037.D	N037118-013B	SAMP	1	09/09/19 5:38 PM
A0909038.D	N037118-003B	SAMP	1	09/09/19 5:43 PM
A0909039.D	CCV2	CCV	1	09/09/19 5:48 PM
A0909040.D	CCB2	CCB	1	09/09/19 5:54 PM
A0909041.D	N037118-004B	SAMP	1	09/09/19 5:59 PM
A0909042.D	N037118-007B	SAMP	1	09/09/19 6:03 PM

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909043.D	N037118-008B	SAMP	1	09/09/19 6:09 PM
A0909044.D	N037118-010B	SAMP	1	09/09/19 6:14 PM
A0909045.D	N037118-011B	SAMP	1	09/09/19 6:19 PM
A0909046.D	N037118-012B	SAMP	1	09/09/19 6:24 PM
A0909047.D	N037118-013B	SAMP	1	09/09/19 6:30 PM
A0909048.D	N037118-004B	SAMP	1	09/09/19 6:35 PM
A0909049.D	N037118-007B	SAMP	1	09/09/19 6:40 PM
A0909050.D	N037118-010B	SAMP	1	09/09/19 6:45 PM
A0909051.D	CCV3	CCV	1	09/09/19 6:50 PM
A0909052.D	CCB3	CCB	1	09/09/19 6:56 PM
A0909053.D	N037067-002E	SAMP	1	09/09/19 7:00 PM
A0909054.D	N037107-006E	SAMP	1	09/09/19 7:05 PM
A0909055.D	N037107-008E	SAMP	1	09/09/19 7:11 PM
A0909056.D	N037117-005E	SAMP	1	09/09/19 7:17 PM
A0909057.D	N037118-012B	SAMP	1	09/09/19 7:22 PM
A0909058.D	N037118-013B	SAMP	1	09/09/19 7:27 PM
A0909059.D	N037118-004B	SAMP	1	09/09/19 7:32 PM
A0909060.D	N037118-007B	SAMP	1	09/09/19 7:37 PM
A0909061.D	N037118-010B	SAMP	1	09/09/19 7:43 PM
A0909062.D	N037118-013B	SAMP	1	09/09/19 7:48 PM
A0909063.D	CCV4	CCV	1	09/09/19 7:53 PM
A0909064.D	CCB4	CCB	1	09/09/19 7:59 PM
A0909065.D	N037118-004B	SAMP	1	09/09/19 8:04 PM
A0909066.D	N037118-007B	SAMP	1	09/09/19 8:10 PM
A0909067.D	N037118-010B	SAMP	1	09/09/19 8:15 PM
A0909068.D	N037118-013B	SAMP	1	09/09/19 8:21 PM
A0909069.D	N037067-002E	SAMP	1	09/09/19 8:26 PM
A0909070.D	N037107-006E	SAMP	1	09/09/19 8:31 PM
A0909071.D	N037117-005E	SAMP	1	09/09/19 8:36 PM
A0909072.D	N037067-002E	SAMP	1	09/09/19 8:41 PM
A0909073.D	N037107-006E	SAMP	1	09/09/19 8:46 PM
A0909074.D	N037117-005E	SAMP	1	09/09/19 8:51 PM
A0909075.D	CCV5	CCV	1	09/09/19 8:56 PM
A0909076.D	CCB5	CCB	1	09/09/19 9:02 PM
A0909077.D	ICSA2	ICSA	1	09/09/19 9:07 PM
A0909078.D	ICSAB2	ICSAB	1	09/09/19 9:11 PM
A0909079.D	MB-75130	MBLK	1	09/09/19 9:16 PM
A0909080.D	LCS-75130	LCS	1	09/09/19 9:21 PM
A0909081.D	N037117-001D	SAMP	1	09/09/19 9:26 PM
A0909082.D	N037117-001D	SAMP	5	09/09/19 9:31 PM
A0909083.D	N037117-001D-PS	PS	1	09/09/19 9:36 PM
A0909084.D	N037117-001D-MS	MS	1	09/09/19 9:41 PM

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909085.D	N037117-001D-MSD	MSD	1	09/09/19 9:46 PM
A0909086.D	N037117-002D	SAMP	1	09/09/19 9:51 PM
A0909087.D	N037117-003D	SAMP	1	09/09/19 9:56 PM
A0909088.D	N037117-004D	SAMP	1	09/09/19 10:01 PM
A0909089.D	CCV6	CCV	1	09/09/19 10:07 PM
A0909090.D	CCB6	CCB	1	09/09/19 10:12 PM
A0909091.D	N037117-005D	SAMP	1	09/09/19 10:16 PM
A0909092.D	N037117-008D	SAMP	1	09/09/19 10:21 PM
A0909093.D	N037144-001D	SAMP	1	09/09/19 10:26 PM
A0909094.D	N037144-002D	SAMP	1	09/09/19 10:31 PM
A0909095.D	N037144-003D	SAMP	1	09/09/19 10:36 PM
A0909096.D	N037144-004D	SAMP	1	09/09/19 10:41 PM
A0909097.D	N037147-001D	SAMP	1	09/09/19 10:46 PM
A0909098.D	N037147-002D	SAMP	1	09/09/19 10:51 PM
A0909099.D	N037117-003D	SAMP	25	09/09/19 10:57 PM
A0909100.D	N037117-004D	SAMP	25	09/09/19 11:02 PM
A0909101.D	CCV7	CCV	1	09/09/19 11:07 PM
A0909102.D	CCB7	CCB	1	09/09/19 11:12 PM
A0909103.D	N037117-008D	SAMP	25	09/09/19 11:17 PM
A0909104.D	N037147-001E	SAMP	25	09/09/19 11:22 PM
A0909105.D	MB-75309	MBLK	1	09/09/19 11:26 PM
A0909106.D	LCS-75309	LCS	1	09/09/19 11:32 PM
A0909107.D	N037355-001A	SAMP	1	09/09/19 11:36 PM
A0909108.D	N037355-001A	SAMP	5	09/09/19 11:41 PM
A0909109.D	N037355-001A	SAMP	25	09/09/19 11:46 PM
A0909110.D	N037355-001A-PS	PS	1	09/09/19 11:51 PM
A0909111.D	N037355-001A-PS	PS	5	09/09/19 11:56 PM
A0909112.D	N037355-001A-MS	MS	1	09/10/19 12:02 AM
A0909113.D	CCV8	CCV	1	09/10/19 12:07 AM
A0909114.D	CCB8	CCB	1	09/10/19 12:12 AM
A0909115.D	ICSA3	ICSA	1	09/10/19 12:17 AM
A0909116.D	ICSAB3	ICSAB	1	09/10/19 12:22 AM
A0909117.D	N037355-001A-MS	MS	5	09/10/19 12:26 AM
A0909118.D	N037355-001A-MSD	MSD	1	09/10/19 12:32 AM
A0909119.D	N037355-001A-MSD	MSD	5	09/10/19 12:37 AM
A0909120.D	N037313-001C	SAMP	1	09/10/19 12:41 AM
A0909121.D	N037313-001C	SAMP	5	09/10/19 12:47 AM
A0909122.D	N037313-002E	SAMP	1	09/10/19 12:52 AM
A0909123.D	N037313-002E	SAMP	5	09/10/19 12:57 AM
A0909124.D	N037314-001B	SAMP	1	09/10/19 1:02 AM
A0909125.D	N037314-001B	SAMP	5	09/10/19 1:07 AM
A0909126.D	N037314-002B	SAMP	1	09/10/19 1:12 AM

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909127.D	CCV9	CCV	1	09/10/19 1:17 AM
A0909128.D	CCB9	CCB	1	09/10/19 1:23 AM
A0909129.D	N037314-002B	SAMP	5	09/10/19 1:28 AM
A0909130.D	N037250-003C	SAMP	1	09/10/19 1:33 AM
A0909131.D	N037250-003C	SAMP	5	09/10/19 1:38 AM
A0909132.D	N037211-004A	SAMP	1	09/10/19 1:43 AM
A0909133.D	RINSE	RINSE	1	09/10/19 1:48 AM
A0909134.D	N037211-005A	SAMP	1	09/10/19 1:53 AM
A0909135.D	RINSE	RINSE	1	09/10/19 1:59 AM
A0909136.D	N037211-006A	SAMP	1	09/10/19 2:03 AM
A0909137.D	RINSE	RINSE	1	09/10/19 2:08 AM
A0909138.D	N037211-007A	SAMP	1	09/10/19 2:14 AM
A0909139.D	CCV10	CCV	1	09/10/19 2:19 AM
A0909140.D	CCB10	CCB	1	09/10/19 2:24 AM
A0909141.D	ICSA4	ICSA	1	09/10/19 2:29 AM
A0909142.D	ICSAB4	ICSAB	1	09/10/19 2:34 AM

INJECTION LOG: 190910A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0910001.D	RINSE	RINSE	1	09/10/19 4:25 PM
A0910002.D	Cal Blank	IBLK	1	09/10/19 4:30 PM
A0910003.D	Std1-0.1/1 ppb	ICAL	1	09/10/19 4:35 PM
A0910004.D	Std2-0.5/5 ppb	ICAL	1	09/10/19 4:40 PM
A0910005.D	Std3-5/50 ppb	ICAL	1	09/10/19 4:45 PM
A0910006.D	Std4-10/100 ppb	ICAL	1	09/10/19 4:50 PM
A0910007.D	Std5-20/200 ppb	ICAL	1	09/10/19 4:55 PM
A0910008.D	Std6-40/400 ppb	ICAL	1	09/10/19 5:00 PM
A0910009.D	Std7-100/1000 ppb	ICAL	1	09/10/19 5:05 PM
A0910010.D	Std8-200/2000 ppb	ICAL	1	09/10/19 5:11 PM
A0910011.D	ICV	ICV	1	09/10/19 5:34 PM
A0910012.D	ICB	ICB	1	09/10/19 5:39 PM
A0910013.D	LLICV	CCV1	1	09/10/19 5:44 PM
A0910014.D	ICSA1	ICSA	1	09/10/19 5:48 PM
A0910015.D	ICSAB1	ICSAB	1	09/10/19 5:53 PM
A0910016.D	LLICV	CCV1	1	09/10/19 5:59 PM
A0910017.D	N037067-002E	SAMP	1	09/10/19 6:04 PM
A0910018.D	N037067-002E	SAMP	1	09/10/19 6:09 PM
A0910019.D	N037107-006E	SAMP	1	09/10/19 6:14 PM
A0910020.D	N037107-008E	SAMP	1	09/10/19 6:19 PM
A0910021.D	N037117-005E	SAMP	1	09/10/19 6:24 PM
A0910022.D	N037118-004B	SAMP	1	09/10/19 6:29 PM
A0910023.D	N037118-007B	SAMP	1	09/10/19 6:35 PM
A0910024.D	N037118-010B	SAMP	1	09/10/19 6:39 PM
A0910025.D	N037118-013B	SAMP	1	09/10/19 6:44 PM
A0910026.D	N037067-002E	SAMP	1	09/10/19 6:49 PM
A0910027.D	CCV1	CCV	1	09/10/19 6:54 PM
A0910028.D	CCB1	CCB	1	09/10/19 7:00 PM
A0910029.D	N037117-005E	SAMP	1	09/10/19 7:04 PM
A0910030.D	N037117-005D	SAMP	1	09/10/19 7:10 PM
A0910031.D	N037147-002D	SAMP	1	09/10/19 7:18 PM
A0910032.D	N037117-005D	SAMP	1	09/10/19 7:23 PM
A0910033.D	N037147-002D	SAMP	1	09/10/19 7:28 PM
A0910034.D	N037117-005D	SAMP	1	09/10/19 7:33 PM
A0910035.D	N037147-002D	SAMP	1	09/10/19 7:38 PM
A0910036.D	N037117-005D	SAMP	1	09/10/19 7:44 PM
A0910037.D	N037147-002D	SAMP	1	09/10/19 7:48 PM
A0910038.D	CCV2	CCV	1	09/10/19 7:54 PM
A0910039.D	CCB2	CCB	1	09/10/19 7:59 PM
A0910040.D	ICSA2	ICSA	1	09/10/19 8:04 PM
A0910041.D	ICSAB2	ICSAB	1	09/10/19 8:09 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:23:04**
Prep End Date: **8/23/2019 4:00:00 P**
Reviewed/ Date: NS 9/18/2019
Initials/ Date: for
Prep Batch **75129** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.8**	**02-18**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75129	Aqueous		25	☐	25	1.000		
MB-75129	Aqueous		25	☐	25	1.000		
N037118-001B	Groundwater	<2	25	☐	25	1.000		
N037118-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037118-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037118-002B	Groundwater	<2	25	☐	25	1.000		
N037118-003B	Groundwater	<2	25	☐	25	1.000		
N037118-004B	Groundwater	<2	25	☐	25	1.000		
N037118-005B	Groundwater	<2	25	☐	25	1.000		
N037118-006B	Groundwater	<2	25	☐	25	1.000		
N037118-007B	Groundwater	<2	25	☐	25	1.000		
N037118-008B	Groundwater	<2	25	☐	25	1.000		
N037118-009B	Groundwater	<2	25	☐	25	1.000		
N037118-010B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:23:04**
Prep End Date: **8/23/2019 4:00:00 P**
Reviewed/ Date: NS 9/18/2019
Initials/ Date: for
Prep Batch **75129** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.8**	**02-18**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037118-011B	Groundwater	<2	25	☐	25	1.000		
N037118-012B	Groundwater	<2	25	☐	25	1.000		
N037118-013B	Groundwater	<2	25	☐	25	1.000		
N037118-014B	Groundwater	<2	25	☐	25	1.000		
N037118-015B	Groundwater	<2	25	☐	25	1.000		
N037140-001A	Groundwater	<2	25	☐	25	1.000		
N037140-003A	Groundwater	<2	25	☐	25	1.000		
N037142-001A	Groundwater	<2	25	☐	25	1.000		
N037143-001B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 5 Sep 2019 09:58:14 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	109251.00	0.00	
24 Mg	240768.00	0.00	
25 Mg	31078.80	0.00	
26 Mg	36574.80	0.00	
59 Co	223022.00	0.00	
115 In	334278.00	0.00	
206 Pb	98030.40	0.00	
207 Pb	84672.30	0.00	
208 Pb	209481.00	0.00	

RSD (%)

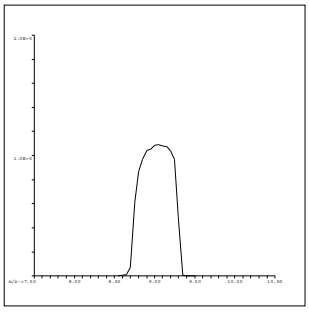
Element	Actual	Required	Flag
9 Be	2.07	5.00	
24 Mg	1.45	5.00	
25 Mg	1.11	5.00	
26 Mg	2.05	5.00	
59 Co	0.72	5.00	
115 In	0.83	5.00	
206 Pb	1.37	5.00	
207 Pb	1.62	5.00	
208 Pb	0.94	5.00	

Ion Ratio

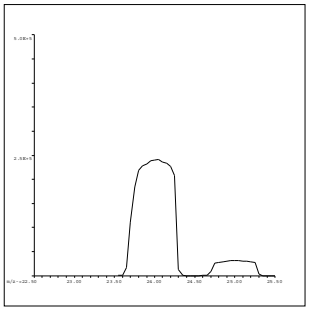
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

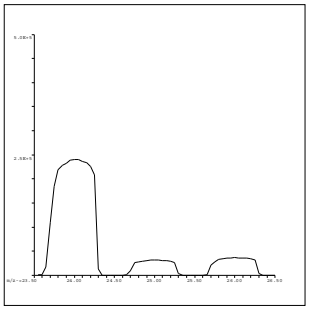
Element	Actual	Required	Flag



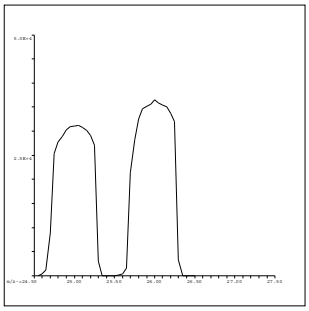
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



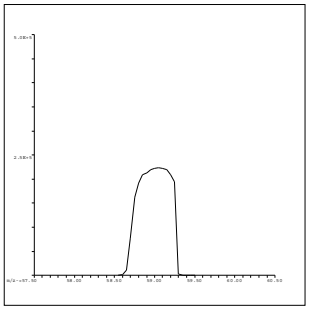
24 Mg
Mass Calib.
Actual: 24.05
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



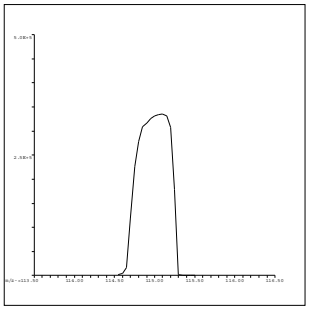
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



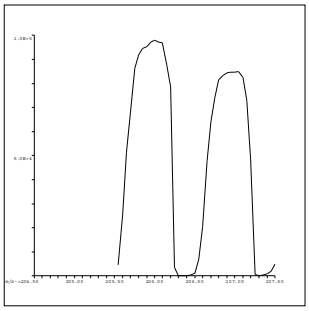
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



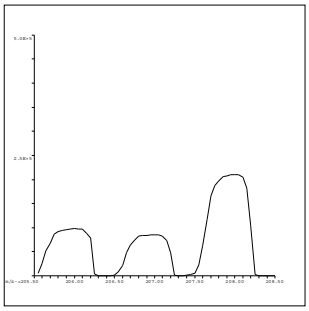
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



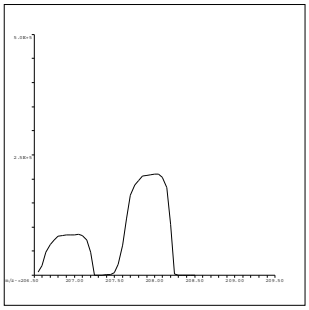
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 9 Sep 2019 09:59:44 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	172763.00	0.00	
24	Mg	271065.00	0.00	
25	Mg	35109.60	0.00	
26	Mg	40850.60	0.00	
59	Co	227406.00	0.00	
115	In	282047.00	0.00	
206	Pb	94224.70	0.00	
207	Pb	82793.50	0.00	
208	Pb	202983.00	0.00	

RSD (%)

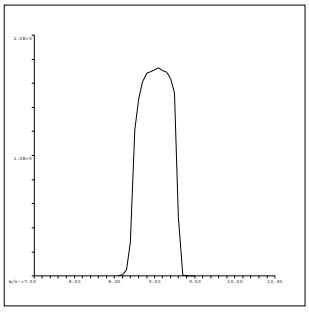
Element		Actual	Required	Flag
9	Be	0.41	5.00	
24	Mg	0.63	5.00	
25	Mg	1.37	5.00	
26	Mg	1.30	5.00	
59	Co	0.45	5.00	
115	In	0.76	5.00	
206	Pb	0.93	5.00	
207	Pb	1.37	5.00	
208	Pb	0.59	5.00	

Ion Ratio

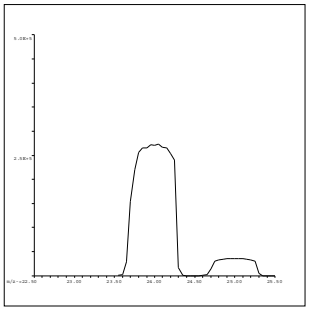
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

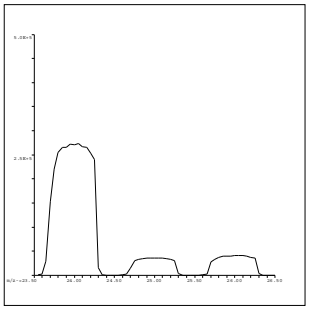
Element		Actual	Required	Flag



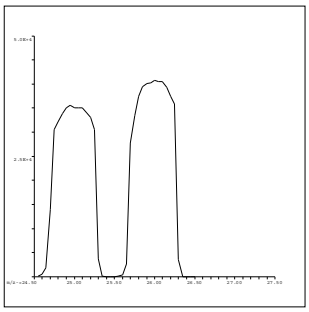
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



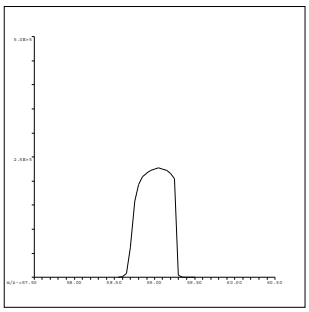
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



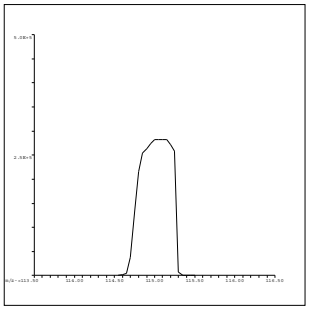
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



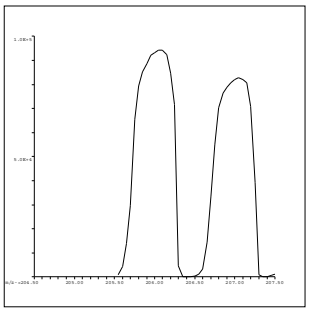
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



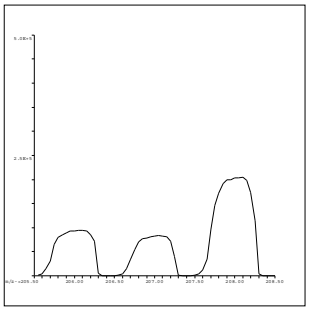
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



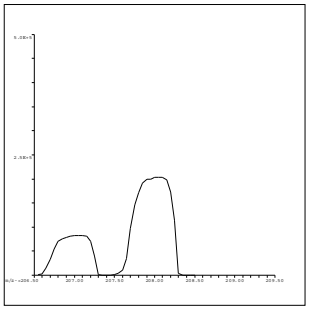
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 10 Sep 2019 10:15:56 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	140361.00	0.00	
24	Mg	478863.00	0.00	
25	Mg	60031.90	0.00	
26	Mg	66499.80	0.00	
59	Co	228965.00	0.00	
115	In	325763.00	0.00	
206	Pb	105943.00	0.00	
207	Pb	92064.60	0.00	
208	Pb	225429.00	0.00	

RSD (%)

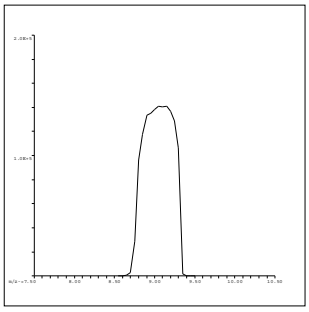
Element		Actual	Required	Flag
9	Be	0.70	5.00	
24	Mg	3.51	5.00	
25	Mg	3.72	5.00	
26	Mg	2.81	5.00	
59	Co	0.86	5.00	
115	In	0.67	5.00	
206	Pb	0.71	5.00	
207	Pb	1.70	5.00	
208	Pb	0.70	5.00	

Ion Ratio

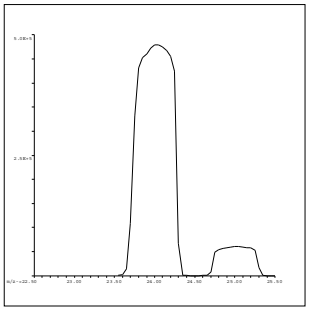
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

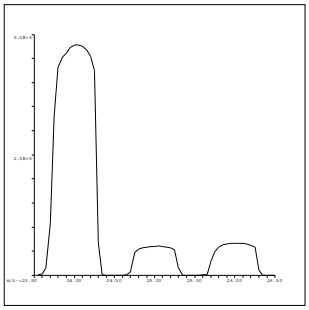
Element		Actual	Required	Flag



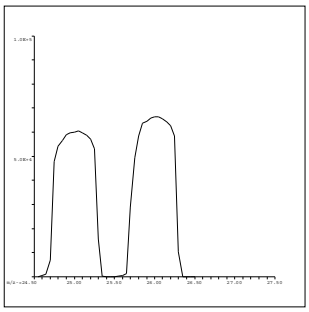
9 Be
Mass Calib.
Actual: 9.10
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



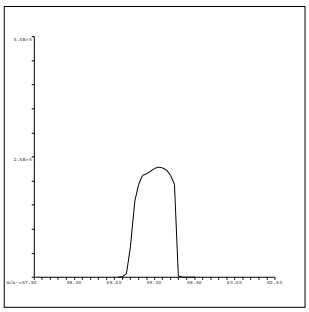
24 Mg
Mass Calib.
Actual: 24.05
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



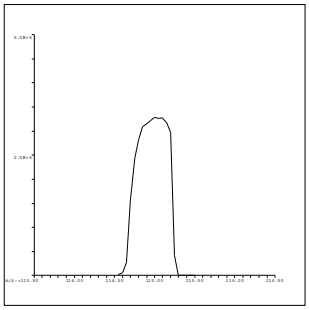
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



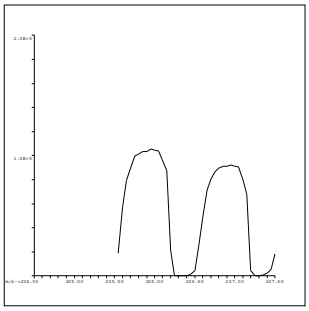
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



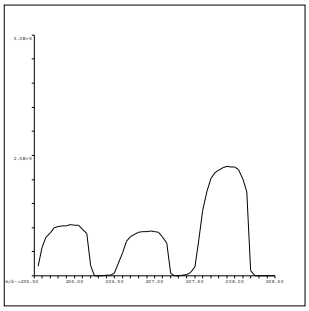
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



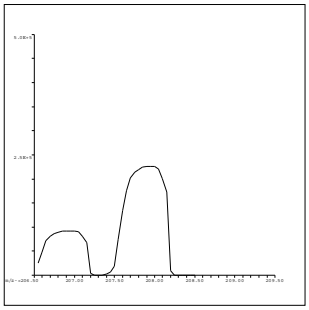
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190905C

Instrument ID: ICPMS-02

Analyte	Data File	C0905002.D	C0905003.D	C0905004.D	C0905005.D	C0905006.D	C0905007.D	C0905008.D	C0905009.D	C0905010.D	
	Acq. Date-Time	09/05/2019 03:46 PM	09/05/2019 03:51 PM	09/05/2019 03:55 PM	09/05/2019 04:00 PM	09/05/2019 04:04 PM	09/05/2019 04:09 PM	09/05/2019 04:14 PM	09/05/2019 04:19 PM	09/05/2019 04:24 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	60530		60408.4	61289.3	59849.9	61840.4	62082.3	59590	61430.2	
55 Mn [2]	CPS	80.5		1139.7	10669.9	20684.4	42487.6	85481.6	206071.3	418785.6	1.0000
52 Cr [2]	CPS	188.8		2488	21766.8	42632.9	86690.8	175336	424150.1	857095.3	1.0000
72 Ge (ISTD) [1]	CPS	21637.4		21742	21606.2	21951.2	22104.7	21600.7	21112.2	21984.5	
78 Se [1]	CPS	0		36.7	407.8	831.2	1607.9	3533.9	8285.8	16537.9	0.9985
72 Ge (ISTD) [2]	CPS	35277	35488.5	34985.3	34870.6	35343.8	35832.6	36120.9	34710.2	35701.2	
75 As [2]	CPS	17.3	89.8	306.2	2965.2	5976.3	11830.6	23701.8	57572.4	117445.7	1.0000
103 Rh (ISTD) [2]	CPS	869884		874249.4	881319.6	876849.2	892693.1	890282.1	866279.9	882762.6	
95 Mo [2]	CPS	17.8		1033.4	10785.2	21463.1	43931.5	88048.3	213258.2	437599.6	1.0000
159 Tb (ISTD) [3]	CPS	2207926.7		2195904.8	2234275.2	2247294.5	2265316.1	2237522.9	2243925.3	2239185.7	
137 Ba [3]	CPS	83.3		1694.6	16776.4	34212.1	69414.7	137544.5	341915.4	679989.9	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190909A

Instrument ID: ICPMS-02

Analyte	Data File	A0909002.D	A0909004.D	A0909005.D	A0909006.D	A0909007.D	A0909008.D	A0909009.D	A0909010.D	
	Acq. Date-Time	09/09/2019 02:27 PM	09/09/2019 02:37 PM	09/09/2019 02:42 PM	09/09/2019 02:46 PM	09/09/2019 02:52 PM	09/09/2019 02:57 PM	09/09/2019 03:02 PM	09/09/2019 03:07 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	17894.9	17613.5	17411.1	16898.4	17174.2	17574.6	17109.7	16495.6	
78 Se [1]	CPS	0	33.3	316.7	601.2	1347.9	2533.7	6234.8	12497.5	0.9998

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190910A

Instrument ID: ICPMS-02

Analyte	Data File	A0910002.D	A0910004.D	A0910005.D	A0910006.D	A0910007.D	A0910008.D	A0910009.D	A0910010.D	
	Acq. Date-Time	09/10/2019 04:30 PM	09/10/2019 04:40 PM	09/10/2019 04:45 PM	09/10/2019 04:50 PM	09/10/2019 04:55 PM	09/10/2019 05:00 PM	09/10/2019 05:05 PM	09/10/2019 05:11 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	13283.7	13697.4	13788.6	13467.2	13225.9	13516.2	13191.4	13063.6	
78 Se [1]	CPS	0	25.6	332.2	531.1	1104.5	2124.7	5132.2	10169.1	0.9999

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.236	0.10	10.00	0	102	90	110				
Barium	9.962	1.0	10.00	0	99.6	90	110				
Manganese	102.420	0.50	100.0	0	102	90	110				
Molybdenum	9.888	0.50	10.00	0	98.9	90	110				
Selenium	9.968	0.50	10.00	0	99.7	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ZZZZZZ** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.119	0.10	0.1000	0	119	80	120				
Barium	1.041	1.0	1.000	0	104	80	120				
Manganese	0.523	0.50	0.5000	0	105	80	120				
Molybdenum	0.552	0.50	0.5000	0	110	80	120				
Selenium	0.593	0.50	0.5000	0	119	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.286	0.10	20.00	0	101	90	110				
Barium	20.558	1.0	20.00	0	103	90	110				
Manganese	19.855	0.50	20.00	0	99.3	90	110				
Molybdenum	20.512	0.50	20.00	0	103	90	110				
Selenium	20.232	0.50	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.292	0.10	20.00	0	101	90	110				
Barium	20.902	1.0	20.00	0	105	90	110				
Manganese	20.400	0.50	20.00	0	102	90	110				
Molybdenum	20.416	0.50	20.00	0	102	90	110				
Selenium	18.728	0.50	20.00	0	93.6	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.534	0.10	20.00	0	103	90	110				
Barium	20.745	1.0	20.00	0	104	90	110				
Manganese	20.442	0.50	20.00	0	102	90	110				
Molybdenum	20.375	0.50	20.00	0	102	90	110				
Selenium	19.729	0.50	20.00	0	98.6	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.261	0.10	20.00	0	101	90	110				
Barium	21.277	1.0	20.00	0	106	90	110				
Manganese	19.975	0.50	20.00	0	99.9	90	110				
Molybdenum	20.149	0.50	20.00	0	101	90	110				
Selenium	19.227	0.50	20.00	0	96.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.165	0.10	20.00	0	101	90	110				
Barium	21.577	1.0	20.00	0	108	90	110				
Manganese	20.359	0.50	20.00	0	102	90	110				
Molybdenum	20.285	0.50	20.00	0	101	90	110				
Selenium	18.840	0.50	20.00	0	94.2	90	110				

Sample ID **CCV6** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.691	0.10	20.00	0	103	90	110				
Barium	21.277	1.0	20.00	0	106	90	110				
Manganese	20.397	0.50	20.00	0	102	90	110				
Molybdenum	20.219	0.50	20.00	0	101	90	110				
Selenium	17.684	0.50	20.00	0	88.4	90	110				S

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCV** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.084	0.10	20.00	0	100	90	110				
Barium	21.282	1.0	20.00	0	106	90	110				
Manganese	20.181	0.50	20.00	0	101	90	110				
Molybdenum	20.415	0.50	20.00	0	102	90	110				
Selenium	18.592	0.50	20.00	0	93.0	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

%Rec of Se in CCV6 failed, biased low. However, samples were enclosed by CCV10/CCB10/ICSA4/ICSAB4 and CCV13/CCB13/ICSA5/ICSAB5.

NS 9/18/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504285**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.806	0.10	20.00	0	99.0	90	110				
Barium	21.389	1.0	20.00	0	107	90	110				
Manganese	20.550	0.50	20.00	0	103	90	110				
Molybdenum	20.204	0.50	20.00	0	101	90	110				
Selenium	18.837	0.50	20.00	0	94.2	90	110				

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.877	0.10	20.00	0	99.4	90	110				
Barium	21.531	1.0	20.00	0	108	90	110				
Manganese	20.555	0.50	20.00	0	103	90	110				
Molybdenum	20.143	0.50	20.00	0	101	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.782	0.10	20.00	0	98.9	90	110				
Barium	21.580	1.0	20.00	0	108	90	110				
Manganese	20.242	0.50	20.00	0	101	90	110				
Molybdenum	20.402	0.50	20.00	0	102	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.861	0.10	20.00	0	99.3	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	21.939	1.0	20.00	0	110	90	110				
Manganese	20.287	0.50	20.00	0	101	90	110				
Molybdenum	20.069	0.50	20.00	0	100	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.927	0.10	20.00	0	99.6	90	110				
Barium	21.898	1.0	20.00	0	109	90	110				
Manganese	19.944	0.50	20.00	0	99.7	90	110				
Molybdenum	20.292	0.50	20.00	0	101	90	110				

Sample ID **CCV13**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCV**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504339**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.003	0.10	20.00	0	100	90	110				
Barium	21.966	1.0	20.00	0	110	90	110				
Manganese	20.115	0.50	20.00	0	101	90	110				
Molybdenum	20.111	0.50	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.523	0.50	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ZZZZZZ**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.593	0.50	0.5000	0	119	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.684	0.50	20.00	0	98.4	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.590	0.50	20.00	0	97.9	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.796	0.50	20.00	0	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.119	0.50	20.00	0	101	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.916	0.50	20.00	0	105	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	21.677	0.50	20.00	0	108	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.189	0.50	20.00	0	101	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.196	0.50	20.00	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	22.007	0.50	20.00	0	110	90	110				S

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCV**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.420	0.50	20.00	0	97.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136395**
Client ID: **ICV** Batch ID: **R136395** TestNo: **EPA 6020** Analysis Date: **9/10/2019** SeqNo: **3509086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.342	0.50	10.00	0	103	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136395**
Client ID: **ZZZZZZ** Batch ID: **R136395** TestNo: **EPA 6020** Analysis Date: **9/10/2019** SeqNo: **3509088**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.494	0.50	0.5000	0	98.8	80	120				

not reported

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136395**
Client ID: **ZZZZZZ** Batch ID: **R136395** TestNo: **EPA 6020** Analysis Date: **9/10/2019** SeqNo: **3509091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.620	0.50	0.5000	0	124	80	120				S

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136395**
Client ID: **CCV** Batch ID: **R136395** TestNo: **EPA 6020** Analysis Date: **9/10/2019** SeqNo: **3509102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.602	0.50	20.00	0	98.0	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136395**
Client ID: **CCV** Batch ID: **R136395** TestNo: **EPA 6020** Analysis Date: **9/10/2019** SeqNo: **3509113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.192	0.50	20.00	0	96.0	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

NS 9/18/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.188	1.0	10.00	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ZZZZZZ**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.054	1.0	1.000	0	105	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.658	1.0	20.00	0	98.3	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.760	1.0	20.00	0	98.8	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.790	1.0	20.00	0	98.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.722	1.0	20.00	0	98.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.288	1.0	20.00	0	96.4	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.492	1.0	20.00	0	97.5	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.196	1.0	20.00	0	96.0	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.517	1.0	20.00	0	97.6	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.318	1.0	20.00	0	96.6	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.251	1.0	20.00	0	96.3	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.373	1.0	20.00	0	96.9	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.001	1.0	20.00	0	95.0	90	110				

Sample ID **CCV13**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCV**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.223	1.0	20.00	0	96.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB** SampType: **ICB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **CCB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504321**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **CCB13**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **CCB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504340**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	ICB	SampType:	ICB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136373
Client ID:	ICB	Batch ID:	R136373	TestNo:	EPA 6020			Analysis Date:	9/9/2019	SeqNo:	3506811

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	CCB1	SampType:	CCB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136373
Client ID:	CCB	Batch ID:	R136373	TestNo:	EPA 6020			Analysis Date:	9/9/2019	SeqNo:	3506827

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	CCB2	SampType:	CCB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136373
Client ID:	CCB	Batch ID:	R136373	TestNo:	EPA 6020			Analysis Date:	9/9/2019	SeqNo:	3506839

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	CCB3	SampType:	CCB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136373
Client ID:	CCB	Batch ID:	R136373	TestNo:	EPA 6020			Analysis Date:	9/9/2019	SeqNo:	3506851

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	CCB4	SampType:	CCB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136373
Client ID:	CCB	Batch ID:	R136373	TestNo:	EPA 6020			Analysis Date:	9/9/2019	SeqNo:	3506863

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **CCB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136395**
Client ID: **ICB**	Batch ID: **R136395**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3509087**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136395**
Client ID: **CCB**	Batch ID: **R136395**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3509103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136395**
Client ID: **CCB**	Batch ID: **R136395**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3509114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504068**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB13**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **CCB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICSA** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.293	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICSAB** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.936	0.10	20.00	0	105	80	120				
Barium	21.151	1.0	20.00	0	106	80	120				
Manganese	19.204	0.50	20.00	0	96.0	80	120				
Molybdenum	21.774	0.50	20.00	0	109	80	120				
Selenium	19.835	0.50	20.00	0	99.2	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136324**
Client ID: **ICSA** Batch ID: **R136324** TestNo: **EPA 6020** Analysis Date: **9/5/2019** SeqNo: **3504239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.334	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.306	0.10	20.00	0	107	80	120				
Barium	21.834	1.0	20.00	0	109	80	120				
Manganese	18.794	0.50	20.00	0	94.0	80	120				
Molybdenum	21.942	0.50	20.00	0	110	80	120				
Selenium	20.272	0.50	20.00	0	101	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSA**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.310	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.065	0.10	20.00	0	105	80	120				
Barium	21.797	1.0	20.00	0	109	80	120				
Manganese	19.425	0.50	20.00	0	97.1	80	120				
Molybdenum	22.273	0.50	20.00	0	111	80	120				
Selenium	18.812	0.50	20.00	0	94.1	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSA**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.341	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.689	0.10	20.00	0	103	80	120				
Barium	22.280	1.0	20.00	0	111	80	120				
Manganese	19.181	0.50	20.00	0	95.9	80	120				
Molybdenum	22.391	0.50	20.00	0	112	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSA**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.315	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.643	0.10	20.00	0	103	80	120				
Barium	22.592	1.0	20.00	0	113	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID: **ICSAB**	Batch ID: **R136324**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.449	0.50	20.00	0	97.2	80	120				
Molybdenum	22.276	0.50	20.00	0	111	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSA**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSAB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.413	0.50	20.00	0	97.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSA**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSAB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/9/2019**	SeqNo: **3506877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	23.192	0.50	20.00	0	116	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSA**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506914**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSAB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	23.923	0.50	20.00	0	120	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSA**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506937**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID: **ICSAB**	Batch ID: **R136373**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3506938**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	21.929	0.50	20.00	0	110	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136395**
Client ID: **ICSA**	Batch ID: **R136395**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3509089**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136395**
Client ID: **ICSAB**	Batch ID: **R136395**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3509090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.555	0.50	20.00	0	92.8	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136395**
Client ID: **ICSA**	Batch ID: **R136395**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3509115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136395**
Client ID: **ICSAB**	Batch ID: **R136395**	TestNo: **EPA 6020**		Analysis Date: **9/10/2019**	SeqNo: **3509116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.808	0.50	20.00	0	94.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504031**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.302	1.0	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504081**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/5/2019**	SeqNo: **3504082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.605	1.0	20.00	0	98.0	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.584	1.0	20.00	0	97.9	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.507	1.0	20.00	0	97.5	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSA**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID: **ICSAB**	Batch ID: **R136323**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3504184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.473	1.0	20.00	0	97.4	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	2207926.7	2207926.7	100	PASS	70-125	60530	60530	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	2226833.4	2207926.7	100.86	PASS	70-125	61197.9	60530	101.1	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	2195904.8	2207926.7	99.46	PASS	70-125	60408.4	60530	99.8	PASS	70-125
Std3-5/50 ppb	ICAL	1	2234275.2	2207926.7	101.19	PASS	70-125	61289.3	60530	101.25	PASS	70-125
Std4-10/100 ppb	ICAL	1	2247294.5	2207926.7	101.78	PASS	70-125	59849.9	60530	98.88	PASS	70-125
Std5-20/200 ppb	ICAL	1	2265316.1	2207926.7	102.6	PASS	70-125	61840.4	60530	102.16	PASS	70-125
Std6-40/400 ppb	ICAL	1	2237522.9	2207926.7	101.34	PASS	70-125	62082.3	60530	102.56	PASS	70-125
Std7-100/1000 ppb	ICAL	1	2243925.3	2207926.7	101.63	PASS	70-125	59590	60530	98.45	PASS	70-125
Std8-200/2000 ppb	ICAL	1	2239185.7	2207926.7	101.42	PASS	70-125	61430.2	60530	101.49	PASS	70-125
ICV	ICV	1	2270702.7	2207926.7	102.84	PASS	70-125	57188	60530	94.48	PASS	70-125
ICB	ICB	1	2297210.5	2207926.7	104.04	PASS	70-125	61624	60530	101.81	PASS	70-125
LLICV	CCV1	1	2267049.5	2207926.7	102.68	PASS	70-125	60718.3	60530	100.31	PASS	70-125
ICSA1	ICSA	1	2297077.1	2207926.7	104.04	PASS	70-125	64361.1	60530	106.33	PASS	70-125
ICSAB1	ICSAB	1	2299312.4	2207926.7	104.14	PASS	70-125	63287.8	60530	104.56	PASS	70-125
LLICV	CCV1	1	2334270.6	2207926.7	105.72	PASS	70-125	63670.5	60530	105.19	PASS	70-125
MB-75122	MBLK	1	2353496.5	2207926.7	106.59	PASS	70-125	65113.6	60530	107.57	PASS	70-125
CCV1	CCV	1	2280570.8	2207926.7	103.29	PASS	70-125	69610.8	60530	115	PASS	70-125
CCB1	CCB	1	2264674.9	2207926.7	102.57	PASS	70-125	66406.9	60530	109.71	PASS	70-125
CCV2	CCV	1	2393216.6	2207926.7	108.39	PASS	70-125	65982.5	60530	109.01	PASS	70-125
CCB2	CCB	1	2329546.3	2207926.7	105.51	PASS	70-125	65432.7	60530	108.1	PASS	70-125
CCV3	CCV	1	2339980.8	2207926.7	105.98	PASS	70-125	66035.4	60530	109.1	PASS	70-125
CCB3	CCB	1	2298262.4	2207926.7	104.09	PASS	70-125	64344.4	60530	106.3	PASS	70-125
CCV4	CCV	1	2390919.7	2207926.7	108.29	PASS	70-125	65977	60530	109	PASS	70-125
CCB4	CCB	1	2381530.8	2207926.7	107.86	PASS	70-125	63183.2	60530	104.38	PASS	70-125
ICSA2	ICSA	1	2310828.3	2207926.7	104.66	PASS	70-125	62635.8	60530	103.48	PASS	70-125
ICSAB2	ICSAB	1	2317466.1	2207926.7	104.96	PASS	70-125	63621.5	60530	105.11	PASS	70-125
CCV5	CCV	1	2395975.2	2207926.7	108.52	PASS	70-125	65020.2	60530	107.42	PASS	70-125
CCB5	CCB	1	2385948.7	2207926.7	108.06	PASS	70-125	63245.5	60530	104.49	PASS	70-125
MB-75124	MBLK	1	2361290	2207926.7	106.95	PASS	70-125	62328.7	60530	102.97	PASS	70-125
CCV6	CCV	1	2375308.1	2207926.7	107.58	PASS	70-125	65558.9	60530	108.31	PASS	70-125
CCB6	CCB	1	2368828.1	2207926.7	107.29	PASS	70-125	62597.6	60530	103.42	PASS	70-125
CCV7	CCV	1	2402562.4	2207926.7	108.82	PASS	70-125	65224.4	60530	107.76	PASS	70-125
CCB7	CCB	1	2362149.2	2207926.7	106.98	PASS	70-125	62402.5	60530	103.09	PASS	70-125
CCV8	CCV	1	2392511	2207926.7	108.36	PASS	70-125	62666.7	60530	103.53	PASS	70-125
CCB8	CCB	1	2354420.4	2207926.7	106.63	PASS	70-125	61116.7	60530	100.97	PASS	70-125
ICSA3	ICSA	1	2322167.2	2207926.7	105.17	PASS	70-125	60187.9	60530	99.43	PASS	70-125
ICSAB3	ICSAB	1	2362053.3	2207926.7	106.98	PASS	70-125	62402.2	60530	103.09	PASS	70-125
CCV9	CCV	1	2423423.5	2207926.7	109.76	PASS	70-125	62022.1	60530	102.47	PASS	70-125
CCB9	CCB	1	2382471.9	2207926.7	107.91	PASS	70-125	60138.6	60530	99.35	PASS	70-125
CCV10	CCV	1	2397226.2	2207926.7	108.57	PASS	70-125	61311.8	60530	101.29	PASS	70-125
CCB10	CCB	1	2379429.5	2207926.7	107.77	PASS	70-125	59974.6	60530	99.082	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSA4	ICSA	1	2305453.8	2207926.7	104.42	PASS	70-125	59628.8	60530	98.51	PASS	70-125
ICSAB4	ICSAB	1	2284233.6	2207926.7	103.46	PASS	70-125	63843.6	60530	105.47	PASS	70-125
MB-75129	MBLK	1	2337998.7	2207926.7	105.89	PASS	70-125	58731.8	60530	97.029	PASS	70-125
LCS-75129	LCS	1	2335905.5	2207926.7	105.8	PASS	70-125	63732	60530	105.29	PASS	70-125
N037118-001B	SAMP	1	2366257.2	2207926.7	107.17	PASS	70-125	65937.1	60530	108.93	PASS	70-125
N037118-001B	SAMP	5	2330531.4	2207926.7	105.55	PASS	70-125	63847	60530	105.48	PASS	70-125
N037118-001B-PS	PS	1	2456688.3	2207926.7	111.27	PASS	70-125	67989.8	60530	112.32	PASS	70-125
N037118-001B-MS	MS	1	2442644.7	2207926.7	110.63	PASS	70-125	67451.9	60530	111.44	PASS	70-125
N037118-001B-MSD	MSD	1	2467172	2207926.7	111.74	PASS	70-125	67865.7	60530	112.12	PASS	70-125
N037118-002B	SAMP	1	2379500.5	2207926.7	107.77	PASS	70-125	66107.8	60530	109.21	PASS	70-125
N037118-003B	SAMP	1	2392688.7	2207926.7	108.37	PASS	70-125	66745.9	60530	110.27	PASS	70-125
N037118-004B	SAMP	1	2387891.4	2207926.7	108.15	PASS	70-125	66376.4	60530	109.66	PASS	70-125
CCV11	CCV	1	2349004.3	2207926.7	106.39	PASS	70-125	64111	60530	105.92	PASS	70-125
CCB11	CCB	1	2349934	2207926.7	106.43	PASS	70-125	62336.5	60530	102.98	PASS	70-125
N037118-005B	SAMP	1	2419889.9	2207926.7	109.6	PASS	70-125	63938.2	60530	105.63	PASS	70-125
N037118-006B	SAMP	1	2416584.9	2207926.7	109.45	PASS	70-125	64799.1	60530	107.05	PASS	70-125
N037118-007B	SAMP	1	2451302.4	2207926.7	111.02	PASS	70-125	66175.9	60530	109.33	PASS	70-125
N037118-008B	SAMP	1	2418679.1	2207926.7	109.55	PASS	70-125	64818.4	60530	107.09	PASS	70-125
N037118-009B	SAMP	1	2385770.7	2207926.7	108.06	PASS	70-125	64982.3	60530	107.36	PASS	70-125
N037118-010B	SAMP	1	2428580.4	2207926.7	109.99	PASS	70-125	66557	60530	109.96	PASS	70-125
N037118-011B	SAMP	1	1973921.3	2207926.7	89.4	PASS	70-125	61369.5	60530	101.39	PASS	70-125
N037118-012B	SAMP	1	2366558	2207926.7	107.18	PASS	70-125	66220.3	60530	109.4	PASS	70-125
N037118-013B	SAMP	1	1959965.9	2207926.7	88.77	PASS	70-125	60421.8	60530	99.82	PASS	70-125
N037118-014B	SAMP	1	2414144.3	2207926.7	109.34	PASS	70-125	66521.7	60530	109.9	PASS	70-125
CCV12	CCV	1	2378209	2207926.7	107.71	PASS	70-125	65068	60530	107.5	PASS	70-125
CCB12	CCB	1	2351295.6	2207926.7	106.49	PASS	70-125	63401.5	60530	104.74	PASS	70-125
N037118-015B	SAMP	1	2352768.2	2207926.7	106.56	PASS	70-125	63252.3	60530	104.5	PASS	70-125
N037140-001A	SAMP	1	2451019.5	2207926.7	111.01	PASS	70-125	65007.8	60530	107.4	PASS	70-125
N037140-003A	SAMP	1	2426455.4	2207926.7	109.9	PASS	70-125	65970.3	60530	108.99	PASS	70-125
N037142-001A	SAMP	1	2466429.9	2207926.7	111.71	PASS	70-125	66428.9	60530	109.75	PASS	70-125
N037143-001B	SAMP	1	1949922.5	2207926.7	88.31	PASS	70-125	58940.9	60530	97.37	PASS	70-125
CCV13	CCV	1	2423084.2	2207926.7	109.74	PASS	70-125	66467.1	60530	109.81	PASS	70-125
CCB13	CCB	1	2363225.9	2207926.7	107.03	PASS	70-125	64352.4	60530	106.31	PASS	70-125
ICSA5	ICSA	1	2284820.5	2207926.7	103.48	PASS	70-125	63242.1	60530	104.48	PASS	70-125
ICSAB5	ICSAB	1	2317681.5	2207926.7	104.97	PASS	70-125	62969.2	60530	104.03	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	35277	35277	100	PASS	70-125	21637.4	21637.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	35488.5	35277	100.6	PASS	70-125	21987.8	21637.4	101.62	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	34985.3	35277	99.17	PASS	70-125	21742	21637.4	100.48	PASS	70-125
Std3-5/50 ppb	ICAL	1	34870.6	35277	98.85	PASS	70-125	21606.2	21637.4	99.86	PASS	70-125
Std4-10/100 ppb	ICAL	1	35343.8	35277	100.19	PASS	70-125	21951.2	21637.4	101.45	PASS	70-125
Std5-20/200 ppb	ICAL	1	35832.6	35277	101.57	PASS	70-125	22104.7	21637.4	102.16	PASS	70-125
Std6-40/400 ppb	ICAL	1	36120.9	35277	102.39	PASS	70-125	21600.7	21637.4	99.83	PASS	70-125
Std7-100/1000 ppb	ICAL	1	34710.2	35277	98.39	PASS	70-125	21112.2	21637.4	97.57	PASS	70-125
Std8-200/2000 ppb	ICAL	1	35701.2	35277	101.2	PASS	70-125	21984.5	21637.4	101.6	PASS	70-125
ICV	ICV	1	33091.2	35277	93.8	PASS	70-125	19878.4	21637.4	91.87	PASS	70-125
ICB	ICB	1	35258.2	35277	99.95	PASS	70-125	22567.7	21637.4	104.3	PASS	70-125
LLICV	CCV1	1	35211.2	35277	99.81	PASS	70-125	22025.7	21637.4	101.79	PASS	70-125
ICSA1	ICSA	1	36475.2	35277	103.4	PASS	70-125	22844.7	21637.4	105.58	PASS	70-125
ICSAB1	ICSAB	1	36784.9	35277	104.27	PASS	70-125	23714.8	21637.4	109.6	PASS	70-125
LLICV	CCV1	1	37166.7	35277	105.36	PASS	70-125	24361.3	21637.4	112.59	PASS	70-125
MB-75122	MBLK	1	37851.5	35277	107.3	PASS	70-125	26068.4	21637.4	120.48	PASS	70-125
CCV1	CCV	1	39915.6	35277	113.15	PASS	70-125	25526.4	21637.4	117.97	PASS	70-125
CCB1	CCB	1	38308.2	35277	108.59	PASS	70-125	22585.3	21637.4	104.38	PASS	70-125
CCV2	CCV	1	38382.8	35277	108.8	PASS	70-125	26333.4	21637.4	121.7	PASS	70-125
CCB2	CCB	1	38097.9	35277	108	PASS	70-125	25125.9	21637.4	116.12	PASS	70-125
CCV3	CCV	1	38071	35277	107.92	PASS	70-125	24877.6	21637.4	114.97	PASS	70-125
CCB3	CCB	1	36685.6	35277	103.99	PASS	70-125	23550.1	21637.4	108.84	PASS	70-125
CCV4	CCV	1	38324	35277	108.64	PASS	70-125	26127.4	21637.4	120.75	PASS	70-125
CCB4	CCB	1	37171.2	35277	105.37	PASS	70-125	25274.9	21637.4	116.81	PASS	70-125
ICSA2	ICSA	1	36543.1	35277	103.59	PASS	70-125	24099.7	21637.4	111.38	PASS	70-125
ICSAB2	ICSAB	1	35934	35277	101.86	PASS	70-125	24644	21637.4	113.9	PASS	70-125
CCV5	CCV	1	38267.1	35277	108.48	PASS	70-125	27133.5	21637.4	125.4	NR!	70-125
CCB5	CCB	1	36766.8	35277	104.22	PASS	70-125	25690.1	21637.4	118.73	PASS	70-125
MB-75124	MBLK	1	36767	35277	104.22	PASS	70-125	25315	21637.4	117	PASS	70-125
CCV6	CCV	1	37398.5	35277	106.01	PASS	70-125	25801.3	21637.4	119.24	PASS	70-125
CCB6	CCB	1	37019.8	35277	104.94	PASS	70-125	24704.1	21637.4	114.17	PASS	70-125
CCV7	CCV	1	38022.2	35277	107.78	PASS	70-125	27396.1	21637.4	126.61	NR!	70-125
CCB7	CCB	1	37740.2	35277	106.98	PASS	70-125	26382.2	21637.4	121.93	PASS	70-125
CCV8	CCV	1	37101.1	35277	105.17	PASS	70-125	26316.5	21637.4	121.63	PASS	70-125
CCB8	CCB	1	35701.3	35277	101.2	PASS	70-125	25642.2	21637.4	118.51	PASS	70-125
ICSA3	ICSA	1	35535.5	35277	100.73	PASS	70-125	25137	21637.4	116.17	PASS	70-125
ICSAB3	ICSAB	1	36287	35277	102.86	PASS	70-125	26354.4	21637.4	121.8	PASS	70-125
CCV9	CCV	1	36630	35277	103.84	PASS	70-125	27842.6	21637.4	128.68	NR!	70-125
CCB9	CCB	1	36105.3	35277	102.35	PASS	70-125	26287.6	21637.4	121.49	PASS	70-125
CCV10	CCV	1	35966.4	35277	101.95	PASS	70-125	27480.8	21637.4	127.01	NR!	70-125
CCB10	CCB	1	35685.7	35277	101.16	PASS	70-125	26482.5	21637.4	122.39	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSA4	ICSA	1	35111.3	35277	99.53	PASS	70-125	26195.2	21637.4	121.06	PASS	70-125
ICSAB4	ICSAB	1	36908.4	35277	104.62	PASS	70-125	26491.4	21637.4	122.43	PASS	70-125
MB-75129	MBLK	1	34008.8	35277	96.41	PASS	70-125	23040.4	21637.4	106.48	PASS	70-125
LCS-75129	LCS	1	36898.5	35277	104.6	PASS	70-125	26071.9	21637.4	120.49	PASS	70-125
N037118-001B	SAMP	1	38718.1	35277	109.75	PASS	70-125	27871.5	21637.4	128.81	NR!	70-125
N037118-001B	SAMP	5	37638.8	35277	106.7	PASS	70-125	26926.4	21637.4	124.44	PASS	70-125
N037118-001B-PS	PS	1	39532.3	35277	112.06	PASS	70-125	27750.2	21637.4	128.25	NR!	70-125
N037118-001B-MS	MS	1	39975.7	35277	113.32	PASS	70-125	27824.8	21637.4	128.6	NR!	70-125
N037118-001B-MSD	MSD	1	40041.6	35277	113.51	PASS	70-125	28811	21637.4	133.15	NR!	70-125
N037118-002B	SAMP	1	38883.1	35277	110.22	PASS	70-125	26873	21637.4	124.2	PASS	70-125
N037118-003B	SAMP	1	38909.8	35277	110.3	PASS	70-125	28012.8	21637.4	129.46	NR!	70-125
N037118-004B	SAMP	1	38738.2	35277	109.81	PASS	70-125	27582	21637.4	127.47	NR!	70-125
CCV11	CCV	1	37682.6	35277	106.82	PASS	70-125	26827.5	21637.4	123.99	PASS	70-125
CCB11	CCB	1	36936.2	35277	104.7	PASS	70-125	26189.8	21637.4	121.04	PASS	70-125
N037118-005B	SAMP	1	38384.1	35277	108.81	PASS	70-125	27547.6	21637.4	127.31	NR!	70-125
N037118-006B	SAMP	1	38722.6	35277	109.77	PASS	70-125	27388.5	21637.4	126.58	NR!	70-125
N037118-007B	SAMP	1	39054.5	35277	110.71	PASS	70-125	28530.4	21637.4	131.86	NR!	70-125
N037118-008B	SAMP	1	38653.6	35277	109.57	PASS	70-125	27644.5	21637.4	127.76	NR!	70-125
N037118-009B	SAMP	1	38393	35277	108.83	PASS	70-125	27592.1	21637.4	127.52	NR!	70-125
N037118-010B	SAMP	1	38803.1	35277	110	PASS	70-125	27740	21637.4	128.2	NR!	70-125
N037118-011B	SAMP	1	34877.4	35277	98.87	PASS	70-125	23206.2	21637.4	107.25	PASS	70-125
N037118-012B	SAMP	1	39013.1	35277	110.59	PASS	70-125	28953.4	21637.4	133.81	NR!	70-125
N037118-013B	SAMP	1	33354.1	35277	94.55	PASS	70-125	23467.6	21637.4	108.46	PASS	70-125
N037118-014B	SAMP	1	38833.9	35277	110.08	PASS	70-125	30166.7	21637.4	139.42	NR!	70-125
CCV12	CCV	1	38281.7	35277	108.52	PASS	70-125	28902.3	21637.4	133.58	NR!	70-125
CCB12	CCB	1	37766	35277	107.06	PASS	70-125	28086.1	21637.4	129.8	NR!	70-125
N037118-015B	SAMP	1	37494.3	35277	106.29	PASS	70-125	27523	21637.4	127.2	NR!	70-125
N037140-001A	SAMP	1	39034.6	35277	110.65	PASS	70-125	29144.8	21637.4	134.7	NR!	70-125
N037140-003A	SAMP	1	38743	35277	109.83	PASS	70-125	28978	21637.4	133.93	NR!	70-125
N037142-001A	SAMP	1	39419.9	35277	111.74	PASS	70-125	29231.7	21637.4	135.1	NR!	70-125
N037143-001B	SAMP	1	33336.3	35277	94.5	PASS	70-125	22846.9	21637.4	105.59	PASS	70-125
CCV13	CCV	1	39056.8	35277	110.71	PASS	70-125	29704.9	21637.4	137.28	NR!	70-125
CCB13	CCB	1	38532.3	35277	109.23	PASS	70-125	27686.7	21637.4	127.96	NR!	70-125
ICSA5	ICSA	1	36896.2	35277	104.59	PASS	70-125	26629.2	21637.4	123.07	PASS	70-125
ICSAB5	ICSAB	1	36846.1	35277	104.45	PASS	70-125	27169.3	21637.4	125.57	NR!	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	869884	869884	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	884506.1	869884	101.68	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	874249.4	869884	100.5	PASS	70-125
Std3-5/50 ppb	ICAL	1	881319.6	869884	101.31	PASS	70-125
Std4-10/100 ppb	ICAL	1	876849.2	869884	100.8	PASS	70-125
Std5-20/200 ppb	ICAL	1	892693.1	869884	102.62	PASS	70-125
Std6-40/400 ppb	ICAL	1	890282.1	869884	102.34	PASS	70-125
Std7-100/1000 ppb	ICAL	1	866279.9	869884	99.59	PASS	70-125
Std8-200/2000 ppb	ICAL	1	882762.6	869884	101.48	PASS	70-125
ICV	ICV	1	842083.5	869884	96.8	PASS	70-125
ICB	ICB	1	889001.4	869884	102.2	PASS	70-125
LLICV	CCV1	1	885445.1	869884	101.79	PASS	70-125
ICSA1	ICSA	1	849806.6	869884	97.69	PASS	70-125
ICSAB1	ICSAB	1	845911.8	869884	97.24	PASS	70-125
LLICV	CCV1	1	921296.7	869884	105.91	PASS	70-125
MB-75122	MBLK	1	925028.7	869884	106.34	PASS	70-125
CCV1	CCV	1	957214.1	869884	110.04	PASS	70-125
CCB1	CCB	1	925355.5	869884	106.38	PASS	70-125
CCV2	CCV	1	926534.9	869884	106.51	PASS	70-125
CCB2	CCB	1	914098.7	869884	105.08	PASS	70-125
CCV3	CCV	1	916480.8	869884	105.36	PASS	70-125
CCB3	CCB	1	902626.9	869884	103.76	PASS	70-125
CCV4	CCV	1	923823.6	869884	106.2	PASS	70-125
CCB4	CCB	1	899227.9	869884	103.37	PASS	70-125
ICSA2	ICSA	1	829880.4	869884	95.4	PASS	70-125
ICSAB2	ICSAB	1	830024.1	869884	95.42	PASS	70-125
CCV5	CCV	1	914799.2	869884	105.16	PASS	70-125
CCB5	CCB	1	890494.3	869884	102.37	PASS	70-125
MB-75124	MBLK	1	884694.2	869884	101.7	PASS	70-125
CCV6	CCV	1	915944.3	869884	105.29	PASS	70-125
CCB6	CCB	1	891673.4	869884	102.5	PASS	70-125
CCV7	CCV	1	902815.4	869884	103.79	PASS	70-125
CCB7	CCB	1	891111.6	869884	102.44	PASS	70-125
CCV8	CCV	1	895932.9	869884	102.99	PASS	70-125
CCB8	CCB	1	870075.1	869884	100.02	PASS	70-125
ICSA3	ICSA	1	807388.5	869884	92.82	PASS	70-125
ICSAB3	ICSAB	1	823799.6	869884	94.7	PASS	70-125
CCV9	CCV	1	875799.4	869884	100.68	PASS	70-125
CCB9	CCB	1	863765.4	869884	99.3	PASS	70-125
CCV10	CCV	1	865282.8	869884	99.47	PASS	70-125
CCB10	CCB	1	856206.2	869884	98.43	PASS	70-125

INTERNAL STANDARD: 190905C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
ICSA4	ICSA	1	793354.9	869884	91.2	PASS	70-125
ICSAB4	ICSAB	1	811951.7	869884	93.34	PASS	70-125
MB-75129	MBLK	1	829317.1	869884	95.34	PASS	70-125
LCS-75129	LCS	1	870769.4	869884	100.1	PASS	70-125
N037118-001B	SAMP	1	854248.6	869884	98.2	PASS	70-125
N037118-001B	SAMP	5	854993.2	869884	98.29	PASS	70-125
N037118-001B-PS	PS	1	880314.6	869884	101.2	PASS	70-125
N037118-001B-MS	MS	1	877900.2	869884	100.92	PASS	70-125
N037118-001B-MSD	MSD	1	882535.5	869884	101.45	PASS	70-125
N037118-002B	SAMP	1	857416.7	869884	98.57	PASS	70-125
N037118-003B	SAMP	1	861132	869884	98.99	PASS	70-125
N037118-004B	SAMP	1	854534.8	869884	98.24	PASS	70-125
CCV11	CCV	1	893108.7	869884	102.67	PASS	70-125
CCB11	CCB	1	877671.8	869884	100.9	PASS	70-125
N037118-005B	SAMP	1	850209.8	869884	97.74	PASS	70-125
N037118-006B	SAMP	1	851323.5	869884	97.87	PASS	70-125
N037118-007B	SAMP	1	864445.1	869884	99.37	PASS	70-125
N037118-008B	SAMP	1	859699.9	869884	98.83	PASS	70-125
N037118-009B	SAMP	1	848017.4	869884	97.49	PASS	70-125
N037118-010B	SAMP	1	851570.3	869884	97.89	PASS	70-125
N037118-011B	SAMP	1	721654.1	869884	82.96	PASS	70-125
N037118-012B	SAMP	1	847696.5	869884	97.45	PASS	70-125
N037118-013B	SAMP	1	702170.1	869884	80.72	PASS	70-125
N037118-014B	SAMP	1	851218.2	869884	97.85	PASS	70-125
CCV12	CCV	1	892104.1	869884	102.55	PASS	70-125
CCB12	CCB	1	888777	869884	102.17	PASS	70-125
N037118-015B	SAMP	1	827175.9	869884	95.09	PASS	70-125
N037140-001A	SAMP	1	856053.3	869884	98.41	PASS	70-125
N037140-003A	SAMP	1	854767.3	869884	98.26	PASS	70-125
N037142-001A	SAMP	1	863257.8	869884	99.24	PASS	70-125
N037143-001B	SAMP	1	698831.3	869884	80.34	PASS	70-125
CCV13	CCV	1	912263.1	869884	104.87	PASS	70-125
CCB13	CCB	1	888175.2	869884	102.1	PASS	70-125
ICSA5	ICSA	1	810976.5	869884	93.23	PASS	70-125
ICSAB5	ICSAB	1	815201.5	869884	93.71	PASS	70-125

INTERNAL STANDARD: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	17894.9	17894.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	18244.3	17894.9	101.95	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	17613.5	17894.9	98.43	PASS	70-125
Std3-5/50 ppb	ICAL	1	17411.1	17894.9	97.3	PASS	70-125
Std4-10/100 ppb	ICAL	1	16898.4	17894.9	94.43	PASS	70-125
Std5-20/200 ppb	ICAL	1	17174.2	17894.9	95.97	PASS	70-125
Std6-40/400 ppb	ICAL	1	17574.6	17894.9	98.21	PASS	70-125
Std7-100/1000 ppb	ICAL	1	17109.7	17894.9	95.61	PASS	70-125
Std8-200/2000 ppb	ICAL	1	16495.6	17894.9	92.18	PASS	70-125
ICV	ICV	1	15168.8	17894.9	84.77	PASS	70-125
ICB	ICB	1	16595.8	17894.9	92.74	PASS	70-125
LLICV	CCV1	1	16939.4	17894.9	94.66	PASS	70-125
ICSA1	ICSA	1	18539	17894.9	103.6	PASS	70-125
ICSAB1	ICSAB	1	21132.3	17894.9	118.09	PASS	70-125
LLICV	CCV1	1	19581.4	17894.9	109.42	PASS	70-125
MB-75129	MBLK	1	20484.6	17894.9	114.47	PASS	70-125
LCS-75129	LCS	1	20070.8	17894.9	112.16	PASS	70-125
N037118-001B	SAMP	1	20068.6	17894.9	112.15	PASS	70-125
N037118-001B	SAMP	5	20042	17894.9	112	PASS	70-125
N037118-001B-PS	PS	1	21052.2	17894.9	117.64	PASS	70-125
N037118-001B-MS	MS	1	20276.7	17894.9	113.31	PASS	70-125
N037118-001B-MSD	MSD	1	20224.4	17894.9	113.02	PASS	70-125
N037118-002B	SAMP	1	19541.3	17894.9	109.2	PASS	70-125
N037118-003B	SAMP	1	20178.8	17894.9	112.76	PASS	70-125
N037118-004B	SAMP	1	19733.8	17894.9	110.28	PASS	70-125
CCV1	CCV	1	19512.5	17894.9	109.04	PASS	70-125
CCB1	CCB	1	18895	17894.9	105.59	PASS	70-125
N037118-005B	SAMP	1	19032.9	17894.9	106.36	PASS	70-125
N037118-006B	SAMP	1	18964	17894.9	105.97	PASS	70-125
N037118-007B	SAMP	1	18928.4	17894.9	105.78	PASS	70-125
N037118-008B	SAMP	1	18102.9	17894.9	101.16	PASS	70-125
N037118-009B	SAMP	1	18114.1	17894.9	101.22	PASS	70-125
N037118-010B	SAMP	1	17350	17894.9	96.95	PASS	70-125
N037118-011B	SAMP	1	16636.9	17894.9	92.97	PASS	70-125
N037118-012B	SAMP	1	16086.4	17894.9	89.89	PASS	70-125
N037118-013B	SAMP	1	16574.7	17894.9	92.62	PASS	70-125
N037118-003B	SAMP	1	16271	17894.9	90.93	PASS	70-125
CCV2	CCV	1	16807.1	17894.9	93.92	PASS	70-125
CCB2	CCB	1	16705.9	17894.9	93.36	PASS	70-125
N037118-004B	SAMP	1	16840.5	17894.9	94.11	PASS	70-125
N037118-007B	SAMP	1	16909.5	17894.9	94.49	PASS	70-125

INTERNAL STANDARD: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
N037118-008B	SAMP	1	17032.9	17894.9	95.18	PASS	70-125
N037118-010B	SAMP	1	16464.5	17894.9	92.007	PASS	70-125
N037118-011B	SAMP	1	15937.3	17894.9	89.061	PASS	70-125
N037118-012B	SAMP	1	15796	17894.9	88.27	PASS	70-125
N037118-013B	SAMP	1	16274.3	17894.9	90.94	PASS	70-125
N037118-004B	SAMP	1	15708.2	17894.9	87.78	PASS	70-125
N037118-007B	SAMP	1	16135.3	17894.9	90.17	PASS	70-125
N037118-010B	SAMP	1	15989.6	17894.9	89.35	PASS	70-125
CCV3	CCV	1	16791.5	17894.9	93.83	PASS	70-125
CCB3	CCB	1	15954	17894.9	89.15	PASS	70-125
N037118-012B	SAMP	1	18116.3	17894.9	101.24	PASS	70-125
N037118-013B	SAMP	1	18398.9	17894.9	102.82	PASS	70-125
N037118-004B	SAMP	1	17990.7	17894.9	100.54	PASS	70-125
N037118-007B	SAMP	1	18129.7	17894.9	101.31	PASS	70-125
N037118-010B	SAMP	1	17644.7	17894.9	98.6	PASS	70-125
N037118-013B	SAMP	1	16922.8	17894.9	94.57	PASS	70-125
CCV4	CCV	1	16118.6	17894.9	90.074	PASS	70-125
CCB4	CCB	1	15330.1	17894.9	85.67	PASS	70-125
N037118-004B	SAMP	1	15019.7	17894.9	83.93	PASS	70-125
N037118-007B	SAMP	1	15860.6	17894.9	88.63	PASS	70-125
N037118-010B	SAMP	1	15142.1	17894.9	84.62	PASS	70-125
N037118-013B	SAMP	1	15079.8	17894.9	84.27	PASS	70-125
CCV5	CCV	1	14876.3	17894.9	83.13	PASS	70-125
CCB5	CCB	1	14151.1	17894.9	79.079	PASS	70-125
ICSA2	ICSA	1	13412.7	17894.9	74.95	PASS	70-125
ICSAB2	ICSAB	1	13895.4	17894.9	77.65	PASS	70-125
CCV6	CCV	1	16757	17894.9	93.64	PASS	70-125
CCB6	CCB	1	15962.9	17894.9	89.2	PASS	70-125
CCV7	CCV	1	15981.9	17894.9	89.31	PASS	70-125
CCB7	CCB	1	15508	17894.9	86.66	PASS	70-125
CCV8	CCV	1	13973.2	17894.9	78.085	PASS	70-125
CCB8	CCB	1	13213.6	17894.9	73.84	PASS	70-125
ICSA3	ICSA	1	13112.5	17894.9	73.28	PASS	70-125
ICSAB3	ICSAB	1	13581.8	17894.9	75.9	PASS	70-125
CCV9	CCV	1	15286.7	17894.9	85.42	PASS	70-125
CCB9	CCB	1	13801.9	17894.9	77.13	PASS	70-125
CCV10	CCV	1	15867.2	17894.9	88.67	PASS	70-125
CCB10	CCB	1	15402.3	17894.9	86.071	PASS	70-125
ICSA4	ICSA	1	14233.5	17894.9	79.54	PASS	70-125
ICSAB4	ICSAB	1	14573.7	17894.9	81.44	PASS	70-125

INTERNAL STANDARD: 190910A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	13283.7	13283.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	13575.1	13283.7	102.19	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	13697.4	13283.7	103.11	PASS	70-125
Std3-5/50 ppb	ICAL	1	13788.6	13283.7	103.8	PASS	70-125
Std4-10/100 ppb	ICAL	1	13467.2	13283.7	101.38	PASS	70-125
Std5-20/200 ppb	ICAL	1	13225.9	13283.7	99.56	PASS	70-125
Std6-40/400 ppb	ICAL	1	13516.2	13283.7	101.75	PASS	70-125
Std7-100/1000 ppb	ICAL	1	13191.4	13283.7	99.31	PASS	70-125
Std8-200/2000 ppb	ICAL	1	13063.6	13283.7	98.34	PASS	70-125
ICV	ICV	1	12173.9	13283.7	91.65	PASS	70-125
ICB	ICB	1	11911.5	13283.7	89.67	PASS	70-125
LLICV	CCV1	1	12709.9	13283.7	95.68	PASS	70-125
ICSA1	ICSA	1	13188.1	13283.7	99.28	PASS	70-125
ICSAB1	ICSAB	1	14760.6	13283.7	111.12	PASS	70-125
LLICV	CCV1	1	15620.3	13283.7	117.59	PASS	70-125
N037118-004B	SAMP	1	16252.1	13283.7	122.35	PASS	70-125
N037118-007B	SAMP	1	15807.2	13283.7	119	PASS	70-125
N037118-010B	SAMP	1	15662.6	13283.7	117.91	PASS	70-125
N037118-013B	SAMP	1	15780.5	13283.7	118.8	PASS	70-125
CCV1	CCV	1	14199	13283.7	106.89	PASS	70-125
CCB1	CCB	1	15273.3	13283.7	114.98	PASS	70-125
CCV2	CCV	1	15006.4	13283.7	112.97	PASS	70-125
CCB2	CCB	1	14387	13283.7	108.31	PASS	70-125
ICSA2	ICSA	1	14451.5	13283.7	108.79	PASS	70-125
ICSAB2	ICSAB	1	14330.2	13283.7	107.88	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037118
Test Method: EPA 6020
Analysis Date: 09 / 05 & 09 / 2019

Matrix: Groundwater
Batch No.: 75129

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037118-001B DT 5x	Arsenic	As	µg/L	2.265513	NA	2.361042	4.05%	10
N037118-001B DT 5x	Barium	Ba	µg/L	122.6063	PASS	117.3579	4.47%	10
N037118-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N037118-001B DT 5x	Molybdenum	Mo	µg/L	4.436199	NA	4.479176	0.96%	10
N037118-001B DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N037118-001B DT 5x	Selenium	Se	µg/L	2.590871	NA	1.488807	74.02%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**N037118-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136324**
Client ID:	**ZZZZZZ**	Batch ID: **75129**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/6/2019**	SeqNo: **3504314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.226	0.10	10.00	2.361	98.6	80	120				
Barium	122.455	1.0	10.00	117.4	51.0	80	120				S
Manganese	95.670	0.50	100.0	0	95.7	80	120				
Molybdenum	14.914	0.50	10.00	4.479	104	80	120				

Sample ID	**N037118-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136373**
Client ID:	**ZZZZZZ**	Batch ID: **75129**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/9/2019**	SeqNo: **3506820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.090	0.50	10.00	1.489	96.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037118
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037118-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136323**
Client ID:	**ZZZZZZ**	Batch ID: **75129**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/6/2019**	SeqNo: **3504156**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.328	1.0	10.00	0	93.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

September 13, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037144

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucan for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N037144-002 and -003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Manganese in QC sample N037117-001D-MSD possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N037144
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037144-001A	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-001B	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-001C	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-001D	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-002A	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-002B	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-002C	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-002D	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-003A	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-003B	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-003C	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-003D	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-004A	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019
N037144-004B	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019
N037144-004C	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019
N037144-004D	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037144-004BDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11200.000	0.10						11170	0.268	2	

Sample ID	**N037148-007DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	878.000	0.10						877.0	0.114	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A** QC Batch: **R136209**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	93	0.33	2.0		µg/L	10	8/30/2019 03:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190906D** QC Batch: **75130**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	91	0.13	1.0		µg/L	1	9/7/2019 01:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A**	QC Batch: **R136209**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	8/30/2019 03:53 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190906D**	QC Batch: **75130**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/7/2019 02:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A**	QC Batch: **R136209**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	8/30/2019 04:03 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190906D**	QC Batch: **75130**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/7/2019 02:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A** QC Batch: **R136209**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	20	0.17	1.0		µg/L	5	8/30/2019 04:12 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190906D** QC Batch: **75130**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	18	0.13	1.0		µg/L	1	9/7/2019 02:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R136209**	SampType:	**MBLK**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**PBW**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R136209**	SampType:	**LCS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**LCSW**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.793	0.20	5.000	0	95.9	90	110				

Sample ID	**N037240-001BMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**ZZZZZZ**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497260**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.209	0.20	1.000	0.2223	98.7	90	110				

Sample ID	**N037142-002AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**ZZZZZZ**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID	**N037240-001BMSD**	SampType:	**MSD**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**ZZZZZZ**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.190	0.20	1.000	0.2223	96.8	90	110	1.209	1.59	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037142-002ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N037145-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Sample ID **N037143-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	64.770	1.0	25.00	39.93	99.4	90	110				

Sample ID **N037144-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.080	1.0	5.000	0	102	90	110				

Sample ID **N037144-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.018	1.0	5.000	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037144-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499003

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	45.064	1.0	25.00	20.41	98.6	90	110				

Sample ID	N037144-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499006

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	142.663	2.0	50.00	92.79	99.8	90	110				

Sample ID	N037140-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499013

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID	N037143-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499015

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Sample ID	N037178-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499017

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037180-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499019

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.043	0.20	1.000	0	104	90	110				

Sample ID	N037181-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499021

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.225	0.20	1.000	0.2093	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75130	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	PBW	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3506354

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75130	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	LCSW	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3506357

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.312	1.0	10.00	0	103	85	115				

Sample ID	N037117-001D-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506363

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.150	1.0	10.00	0.4590	96.9	75	125				

Sample ID	N037117-001D-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506365

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.026	1.0	10.00	0.4590	95.7	75	125	10.15	1.23	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.71	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	2.9	0.16	0.25		mg/L	5	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136435	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	PBW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510868

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136435	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	LCSW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	N037097-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510871

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.226	0.050						0.2364	4.37	20	

Sample ID	N037107-005BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	14.132	0.50	5.000	7.904	125	75	125				

Sample ID	N037107-005BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510874

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.750	0.50	5.000	7.904	96.9	75	125	14.13	10.3	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037144
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N037144-001

Client Sample ID: MW-72-080-Q319
Collection Date: 8/22/2019 1:44:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	13	0.081	0.10		µg/L	1	9/7/2019 01:59 AM
Manganese	ND	0.26	0.50		µg/L	1	9/7/2019 01:59 AM
Molybdenum	77	0.21	0.50		µg/L	1	9/7/2019 01:59 AM
Selenium	1.4	0.36	0.50		µg/L	1	9/7/2019 01:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037144
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N037144-002

Client Sample ID: MW-72BR-200-Q319
Collection Date: 8/22/2019 2:20:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	9.8	0.081	0.10		µg/L	1	9/7/2019 02:09 AM
Manganese	130	0.26	0.50		µg/L	1	9/7/2019 02:09 AM
Molybdenum	61	0.21	0.50		µg/L	1	9/7/2019 02:09 AM
Selenium	ND	0.36	0.50		µg/L	1	9/7/2019 02:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037144
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N037144-003

Client Sample ID: MW-64BR-Q319
Collection Date: 8/22/2019 2:54:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	3.6	0.081	0.10		µg/L	1	9/7/2019 02:19 AM
Manganese	840	1.3	2.5		µg/L	5	9/7/2019 02:25 AM
Molybdenum	62	0.21	0.50		µg/L	1	9/7/2019 02:19 AM
Selenium	ND	0.36	0.50		µg/L	1	9/7/2019 02:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037144
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N037144-004

Client Sample ID: MW-73-080-Q319
Collection Date: 8/22/2019 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	1.7	0.081	0.10		µg/L	1	9/7/2019 02:30 AM
Manganese	ND	0.26	0.50		µg/L	1	9/7/2019 02:30 AM
Molybdenum	29	0.21	0.50		µg/L	1	9/7/2019 02:30 AM
Selenium	3.2	0.36	0.50		µg/L	1	9/7/2019 02:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75130**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **PBW**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/6/2019**	SeqNo: **3506277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-75130**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **LCSW**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/6/2019**	SeqNo: **3506280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.090	0.10	10.00	0	101	85	115				
Manganese	104.656	0.50	100.0	0	105	85	115				
Molybdenum	9.881	0.50	10.00	0	98.8	85	115				
Selenium	9.373	0.50	10.00	0	93.7	85	115				

Sample ID **N037117-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **ZZZZZZ**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/7/2019**	SeqNo: **3506286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.650	0.10	10.00	3.915	97.3	75	125				
Molybdenum	21.141	0.50	10.00	11.37	97.7	75	125				
Selenium	10.406	0.50	10.00	0	104	75	125				

Sample ID **N037117-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **ZZZZZZ**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/7/2019**	SeqNo: **3506287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	548.322	2.5	100.0	465.6	82.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037117-001D-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506288

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.888	0.10	10.00	3.915	99.7	75	125	13.65	1.73	20	
Molybdenum	21.228	0.50	10.00	11.37	98.6	75	125	21.14	0.412	20	
Selenium	9.921	0.50	10.00	0	99.2	75	125	10.41	4.77	20	

Sample ID	N037117-001D-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506289

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	538.818	2.5	100.0	465.6	73.2	75	125	548.3	1.75	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037117-001D-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506284

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.068	0.10	10.00	3.915	102	80	120				
Molybdenum	21.920	0.50	10.00	11.37	106	80	120				
Selenium	10.282	0.50	10.00	0	103	80	120				

Sample ID	N037117-001D-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506285

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	580.732	2.5	100.0	465.6	115	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

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Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Nara Tay		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 8/22/19	Sampled By: Nara Tay		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
Project Name: PG&E Topock - GMP	Signature:	Date: 8/22/19	
Project Number: RC000753.801D			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 3.9		

Courier:

Tracking No.:

Matrix		
Ground	x	Sediment
Potable		Soil
NPDES		Other Solid
Surface		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Oxygen and Deuterium Isotopes (CFIRM), Ice 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Fluoride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Dissolved metals (SW 6020); HNO3 As, Cr, Mg, Mn, Mo, Se 500 mL poly	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na 500 mL poly	Dissolved metals (SW 6020); HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn 500 mL poly	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, 500 mL poly	Metals Dissolved (EPA7470A FF) Hg; HNO3 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Potassium 500 mL poly	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037144-01	MW-72-080-Q319	8/22/2019	13:44		X						X		X		X							E	4	P	BNS	
2	-02	MW-72BR-200-Q319	8/22/2019	14:20		X						X		X		X							E	4	P	BNS	
3	-03	MW-64BR-Q319	8/22/2019	14:54		X						X		X		X							E	4	P	BNS	
4	-04	MW-73-080-Q319	8/22/2019	14:50		X						X		X		X							E	4	P	BNS	
5																											
6																											
7																											
8																											
9																											
10																											

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Nara Tay	8/22/19 1600	JORDAN	8/22/19 1600
JORDAN	8/22/19 1907	JORDAN	8/22/19 1907

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/22/2019	Workorder:	N037144
Rep sample Temp (Deg C):	3.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YR 8/28/2019

Reviewed By: LG 090519

Sample Control

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Monday, August 26, 2019 1:38 PM
To: Yoandra Rodriguez; samplecontrol.lv@assetlaboratories.com; nancy@assetlaboratories.com; marlon@assetlaboratories.com
Cc: Tina Rice
Subject: FW: COCs and Work Order Summaries for Samples Received 8/22/2019
Attachments: N037144.pdf; N037144COC.xls; N037145.pdf; N037145COC.xls; N037146.pdf; N037146COC.xls; N037147.pdf; N037147COC.xls; N037148.pdf; N037148COC.xls

Hi Yoandra,
For SDG N037144, magnesium was inadvertently selected for all samples. Can you please remove magnesium from the sample login? The dissolved metals needed should be selenium, molybdenum, manganese, chromium, and arsenic.

Thanks
Laura

From: Sample Control <samplecontrol.lv@assetlaboratories.com>
Sent: Friday, August 23, 2019 2:09 PM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; rsunjara@blainetech.com; Nicholas.Vadpey@arcadis.com; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: COCs and Work Order Summaries for Samples Received 8/22/2019

Hi Dan Bush:

Enclosed are COCs and WO Summaries for samples received 8/22/2019. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037144

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037144-001A	MW-72-080-Q319	8/22/2019 1:44:00 PM	9/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-001B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-001C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037144-001D			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-002A	MW-72BR-200-Q319	8/22/2019 2:20:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-002B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-002C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037144-002D			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-003A	MW-64BR-Q319	8/22/2019 2:54:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-003B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-003C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037144-003D			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-004A	MW-73-080-Q319	8/22/2019 2:50:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-004B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-004C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037144

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037144-004D	MW-73-080-Q319	8/22/2019 2:50:00 PM	9/6/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-005A	FOLDER	9/6/2019	9/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N037144

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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September 13, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037144

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucan for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N037144

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N037144-002 and -003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Manganese in QC sample N037117-001D-MSD possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *13-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N037144
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037144-001A	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-001B	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-001C	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-001D	MW-72-080-Q319	Groundwater	8/22/2019 1:44:00 PM	8/22/2019	9/13/2019
N037144-002A	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-002B	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-002C	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-002D	MW-72BR-200-Q319	Groundwater	8/22/2019 2:20:00 PM	8/22/2019	9/13/2019
N037144-003A	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-003B	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-003C	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-003D	MW-64BR-Q319	Groundwater	8/22/2019 2:54:00 PM	8/22/2019	9/13/2019
N037144-004A	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019
N037144-004B	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019
N037144-004C	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019
N037144-004D	MW-73-080-Q319	Groundwater	8/22/2019 2:50:00 PM	8/22/2019	9/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037144-004BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **136023**
Client ID: **ZZZZZZ**	Batch ID: **R136023**	TestNo: **EPA 120.1**		Analysis Date: **8/23/2019**	SeqNo: **3489300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11200.000	0.10						11170	0.268	2	

Sample ID **N037148-007DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **136023**
Client ID: **ZZZZZZ**	Batch ID: **R136023**	TestNo: **EPA 120.1**		Analysis Date: **8/23/2019**	SeqNo: **3489310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	878.000	0.10						877.0	0.114	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A** QC Batch: **R136209**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	93	0.33	2.0		µg/L	10	8/30/2019 03:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190906D** QC Batch: **75130**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	91	0.13	1.0		µg/L	1	9/7/2019 01:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A**	QC Batch: **R136209**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	8/30/2019 03:53 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190906D**	QC Batch: **75130**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/7/2019 02:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A**	QC Batch: **R136209**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	8/30/2019 04:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190906D**	QC Batch: **75130**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/7/2019 02:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_190830A** QC Batch: **R136209**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	20	0.17	1.0		µg/L	5	8/30/2019 04:12 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A **EPA 6020**							
RunID: **NV00922-ICP7_190906D** QC Batch: **75130**				PrepDate:	**8/23/2019**		Analyst: **CEI**
Chromium	18	0.13	1.0		µg/L	1	9/7/2019 02:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R136209**	SampType:	**MBLK**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**PBW**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R136209**	SampType:	**LCS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**LCSW**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.793	0.20	5.000	0	95.9	90	110				

Sample ID	**N037240-001BMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**ZZZZZZ**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497260**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.209	0.20	1.000	0.2223	98.7	90	110				

Sample ID	**N037142-002AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**ZZZZZZ**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID	**N037240-001BMSD**	SampType:	**MSD**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**136209**
Client ID:	**ZZZZZZ**	Batch ID:	**R136209**	TestNo:	**EPA 218.6**			Analysis Date:	**8/30/2019**	SeqNo:	**3497263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.190	0.20	1.000	0.2223	96.8	90	110	1.209	1.59	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037142-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3497265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N037145-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3497268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Sample ID **N037143-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3497270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	64.770	1.0	25.00	39.93	99.4	90	110				

Sample ID **N037144-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.080	1.0	5.000	0	102	90	110				

Sample ID **N037144-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.018	1.0	5.000	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037144-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	45.064	1.0	25.00	20.41	98.6	90	110				

Sample ID **N037144-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	142.663	2.0	50.00	92.79	99.8	90	110				

Sample ID **N037140-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID **N037143-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Sample ID **N037178-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037180-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499019**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.043	0.20	1.000	0	104	90	110				

Sample ID **N037181-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.225	0.20	1.000	0.2093	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75130	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	PBW	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3506354

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75130	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	LCSW	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/6/2019	SeqNo:	3506357

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.312	1.0	10.00	0	103	85	115				

Sample ID	N037117-001D-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506363

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.150	1.0	10.00	0.4590	96.9	75	125				

Sample ID	N037117-001D-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136363
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506365

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.026	1.0	10.00	0.4590	95.7	75	125	10.15	1.23	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.71	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	2.9	0.16	0.25		mg/L	5	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136435	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	PBW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510868

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136435	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	LCSW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	N037097-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510871

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.226	0.050						0.2364	4.37	20	

Sample ID	N037107-005BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	14.132	0.50	5.000	7.904	125	75	125				

Sample ID	N037107-005BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510874

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.750	0.50	5.000	7.904	96.9	75	125	14.13	10.3	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Arsenic	13	0.081	0.10		µg/L	1	9/7/2019 01:59 AM
Manganese	ND	0.26	0.50		µg/L	1	9/7/2019 01:59 AM
Molybdenum	77	0.21	0.50		µg/L	1	9/7/2019 01:59 AM
Selenium	1.4	0.36	0.50		µg/L	1	9/7/2019 01:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Arsenic	9.8	0.081	0.10		µg/L	1	9/7/2019 02:09 AM
Manganese	130	0.26	0.50		µg/L	1	9/7/2019 02:09 AM
Molybdenum	61	0.21	0.50		µg/L	1	9/7/2019 02:09 AM
Selenium	ND	0.36	0.50		µg/L	1	9/7/2019 02:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q319
Lab Order:	N037144	**Collection Date:**	8/22/2019 2:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037144-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	3.6	0.081	0.10		µg/L	1	9/7/2019 02:19 AM
Manganese	840	1.3	2.5		µg/L	5	9/7/2019 02:25 AM
Molybdenum	62	0.21	0.50		µg/L	1	9/7/2019 02:19 AM
Selenium	ND	0.36	0.50		µg/L	1	9/7/2019 02:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037144
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N037144-004

Client Sample ID: MW-73-080-Q319
Collection Date: 8/22/2019 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190906C**	QC Batch: **75130**			PrepDate:		**8/23/2019**	Analyst: **CEI**
Arsenic	1.7	0.081	0.10		µg/L	1	9/7/2019 02:30 AM
Manganese	ND	0.26	0.50		µg/L	1	9/7/2019 02:30 AM
Molybdenum	29	0.21	0.50		µg/L	1	9/7/2019 02:30 AM
Selenium	3.2	0.36	0.50		µg/L	1	9/7/2019 02:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75130**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **PBW**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/6/2019**	SeqNo: **3506277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-75130**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **LCSW**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/6/2019**	SeqNo: **3506280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.090	0.10	10.00	0	101	85	115				
Manganese	104.656	0.50	100.0	0	105	85	115				
Molybdenum	9.881	0.50	10.00	0	98.8	85	115				
Selenium	9.373	0.50	10.00	0	93.7	85	115				

Sample ID **N037117-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **ZZZZZZ**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/7/2019**	SeqNo: **3506286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.650	0.10	10.00	3.915	97.3	75	125				
Molybdenum	21.141	0.50	10.00	11.37	97.7	75	125				
Selenium	10.406	0.50	10.00	0	104	75	125				

Sample ID **N037117-001D-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/23/2019**	RunNo: **136352**
Client ID: **ZZZZZZ**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/7/2019**	SeqNo: **3506287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	548.322	2.5	100.0	465.6	82.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037117-001D-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506288

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.888	0.10	10.00	3.915	99.7	75	125	13.65	1.73	20	
Molybdenum	21.228	0.50	10.00	11.37	98.6	75	125	21.14	0.412	20	
Selenium	9.921	0.50	10.00	0	99.2	75	125	10.41	4.77	20	

Sample ID	N037117-001D-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/23/2019	RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506289

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	538.818	2.5	100.0	465.6	73.2	75	125	548.3	1.75	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037117-001D-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506284

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.068	0.10	10.00	3.915	102	80	120				
Molybdenum	21.920	0.50	10.00	11.37	106	80	120				
Selenium	10.282	0.50	10.00	0	103	80	120				

Sample ID	N037117-001D-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506285

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	580.732	2.5	100.0	465.6	115	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Nara Tay		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 8/22/19	Sampled By: Nara Tay		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
Project Name: PG&E Topock - GMP	Signature:	Date: 8/22/19	
Project Number: RC000753.801D			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 3.9		

Courier:
Tracking No.:

Matrix		
Ground	x	Sediment
Potable		Soil
NPDES		Other Solid
Surface		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Oxygen and Deuterium Isotopes (CFIRM), Ice 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Fluoride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Dissolved metals (SW 6020); HNO3 As, Cr, Mg, Mn, Mo, Se 500 mL poly	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na 500 mL poly	Dissolved metals (SW 6020); HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn 500 mL poly	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, 500 mL poly	Metals Dissolved (EPA7470A FF) Hg; HNO3 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Potassium 500 mL poly	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037144-01	MW-72-080-Q319	8/22/2019	13:44		X						X		X		X							E	4	P	BNS	
2	-02	MW-72BR-200-Q319	8/22/2019	14:20		X						X		X		X							E	4	P	BNS	
3	-03	MW-64BR-Q319	8/22/2019	14:54		X						X		X		X							E	4	P	BNS	
4	-04	MW-73-080-Q319	8/22/2019	14:50		X						X		X		X							E	4	P	BNS	
5																											
6																											
7																											
8																											
9																											
10																											

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Nara Tay	8/22/19 1600	JORDAN	8/22/19 1600
JORDAN	8/22/19 1907	JORDAN	8/22/19 1907

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/22/2019	Workorder:	N037144
Rep sample Temp (Deg C):	3.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YR 8/28/2019

Reviewed By: LG 090519

Sample Control

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Monday, August 26, 2019 1:38 PM
To: Yoandra Rodriguez; samplecontrol.lv@assetlaboratories.com; nancy@assetlaboratories.com; marlon@assetlaboratories.com
Cc: Tina Rice
Subject: FW: COCs and Work Order Summaries for Samples Received 8/22/2019
Attachments: N037144.pdf; N037144COC.xls; N037145.pdf; N037145COC.xls; N037146.pdf; N037146COC.xls; N037147.pdf; N037147COC.xls; N037148.pdf; N037148COC.xls

Hi Yoandra,
For SDG N037144, magnesium was inadvertently selected for all samples. Can you please remove magnesium from the sample login? The dissolved metals needed should be selenium, molybdenum, manganese, chromium, and arsenic.

Thanks
Laura

From: Sample Control <samplecontrol.lv@assetlaboratories.com>
Sent: Friday, August 23, 2019 2:09 PM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; rsunjara@blainetech.com; Nicholas.Vadpey@arcadis.com; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: COCs and Work Order Summaries for Samples Received 8/22/2019

Hi Dan Bush:

Enclosed are COCs and WO Summaries for samples received 8/22/2019. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer

ASSET Laboratories

WORK ORDER Summary

26-Aug-19

WorkOrder: N037144

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037144-001A	MW-72-080-Q319	8/22/2019 1:44:00 PM	9/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-001B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-001C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037144-001D			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-002A	MW-72BR-200-Q319	8/22/2019 2:20:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-002B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-002C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037144-002D			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-003A	MW-64BR-Q319	8/22/2019 2:54:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-003B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-003C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037144-003D			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-004A	MW-73-080-Q319	8/22/2019 2:50:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037144-004B			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037144-004C			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

WORK ORDER Summary

26-Aug-19

WorkOrder: N037144

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037144-004D	MW-73-080-Q319	8/22/2019 2:50:00 PM	9/6/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037144-005A	FOLDER	9/6/2019	9/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037144

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Lilia Ramit	EPA 120.1
Hanah Glodoviza	EPA 218.6
Marlon Cartin	SM 4500-NO3F

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136023 **Analyst:** LSR

ASSET #: N037144 **Date Analyzed:** 23-Aug

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 8/30/2019

2nd Level Reviewer NS 9/6/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 8/23/19 1055

Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 mS/cm	CINV-190516A	10.06 @22.4°C	% Rec: (90-110%)
1410	190724D	1408 @22.3°C	
9985	190724F	9940 @22.3°C	
99999	190613A	100900 @22.2°C	

	Sample ID	Matrix	Reading	Comments
1	NB7144-1B	H_2O	15290 @23.1°C	
2	2B		13700 @22.9°C	
3	3B		12810 @22.8°C	
4	4B		11170 @22.8°C	
5	4BDUP		11200 @23.0°C	
6	NB7145-1C		2370* @24.0°C	
7	2C		6930 @23.7°C	
8	NB7148-1D		869 @23.3°C	
9	2D		860 @22.9°C	
10	3D		859 @22.8°C	
Dup	4D		865 @22.8°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 8/30/2019

Date:

Analyst: CONT'D

Standard	Std ID	Reading	Comments
1413 mS/cm	CINV-190313A	1425 @25.5°C	% Rec: (90-110%)
10000	B	9940 @25.4°C	
99999	CINV-190524A	98000 @25.6°C	

	Sample ID	Matrix	Reading	Comments
1	NB7148-5D	H_2O	874 @23.4°C	
2	6D		873 @23.3°C	
3	7D		877 @23.1°C	
4	7DDUP		878 @23.1°C	
5	8D		871 @23.5°C	
6	9D		875 @23.3°C	
7	10D		881 @23.4°C	
8	11D		879 @23.6°C	
9	12D		896 @23.6°C	
10	1413 mS/cm	CINV-190313A	1424 @25.7°C	
Dup	10000	B	9950 @26.8°C	RPD Criteria: 2%
	Std Chk 99999	CINV-190524A	98000 @26.9°C	% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R136209
ASSET #: N037144

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 8/30/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			x		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			x		
3. ICV within ± 10% of expected value.	X			x		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			x		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			x		
6. Calibration blanks run after ICV and CCV?	X			x		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			x		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			x		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			x		
Sample Information						
10. All samples are within linear range.	X			x		
11. All samples pH within 9.3-9.7 when analyzed?	X			x		
12. Duplicate sample injections for every sample. (7199 only)			X			x
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			x		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			x
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		x
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		x
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			x
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			x		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			x
20. Are all peaks within RT window, ± 0.2 min?	X			x		
21. Are all samples analyzed within hold time?	X			x		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			x
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			x		
24. LCS compounds are within control limits.	X			x		
25. MS/MSD, RPD's are within control limits.	X			x		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			x
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			x		
28. Extraction log complete and included in package (if applicable)			X			x
29. All manual integrations initialed, date and reasons included.	X			x		
30. Before and after manual integration chromatogram included in the package	X			x		
31. All samples and QC raw data present in package.	X			x		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			x		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			x		
34 Is the QC summary report present and complete?	X			x		

Comments: Dilution was necessary in N037144-002A due to matrix interference.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Is QC present and complete?	x		
4. Are analytical results correct? (dilutions,calculations)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer: HSG Date: 9/5/2019

2nd Level Reviewer: NS 9/5/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037144-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 9.2788 * 10$$

$$Cr^{+6}, \mu g/L = 92.7880$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 93}$$

NS 9/26/2019

ANALYSIS RUN LOG

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/30/19 9:56 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	08/30/19 10:07 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/30/19 10:17 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	08/30/19 10:26 AM	Reported
13	MB-R136209	MBLK	1	Hexavalent Chromium	08/30/19 10:36 AM	Reported
14	LCS-R136209	LCS	1	Hexavalent Chromium	08/30/19 10:45 AM	Reported
15	N037240-001BMS	MS	1	Hexavalent Chromium	08/30/19 11:00 AM	Reported
16	N037142-002AMS	MS	1	Hexavalent Chromium	08/30/19 11:11 AM	Reported
17	N037143-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:21 AM	Not Reported
18	N037144-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:30 AM	Not Reported
19	N037240-001B	SAMP	1	Hexavalent Chromium	08/30/19 11:40 AM	Reported
20	N037240-001BMSD	MSD	1	Hexavalent Chromium	08/30/19 11:49 AM	Reported
21	N037142-002A	SAMP	1	Hexavalent Chromium	08/30/19 11:59 AM	Reported
22	N037142-002ADUP	DUP	1	Hexavalent Chromium	08/30/19 12:08 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	08/30/19 12:18 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	08/30/19 12:27 PM	Reported
25	N037144-002AMS	MS	1	Hexavalent Chromium	08/30/19 12:37 PM	Not Reported
26	N037144-003AMS	MS	1	Hexavalent Chromium	08/30/19 12:46 PM	Not Reported
27	N037144-004AMS	MS	1	Hexavalent Chromium	08/30/19 12:56 PM	Not Reported
28	N037145-001AMS	MS	1	Hexavalent Chromium	08/30/19 1:05 PM	Reported
29	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:14 PM	Not Reported
30	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:24 PM	Not Reported
31	N037143-001A	SAMP	5	Hexavalent Chromium	08/30/19 1:58 PM	Reported
32	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:09 PM	Reported
33	N037144-001A	SAMP	5	Hexavalent Chromium	08/30/19 2:19 PM	Not Reported
34	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:28 PM	Not Reported
35	CCV-3	CCV	1	Hexavalent Chromium	08/30/19 2:38 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	08/30/19 2:47 PM	Reported
37	N037144-002AMS	MS	5	Hexavalent Chromium	08/30/19 2:57 PM	Reported
38	N037144-003AMS	MS	5	Hexavalent Chromium	08/30/19 3:06 PM	Reported
39	N037144-004AMS	MS	5	Hexavalent Chromium	08/30/19 3:15 PM	Reported
40	N037145-001A	SAMP	1	Hexavalent Chromium	08/30/19 3:25 PM	Reported
41	N037144-001A	SAMP	10	Hexavalent Chromium	08/30/19 3:34 PM	Reported
42	N037144-001AMS	MS	10	Hexavalent Chromium	08/30/19 3:44 PM	Reported

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037144-002A	SAMP	5	Hexavalent Chromium	08/30/19 3:53 PM	Reported
44	N037144-003A	SAMP	5	Hexavalent Chromium	08/30/19 4:03 PM	Reported
45	N037144-004A	SAMP	5	Hexavalent Chromium	08/30/19 4:12 PM	Reported
46	N037140-002A	SAMP	1	Hexavalent Chromium	08/30/19 4:26 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	08/30/19 4:38 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	08/30/19 4:47 PM	Reported
49	N037140-002AMS	MS	1	Hexavalent Chromium	08/30/19 4:57 PM	Reported
50	N037143-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:06 PM	Reported
51	N037143-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:16 PM	Reported
52	N037178-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:25 PM	Reported
53	N037178-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:35 PM	Reported
54	N037180-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:44 PM	Reported
55	N037180-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:54 PM	Reported
56	N037181-002A	SAMP	1	Hexavalent Chromium	08/30/19 6:03 PM	Reported
57	N037181-002AMS	MS	1	Hexavalent Chromium	08/30/19 6:12 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	08/30/19 6:22 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	08/30/19 6:31 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190830A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**30/Aug/19 19:02:14**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

No.		Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1		BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2		iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3		STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4		STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5		STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6		STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7		STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8		STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9		BLANK	1	1000	Unknown		08/30/2019 09:56	Finished	BLANK
10	CCV-1	CCV,CCV,1,	2	1000	Unknown		08/30/2019 10:07	Finished	CCV @5ppb, IWST-190702A
11		PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/30/2019 10:17	Finished	PQL @ 0.2ppb
12	CCB-1	CCB,CCB,1,	4	1000	Unknown		08/30/2019 10:26	Finished	CCB R190701
13		MB-H2O,MBLK,1,	5	1000	Unknown		08/30/2019 10:36	Finished	MB R190701
14		LCS-H2O,LCS,1,	6	1000	Unknown		08/30/2019 10:45	Finished	LCS @5ppb, IWST-190702B
15		N037240-001BMS,MS	8	1000	Unknown		08/30/2019 11:00	Finished	MS (1ppb), IWST-190702B,10
16		N037142-002AMS,MS	9	1000	Unknown		08/30/2019 11:11	Finished	MS (1ppb), IWST-190702B,10
17		N037143-001AMS,MS	10	1000	Unknown		08/30/2019 11:21	Finished	MS (1ppb), IWST-190702B,10
18		N037144-001AMS,MS	11	1000	Unknown		08/30/2019 11:30	Finished	MS (1ppb), IWST-190702B,10
19		N037240-001B,SAMP	12	1000	Unknown		08/30/2019 11:40	Finished	SAMP,10mL
20		N037240-001BMSD,M	13	1000	Unknown		08/30/2019 11:49	Finished	MSD (1ppb), IWST-190702B,10
21		N037142-002A,SAMP	14	1000	Unknown		08/30/2019 11:59	Finished	SAMP,10mL
22		N037142-002ADUP,D	15	1000	Unknown		08/30/2019 12:08	Finished	DUP,10mL
23	2	CCV-1,CCV1,1,	16	1000	Unknown		08/30/2019 12:18	Finished	CCV @10ppb, IWST-190702A
24	2	CCB-1,CCB,1,	17	1000	Unknown		08/30/2019 12:27	Finished	CCB R190617C
25		N037144-002AMS,MS	18	1000	Unknown		08/30/2019 12:37	Finished	MS (1ppb), IWST-190702B,10
26		N037144-003AMS,MS	19	1000	Unknown		08/30/2019 12:46	Finished	MS (1ppb), IWST-190702B,10
27		N037144-004AMS,MS	20	1000	Unknown		08/30/2019 12:56	Finished	MS (1ppb), IWST-190702B,10
28		N037145-001AMS,MS	21	1000	Unknown		08/30/2019 13:05	Finished	MS (1ppb), IWST-190702B,10
29		N037143-001AMS,MS	22	1000	Unknown		08/30/2019 13:14	Finished	MS (1ppb), IWST-190702B,2>1
30		N037144-001AMS,MS	23	1000	Unknown		08/30/2019 13:24	Finished	MS (1ppb), IWST-190702B,2>1
31		N037143-001A,SAMP	1	1000	Unknown		08/30/2019 13:58	Finished	SAMP,2>10mL
32		N037143-001AMS,MS	2	1000	Unknown		08/30/2019 14:09	Finished	MS (5ppb), IWST-190702B,2>1
33		N037144-001A,SAMP	3	1000	Unknown		08/30/2019 14:19	Finished	SAMP,2>10mL
34		N037144-001AMS,MS	4	1000	Unknown		08/30/2019 14:28	Finished	MS (5ppb), IWST-190702B,2>1
35	3	CCV-2,CCV,1,	5	1000	Unknown		08/30/2019 14:38	Finished	CCV @5ppb, IWST-190702A
36	3	CCB-2,CCB,1,	6	1000	Unknown		08/30/2019 14:47	Finished	CCB R190617C
37		N037144-002AMS,MS	7	1000	Unknown		08/30/2019 14:57	Finished	MS (1ppb), IWST-190702B,2>1
38		N037144-003AMS,MS	8	1000	Unknown		08/30/2019 15:06	Finished	MS (1ppb), IWST-190702B,2>1
39		N037144-004AMS,MS	9	1000	Unknown		08/30/2019 15:15	Finished	SAMP,10mL
40		N037145-001A,SAMP	10	1000	Unknown		08/30/2019 15:25	Finished	SAMP,10mL
41		N037144-001A,SAMP	11	1000	Unknown		08/30/2019 15:34	Finished	SAMP,10mL
42		N037144-001AMS,MS	12	1000	Unknown		08/30/2019 15:44	Finished	SAMP,10mL
43		N037144-002A,SAMP	13	1000	Unknown		08/30/2019 15:53	Finished	SAMP,10mL
44		N037144-003A,SAMP	14	1000	Unknown		08/30/2019 16:03	Finished	SAMP,10mL
45		N037144-004A,SAMP	15	1000	Unknown		08/30/2019 16:12	Finished	SAMP,10mL
46		N037140-002A,SAMP	17	1000	Unknown		08/30/2019 16:26	Finished	SAMP,10mL
47	4	CCV-3,CCV1,1,	18	1000	Unknown		08/30/2019 16:38	Finished	CCV @10ppb, IWST-190702A
48	4	CCB-3,CCB,1,	19	1000	Unknown		08/30/2019 16:47	Finished	CCB R190617C
49		N037140-002AMS,MS	20	1000	Unknown		08/30/2019 16:57	Finished	SAMP,10mL
50		N037143-002A,SAMP	21	1000	Unknown		08/30/2019 17:06	Finished	SAMP,10mL
51		N037143-002AMS,MS	22	1000	Unknown		08/30/2019 17:16	Finished	SAMP,10mL
52		N037178-002A,SAMP	23	1000	Unknown		08/30/2019 17:25	Finished	SAMP,10mL
53		N037178-002AMS,MS	24	1000	Unknown		08/30/2019 17:35	Finished	SAMP,10mL
54		N037180-002A,SAMP	25	1000	Unknown		08/30/2019 17:44	Finished	SAMP,10mL
55		N037180-002AMS,MS	26	1000	Unknown		08/30/2019 17:54	Finished	SAMP,10mL
56		N037181-002A,SAMP	27	1000	Unknown		08/30/2019 18:03	Finished	SAMP,10mL
57		N037181-002AMS,MS	28	1000	Unknown		08/30/2019 18:12	Finished	SAMP,10mL
58	5	CCV-4,CCV,1,	29	1000	Unknown		08/30/2019 18:22	Finished	CCV @5ppb, IWST-190702A
59	5	CCB-4,CCB,1,	30	1000	Unknown		08/30/2019 18:31	Finished	CCB R190617C
60		SHUTDOWN	31	1000	Unknown		08/30/2019 18:41	Finished	

NS 9/11/2019

61	Eluent: R190828B	32	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190828A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/22/19
Time Prepared: 1300
Prepared By: HSG

SLOPE: 98.2%
pH 4: 4.02
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190828A
NH4OH + NH4SO4 buffer: R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of ~~buffer~~ GN NaOH (R190722A) added	Comments
1)	N037118-~~9A~~ 12A	9.23	9.36	~200 mL	~250 mL	+2 drops	1/3
2)	-~~9A~~ 12A	9.25	9.32			+1 drop	2/3
3)	-~~9A~~ 12A	9.24	9.37			+2 drops	3/3
4)	-13A	9.25	9.38			+2 drops	1/3
5)	-13A	9.22	9.35			+2 drops	2/3
6)	-13A	9.23	9.36			+2 drops	3/3
7)	-14A	8.74	9.45			+3 drops	1/3
8)	-14A	9.20	9.34			+2 drops	2/3
9)	-14A	9.10	9.35			+2 drops	3/3
10)	-15A	9.21	9.35			+2 drops	1/3
11)	-15A	9.25	9.35			+2 drops	2/3
12)	-15A	9.22	9.32			+2 drops	3/3
13)	-16A	9.24	9.35			+1 drop	
14)	-17A	9.27	9.37			+1 drop	
15)							

Sample Preparation

Date Prepared: 8/23/19
Time Prepared: 1206 PM
Prepared By: HSG / LSR

SLOPE: 98.5%
pH 4: 4.03
7: 7.03
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190822A, R190828B, R190903A
NH4OH + NH4SO4 buffer: R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of ~~buffer~~ GN NaOH (R190722A) added	Comments
1)	N037141-1A	9.36	—	~250 ml	~250 mL	—	
2)	N037139-1A	8.81	9.37			+3 drops	
3)	-2A	8.79	9.35			+3 drops	
4)	N037140-2A	9.10	9.54			+2 drops	
5)	N037142-2A	8.89	9.40			+3 drops	
6)	N037143-1A	9.25	9.34			+1 drop	
7)	2A	9.39	—			—	
8)	N037144-1A	9.26	9.35			+1 drop NaOH	
9)	2A	9.26	9.38			+1 drop	
10)	3A	9.18	9.36			+2 drops	
11)	4A	9.10	9.36			+3 drops	
12)	N037145-1A	9.18	9.32			+3 drops	
13)	2A	9.00	9.31			+4 drops	
14)	N037146-1A	9.17	9.34			+2 drops	
15)	2A	9.20	9.38			+2 drops	
	N037147-3A	9.35	—			—	

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/27/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0535	0.2527	1.2778	2.5458	3.9240	5.1959	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ICV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.202	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.873	0.20	5.000	0	97.5	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.195	0.20	0.2000	0	97.6	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.687	0.20	10.00	0	96.9	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.921	0.20	5.000	0	98.4	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499011**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.811	0.20	10.00	0	98.1	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.960	0.20	5.000	0	99.2	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ICB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5** SampType: **CCB** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **CCB** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/30/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.690	
Average	4.696	
Actual RT Window	4.616 - 4.776	
Applied RT Window	4.496 - 4.896	
MB-R136209	N.A.	N.A.
LCS-R136209	4.690	PASS
N037240-001BMS	4.656	PASS
N037142-002AMS	4.690	PASS
N037143-001AMS	4.665	PASS
N037144-001AMS	4.323	FAIL
N037240-001B	4.656	PASS
N037240-001BMSD	4.656	PASS
N037142-002A	N.A.	N.A.
N037142-002ADUP	N.A.	N.A.
N037144-002AMS	N.A.	N.A.
N037144-003AMS	N.A.	N.A.
N037144-004AMS	4.465	FAIL
N037145-001AMS	4.673	PASS
N037143-001AMS	4.631	PASS
N037144-001AMS	4.648	PASS
N037143-001A	4.631	PASS
N037143-001AMS	4.631	PASS
N037144-001A	4.648	PASS
N037144-001AMS	4.648	PASS
N037144-002AMS	4.656	PASS
N037144-003AMS	4.656	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/30/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.690	
Average	4.696	
Actual RT Window	4.616 - 4.776	
Applied RT Window	4.496 - 4.896	
N037144-004AMS	4.665	PASS
N037145-001A	N.A.	N.A.
N037144-001A	4.673	PASS
N037144-001AMS	4.673	PASS
N037144-002A	N.A.	N.A.
N037144-003A	N.A.	N.A.
N037144-004A	4.665	PASS
N037140-002A	N.A.	N.A.
N037140-002AMS	4.698	PASS
N037143-002A	N.A.	N.A.
N037143-002AMS	4.698	PASS
N037178-002A	N.A.	N.A.
N037178-002AMS	4.698	PASS
N037180-002A	N.A.	N.A.
N037180-002AMS	4.698	PASS
N037181-002A	4.698	PASS
N037181-002AMS	4.698	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

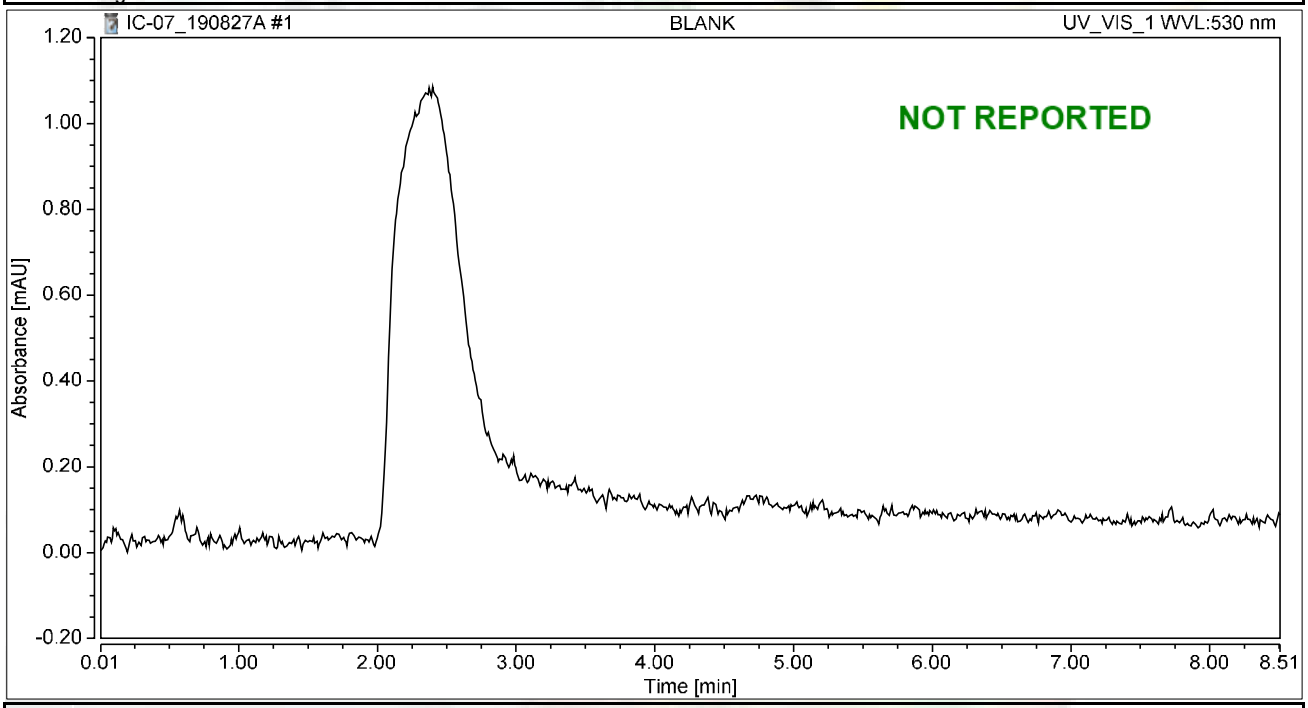
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

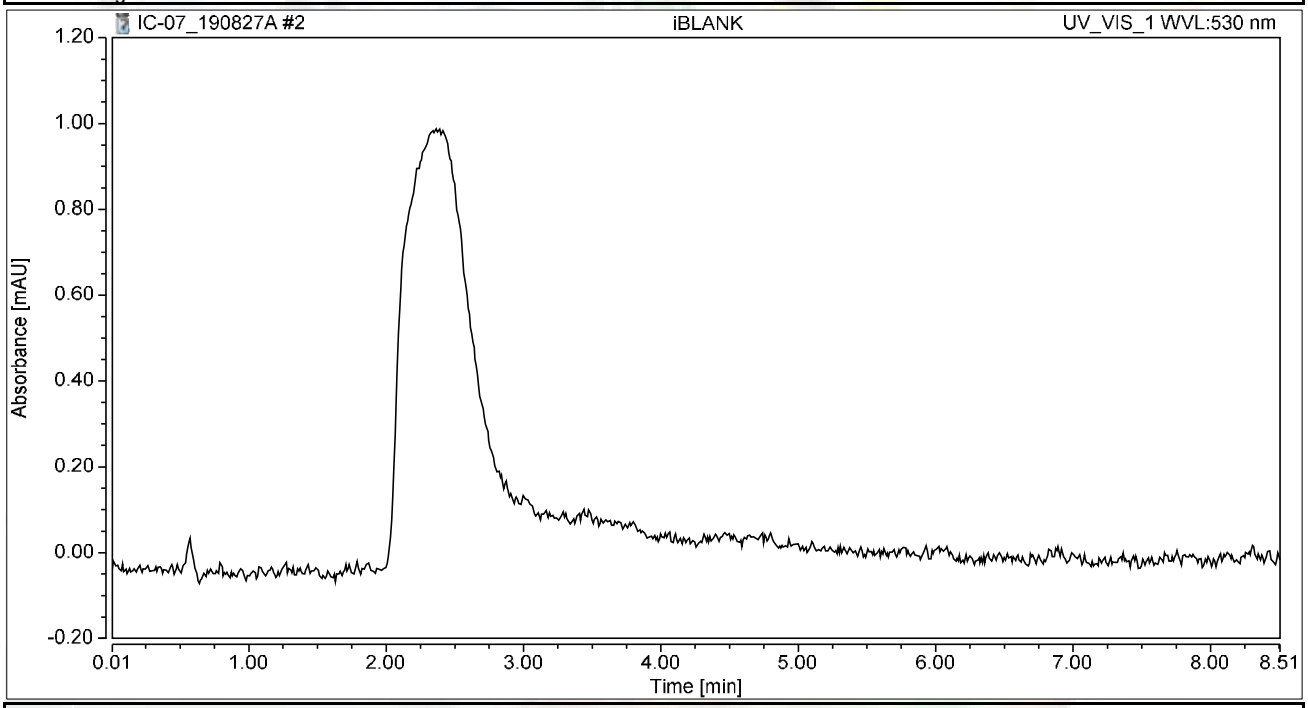
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

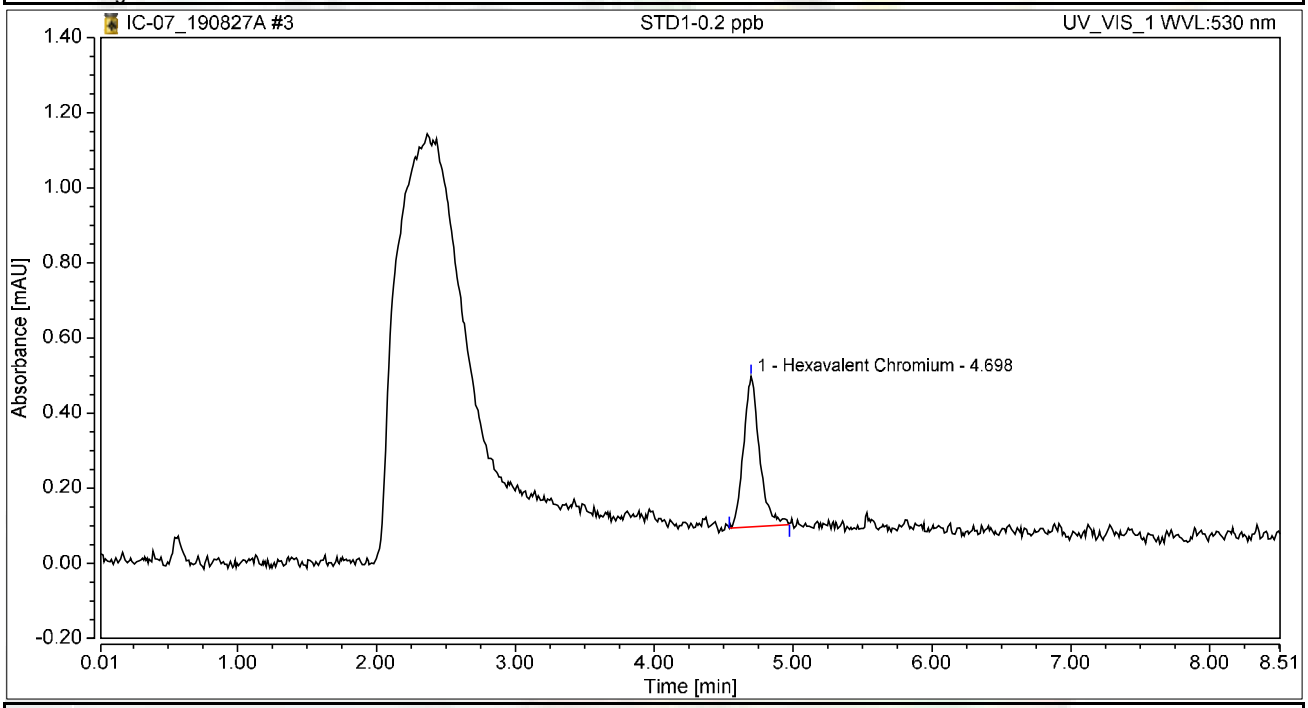
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

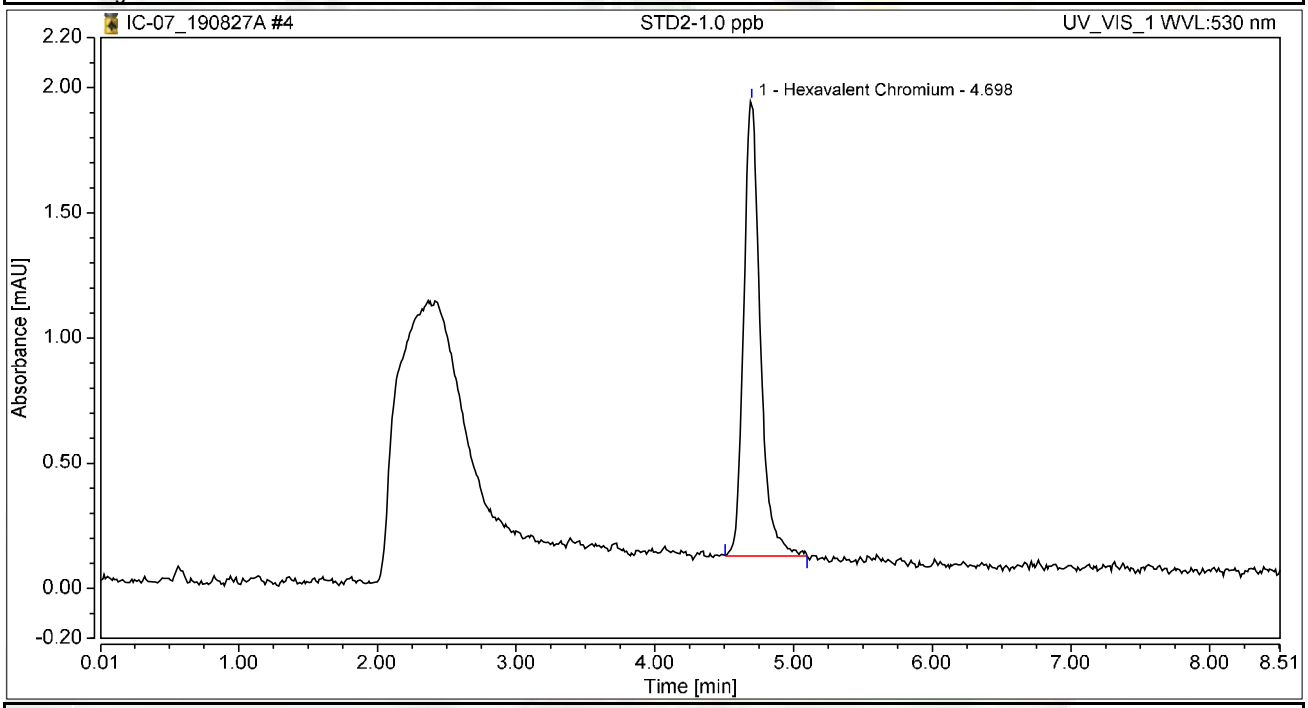
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.401	100.00	100.00	0.2063
Total:			**0.054**	**0.401**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

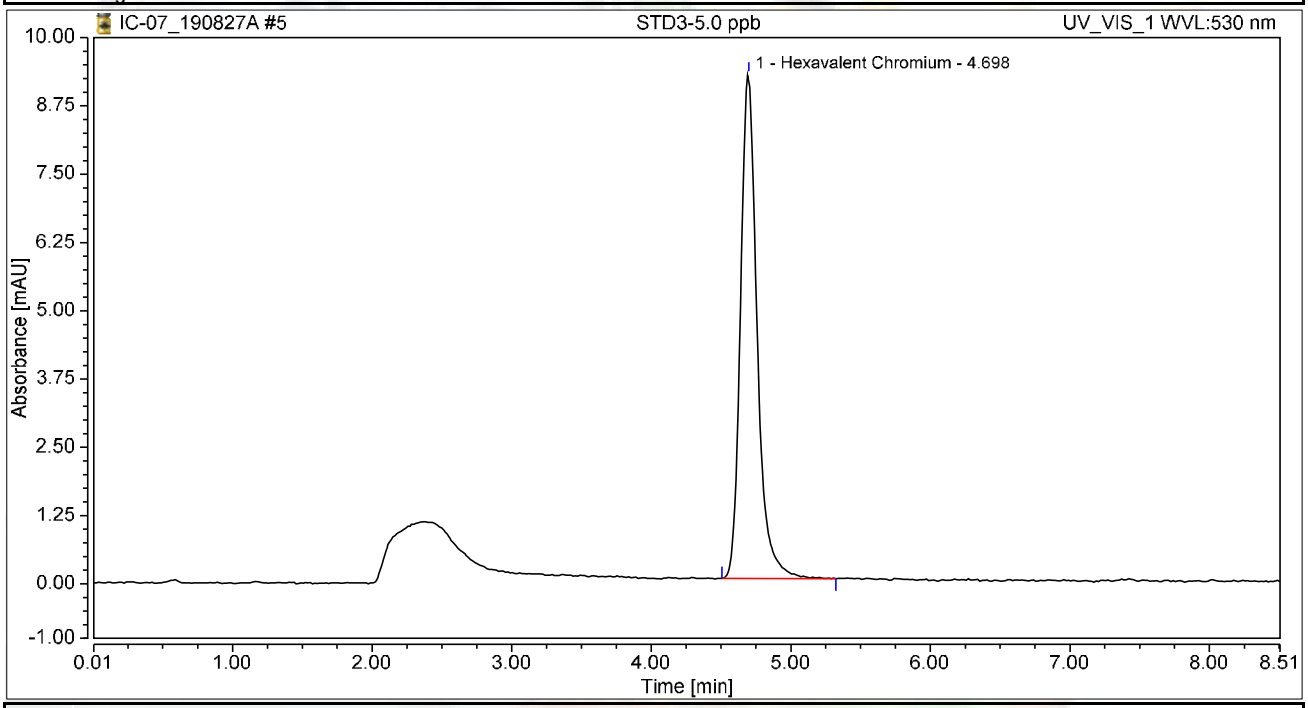
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.253	1.819	100.00	100.00	0.9737
Total:			**0.253**	**1.819**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

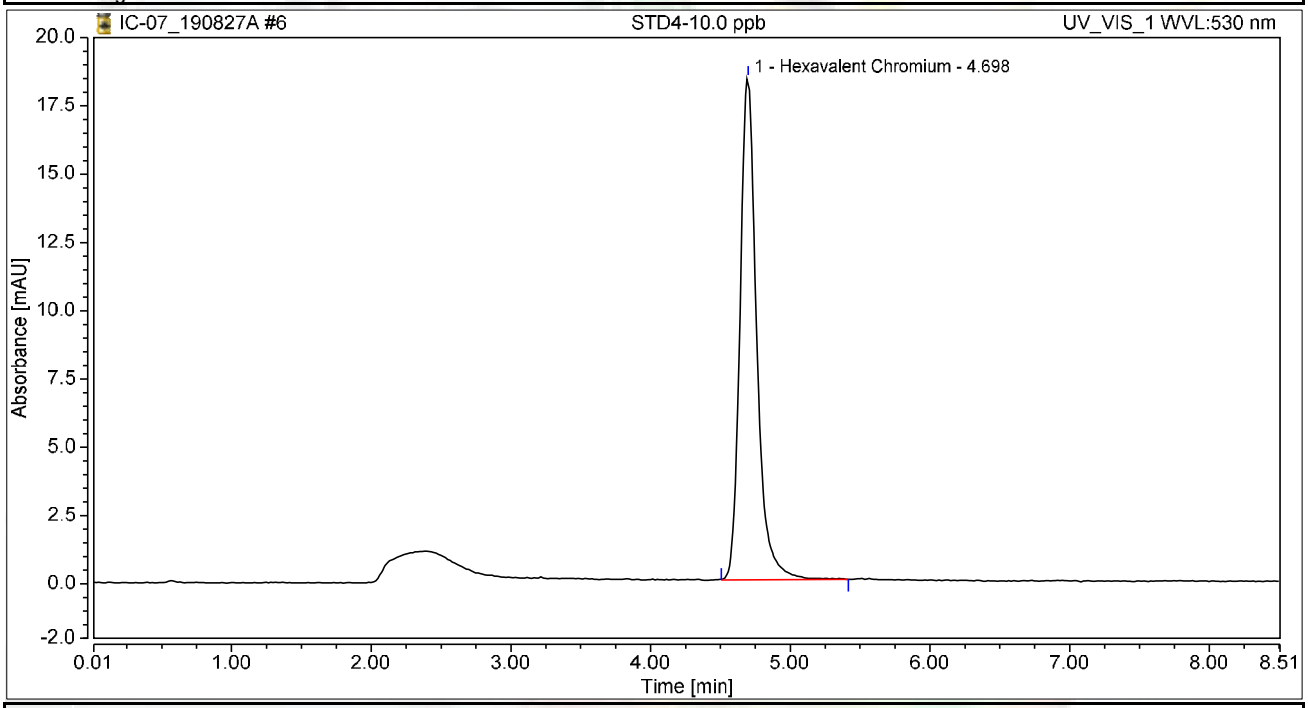
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.278	9.233	100.00	100.00	4.9242
Total:			**1.278**	**9.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

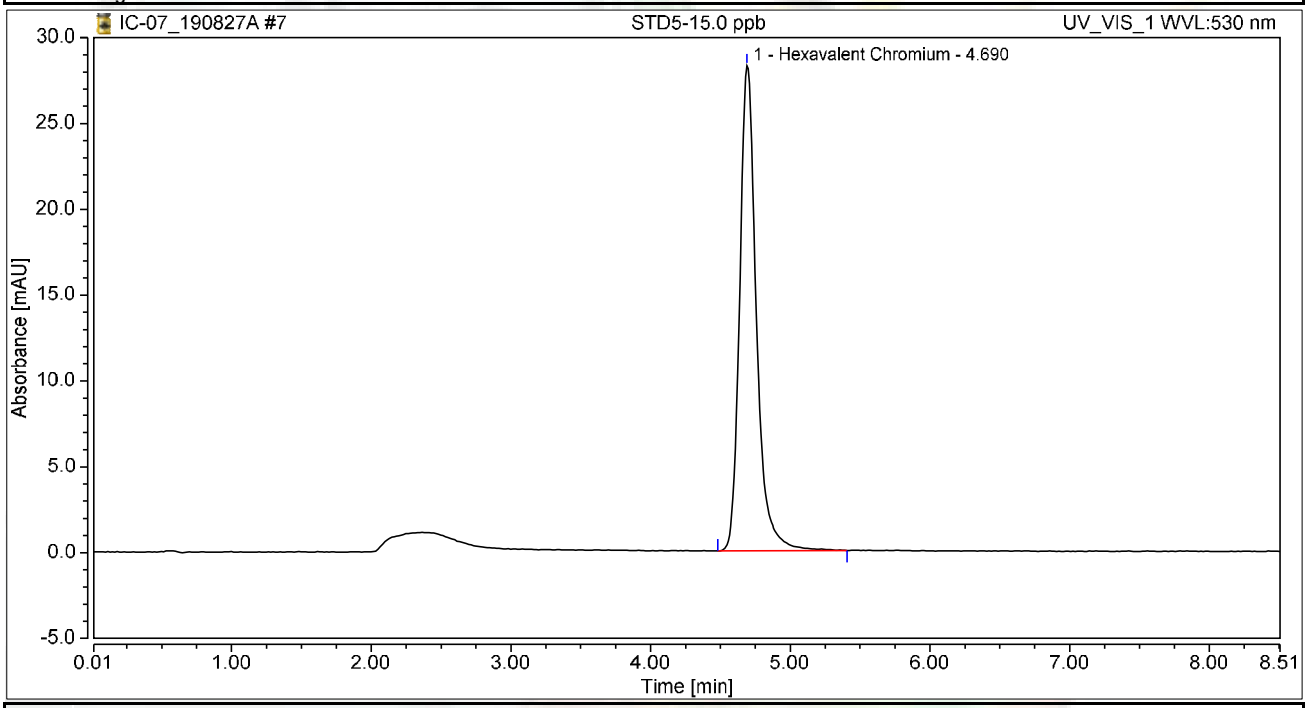
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.546	18.373	100.00	100.00	9.8106
Total:			**2.546**	**18.373**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

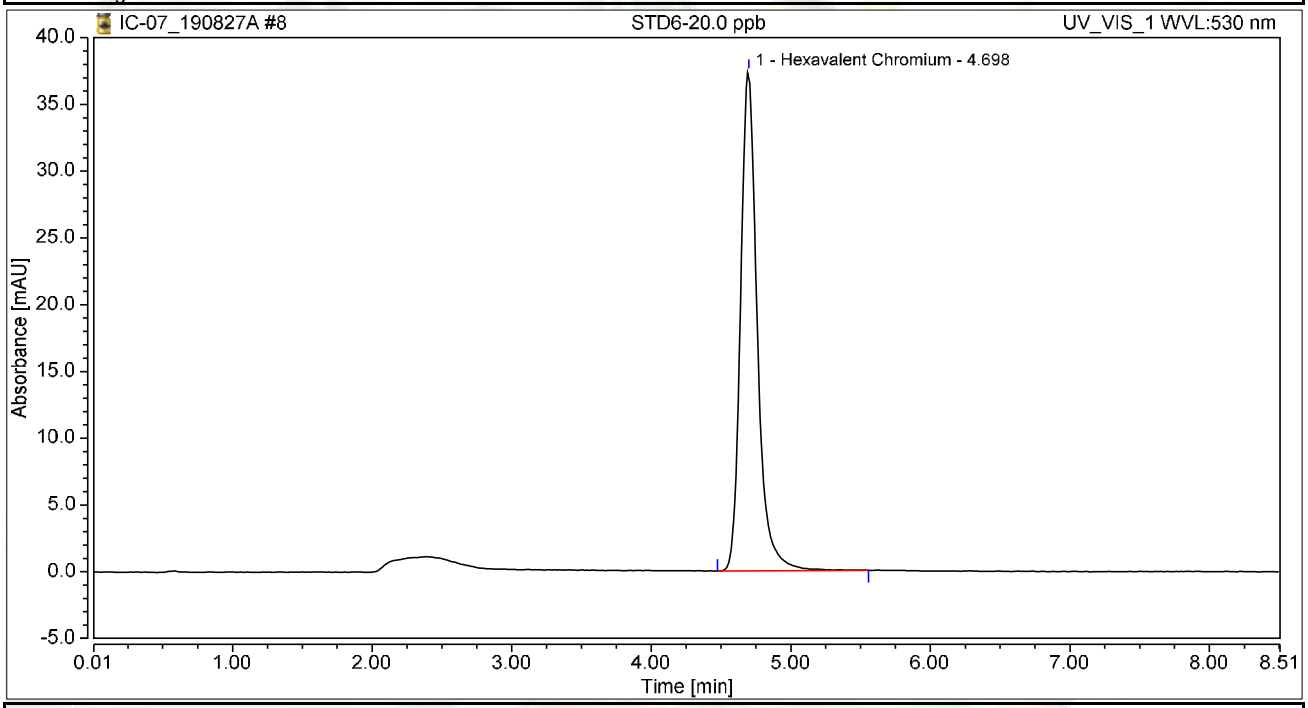
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.924	28.263	100.00	100.00	15.1217
Total:			**3.924**	**28.263**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



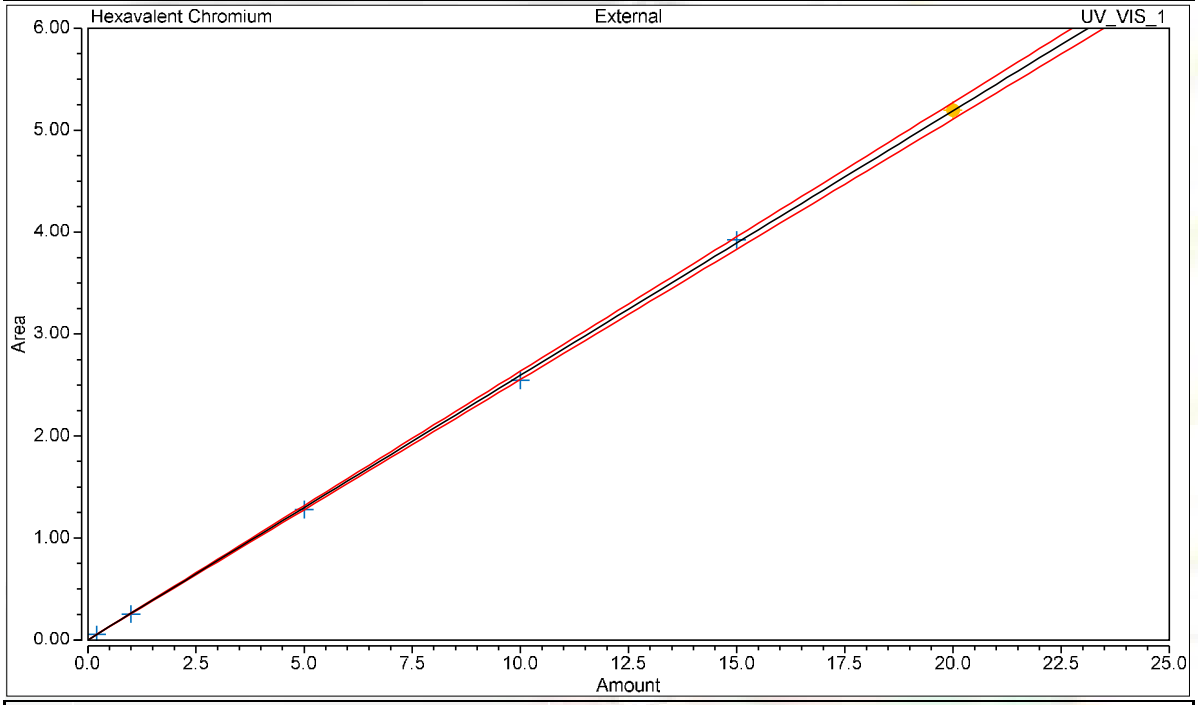
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.196	37.432	100.00	100.00	20.0236
Total:			**5.196**	**37.432**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99982

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

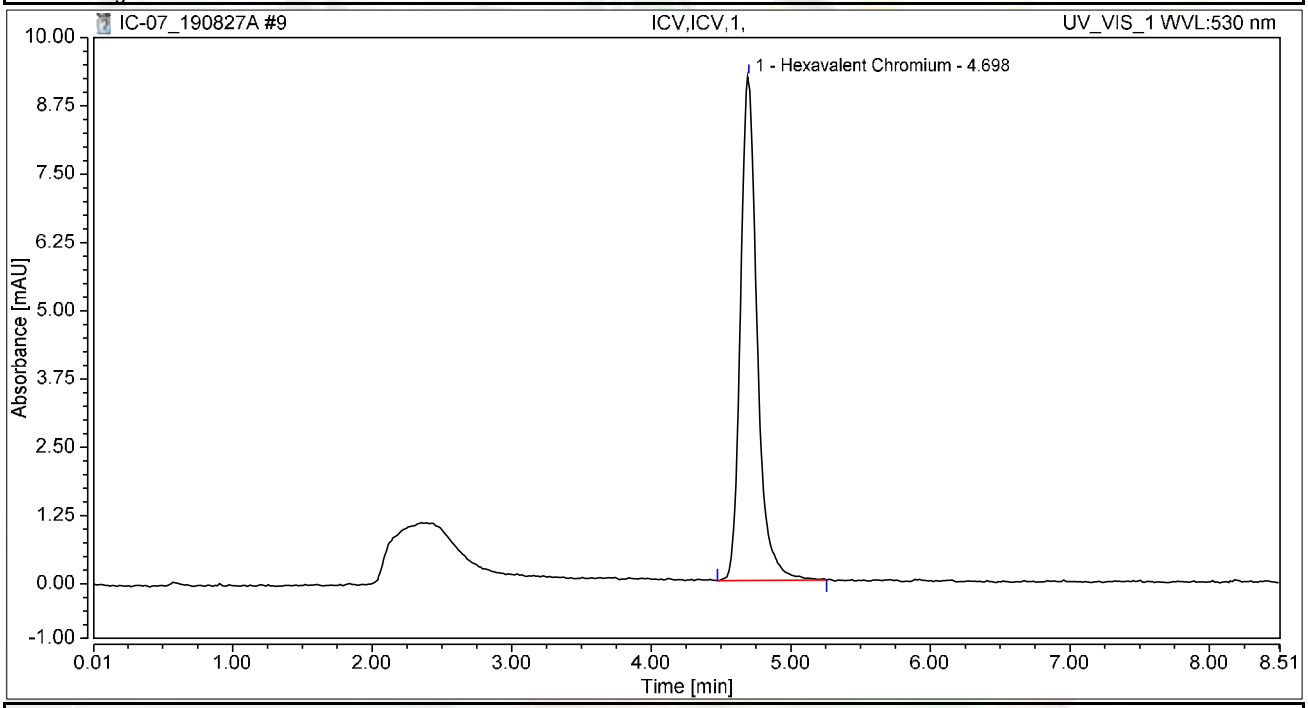
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
3	STD1-0.2 ppb	01	0.2000	0.0535	0.054	0.401
4	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.819
5	STD3-5.0 ppb	03	5.0000	1.2778	1.278	9.233
6	STD4-10.0 ppb	04	10.0000	2.5458	2.546	18.373
7	STD5-15.0 ppb	05	15.0000	3.9240	3.924	28.263
8	STD6-20.0 ppb	06	20.0000	5.1959	5.196	37.432

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

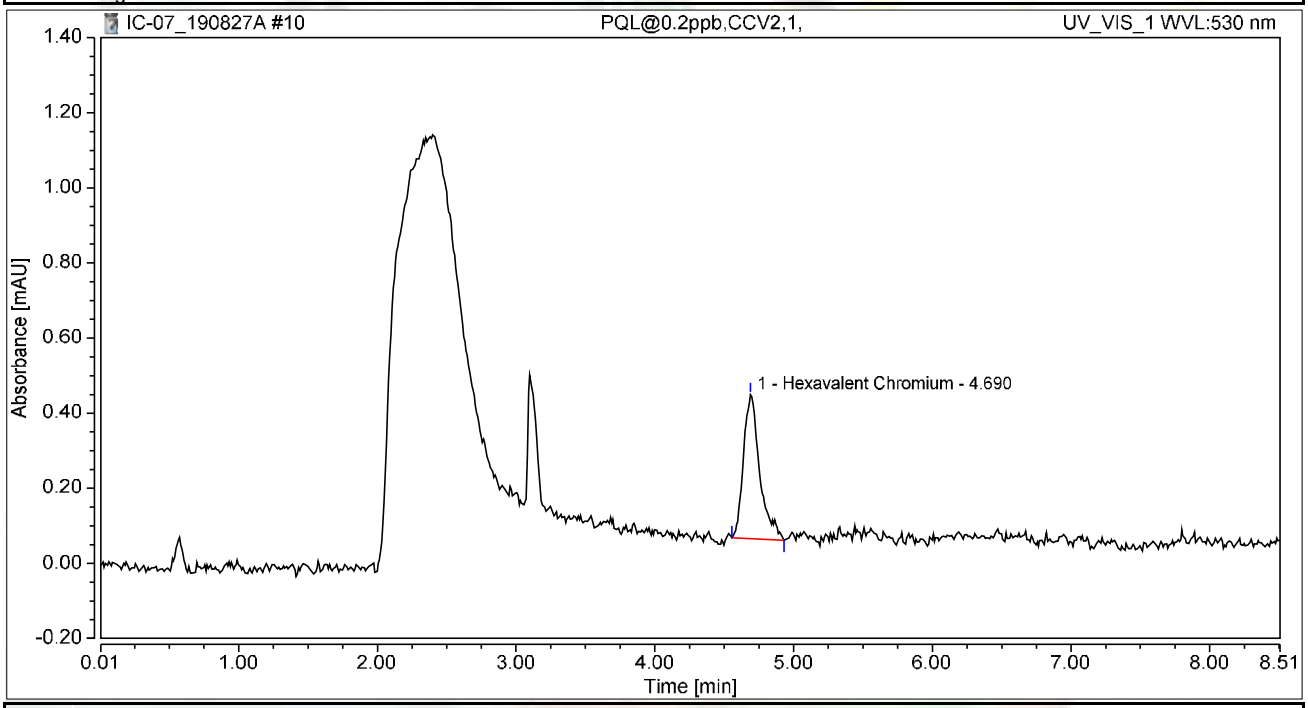
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.281	9.225	100.00	100.00	4.9381
Total:			**1.281**	**9.225**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

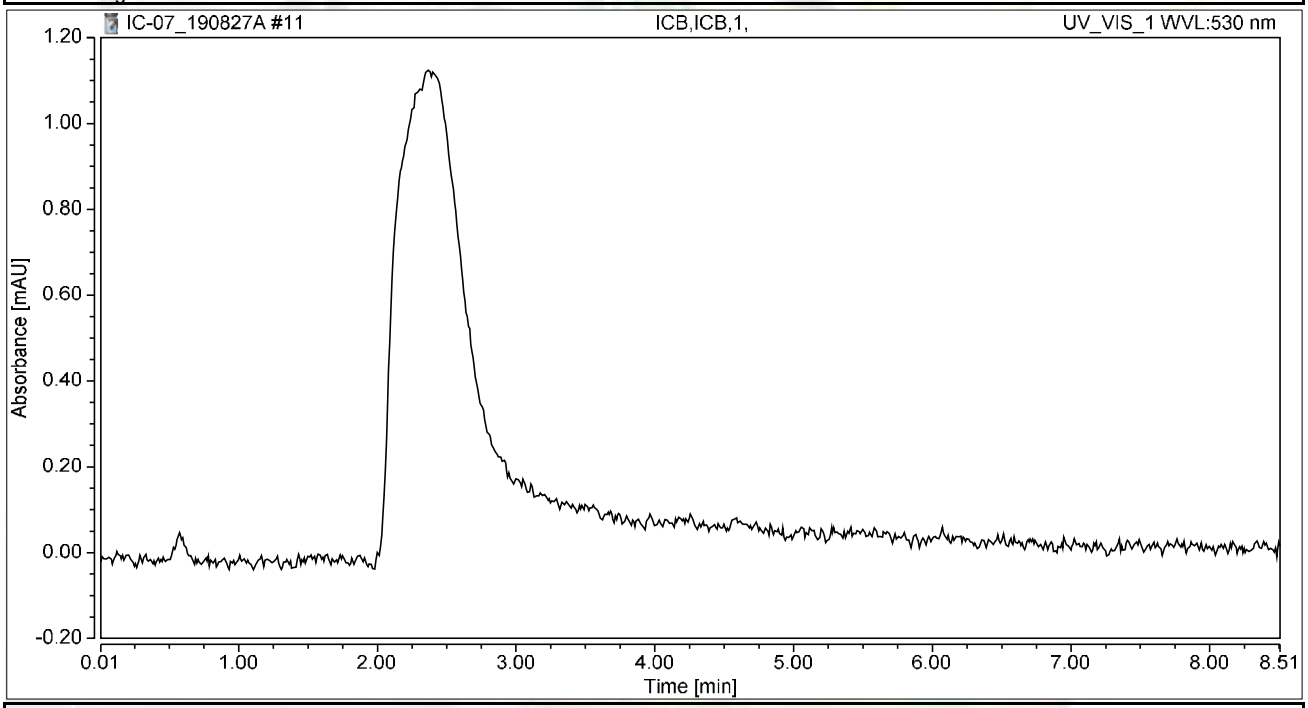
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.052	0.383	100.00	100.00	0.2022
Total:			**0.052**	**0.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/30/19 9:56 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	08/30/19 10:07 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/30/19 10:17 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	08/30/19 10:26 AM	Reported
13	MB-R136209	MBLK	1	Hexavalent Chromium	08/30/19 10:36 AM	Reported
14	LCS-R136209	LCS	1	Hexavalent Chromium	08/30/19 10:45 AM	Reported
15	N037240-001BMS	MS	1	Hexavalent Chromium	08/30/19 11:00 AM	Reported
16	N037142-002AMS	MS	1	Hexavalent Chromium	08/30/19 11:11 AM	Reported
17	N037143-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:21 AM	Not Reported
18	N037144-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:30 AM	Not Reported
19	N037240-001B	SAMP	1	Hexavalent Chromium	08/30/19 11:40 AM	Reported
20	N037240-001BMSD	MSD	1	Hexavalent Chromium	08/30/19 11:49 AM	Reported
21	N037142-002A	SAMP	1	Hexavalent Chromium	08/30/19 11:59 AM	Reported
22	N037142-002ADUP	DUP	1	Hexavalent Chromium	08/30/19 12:08 PM	Reported
23	CCV-1 2	CCV1	1	Hexavalent Chromium	08/30/19 12:18 PM	Reported
24	CCB-1 2	CCB	1	Hexavalent Chromium	08/30/19 12:27 PM	Reported
25	N037144-002AMS	MS	1	Hexavalent Chromium	08/30/19 12:37 PM	Not Reported
26	N037144-003AMS	MS	1	Hexavalent Chromium	08/30/19 12:46 PM	Not Reported
27	N037144-004AMS	MS	1	Hexavalent Chromium	08/30/19 12:56 PM	Not Reported
28	N037145-001AMS	MS	1	Hexavalent Chromium	08/30/19 1:05 PM	Reported
29	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:14 PM	Not Reported
30	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:24 PM	Not Reported
31	N037143-001A	SAMP	5	Hexavalent Chromium	08/30/19 1:58 PM	Reported
32	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:09 PM	Reported
33	N037144-001A	SAMP	5	Hexavalent Chromium	08/30/19 2:19 PM	Not Reported
34	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:28 PM	Not Reported
35	CCV-2 3	CCV	1	Hexavalent Chromium	08/30/19 2:38 PM	Reported
36	CCB-2 3	CCB	1	Hexavalent Chromium	08/30/19 2:47 PM	Reported
37	N037144-002AMS	MS	5	Hexavalent Chromium	08/30/19 2:57 PM	Reported
38	N037144-003AMS	MS	5	Hexavalent Chromium	08/30/19 3:06 PM	Reported
39	N037144-004AMS	MS	5	Hexavalent Chromium	08/30/19 3:15 PM	Reported
40	N037145-001A	SAMP	1	Hexavalent Chromium	08/30/19 3:25 PM	Reported
41	N037144-001A	SAMP	10	Hexavalent Chromium	08/30/19 3:34 PM	Reported
42	N037144-001AMS	MS	10	Hexavalent Chromium	08/30/19 3:44 PM	Reported

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037144-002A	SAMP	5	Hexavalent Chromium	08/30/19 3:53 PM	Reported
44	N037144-003A	SAMP	5	Hexavalent Chromium	08/30/19 4:03 PM	Reported
45	N037144-004A	SAMP	5	Hexavalent Chromium	08/30/19 4:12 PM	Reported
46	N037140-002A	SAMP	1	Hexavalent Chromium	08/30/19 4:26 PM	Reported
47	CCV-3 4	CCV1	1	Hexavalent Chromium	08/30/19 4:38 PM	Reported
48	CCB-3 4	CCB	1	Hexavalent Chromium	08/30/19 4:47 PM	Reported
49	N037140-002AMS	MS	1	Hexavalent Chromium	08/30/19 4:57 PM	Reported
50	N037143-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:06 PM	Reported
51	N037143-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:16 PM	Reported
52	N037178-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:25 PM	Reported
53	N037178-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:35 PM	Reported
54	N037180-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:44 PM	Reported
55	N037180-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:54 PM	Reported
56	N037181-002A	SAMP	1	Hexavalent Chromium	08/30/19 6:03 PM	Reported
57	N037181-002AMS	MS	1	Hexavalent Chromium	08/30/19 6:12 PM	Reported
58	CCV-4 5	CCV	1	Hexavalent Chromium	08/30/19 6:22 PM	Reported
59	CCB-4 5	CCB	1	Hexavalent Chromium	08/30/19 6:31 PM	Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_190830A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**30/Aug/19 19:02:14**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

No.		Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1		BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2		iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3		STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4		STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5		STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6		STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7		STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8		STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9		BLANK	1	1000	Unknown		08/30/2019 09:56	Finished	BLANK
10	CCV-1	CCV,CCV,1,	2	1000	Unknown		08/30/2019 10:07	Finished	CCV @5ppb, IWST-190702A
11		PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/30/2019 10:17	Finished	PQL @ 0.2ppb
12	CCB-1	CCB,CCB,1,	4	1000	Unknown		08/30/2019 10:26	Finished	CCB R190701
13		MB-H2O,MBLK,1,	5	1000	Unknown		08/30/2019 10:36	Finished	MB R190701
14		LCS-H2O,LCS,1,	6	1000	Unknown		08/30/2019 10:45	Finished	LCS @5ppb, IWST-190702B
15		N037240-001BMS,MS	8	1000	Unknown		08/30/2019 11:00	Finished	MS (1ppb), IWST-190702B,10
16		N037142-002AMS,MS	9	1000	Unknown		08/30/2019 11:11	Finished	MS (1ppb), IWST-190702B,10
17		N037143-001AMS,MS	10	1000	Unknown		08/30/2019 11:21	Finished	MS (1ppb), IWST-190702B,10
18		N037144-001AMS,MS	11	1000	Unknown		08/30/2019 11:30	Finished	MS (1ppb), IWST-190702B,10
19		N037240-001B,SAMP	12	1000	Unknown		08/30/2019 11:40	Finished	SAMP,10mL
20		N037240-001BMSD,M	13	1000	Unknown		08/30/2019 11:49	Finished	MSD (1ppb), IWST-190702B,10
21		N037142-002A,SAMP	14	1000	Unknown		08/30/2019 11:59	Finished	SAMP,10mL
22		N037142-002ADUP,D	15	1000	Unknown		08/30/2019 12:08	Finished	DUP,10mL
23	2	CCV-1,CCV1,1,	16	1000	Unknown		08/30/2019 12:18	Finished	CCV @10ppb, IWST-190702A
24	2	CCB-1,CCB,1,	17	1000	Unknown		08/30/2019 12:27	Finished	CCB R190617C
25		N037144-002AMS,MS	18	1000	Unknown		08/30/2019 12:37	Finished	MS (1ppb), IWST-190702B,10
26		N037144-003AMS,MS	19	1000	Unknown		08/30/2019 12:46	Finished	MS (1ppb), IWST-190702B,10
27		N037144-004AMS,MS	20	1000	Unknown		08/30/2019 12:56	Finished	MS (1ppb), IWST-190702B,10
28		N037145-001AMS,MS	21	1000	Unknown		08/30/2019 13:05	Finished	MS (1ppb), IWST-190702B,10
29		N037143-001AMS,MS	22	1000	Unknown		08/30/2019 13:14	Finished	MS (1ppb), IWST-190702B,2>1
30		N037144-001AMS,MS	23	1000	Unknown		08/30/2019 13:24	Finished	MS (1ppb), IWST-190702B,2>1
31		N037143-001A,SAMP	1	1000	Unknown		08/30/2019 13:58	Finished	SAMP,2>10mL
32		N037143-001AMS,MS	2	1000	Unknown		08/30/2019 14:09	Finished	MS (5ppb), IWST-190702B,2>1
33		N037144-001A,SAMP	3	1000	Unknown		08/30/2019 14:19	Finished	SAMP,2>10mL
34		N037144-001AMS,MS	4	1000	Unknown		08/30/2019 14:28	Finished	MS (5ppb), IWST-190702B,2>1
35	3	CCV-2,CCV,1,	5	1000	Unknown		08/30/2019 14:38	Finished	CCV @5ppb, IWST-190702A
36	3	CCB-2,CCB,1,	6	1000	Unknown		08/30/2019 14:47	Finished	CCB R190617C
37		N037144-002AMS,MS	7	1000	Unknown		08/30/2019 14:57	Finished	MS (1ppb), IWST-190702B,2>1
38		N037144-003AMS,MS	8	1000	Unknown		08/30/2019 15:06	Finished	MS (1ppb), IWST-190702B,2>1
39		N037144-004AMS,MS	9	1000	Unknown		08/30/2019 15:15	Finished	SAMP,10mL
40		N037145-001A,SAMP	10	1000	Unknown		08/30/2019 15:25	Finished	SAMP,10mL
41		N037144-001A,SAMP	11	1000	Unknown		08/30/2019 15:34	Finished	SAMP,10mL
42		N037144-001AMS,MS	12	1000	Unknown		08/30/2019 15:44	Finished	SAMP,10mL
43		N037144-002A,SAMP	13	1000	Unknown		08/30/2019 15:53	Finished	SAMP,10mL
44		N037144-003A,SAMP	14	1000	Unknown		08/30/2019 16:03	Finished	SAMP,10mL
45		N037144-004A,SAMP	15	1000	Unknown		08/30/2019 16:12	Finished	SAMP,10mL
46		N037140-002A,SAMP	17	1000	Unknown		08/30/2019 16:26	Finished	SAMP,10mL
47	4	CCV-3,CCV1,1,	18	1000	Unknown		08/30/2019 16:38	Finished	CCV @10ppb, IWST-190702A
48	4	CCB-3,CCB,1,	19	1000	Unknown		08/30/2019 16:47	Finished	CCB R190617C
49		N037140-002AMS,MS	20	1000	Unknown		08/30/2019 16:57	Finished	SAMP,10mL
50		N037143-002A,SAMP	21	1000	Unknown		08/30/2019 17:06	Finished	SAMP,10mL
51		N037143-002AMS,MS	22	1000	Unknown		08/30/2019 17:16	Finished	SAMP,10mL
52		N037178-002A,SAMP	23	1000	Unknown		08/30/2019 17:25	Finished	SAMP,10mL
53		N037178-002AMS,MS	24	1000	Unknown		08/30/2019 17:35	Finished	SAMP,10mL
54		N037180-002A,SAMP	25	1000	Unknown		08/30/2019 17:44	Finished	SAMP,10mL
55		N037180-002AMS,MS	26	1000	Unknown		08/30/2019 17:54	Finished	SAMP,10mL
56		N037181-002A,SAMP	27	1000	Unknown		08/30/2019 18:03	Finished	SAMP,10mL
57		N037181-002AMS,MS	28	1000	Unknown		08/30/2019 18:12	Finished	SAMP,10mL
58	5	CCV-4,CCV,1,	29	1000	Unknown		08/30/2019 18:22	Finished	CCV @5ppb, IWST-190702A
59	5	CCB-4,CCB,1,	30	1000	Unknown		08/30/2019 18:31	Finished	CCB R190617C
60		SHUTDOWN	31	1000	Unknown		08/30/2019 18:41	Finished	

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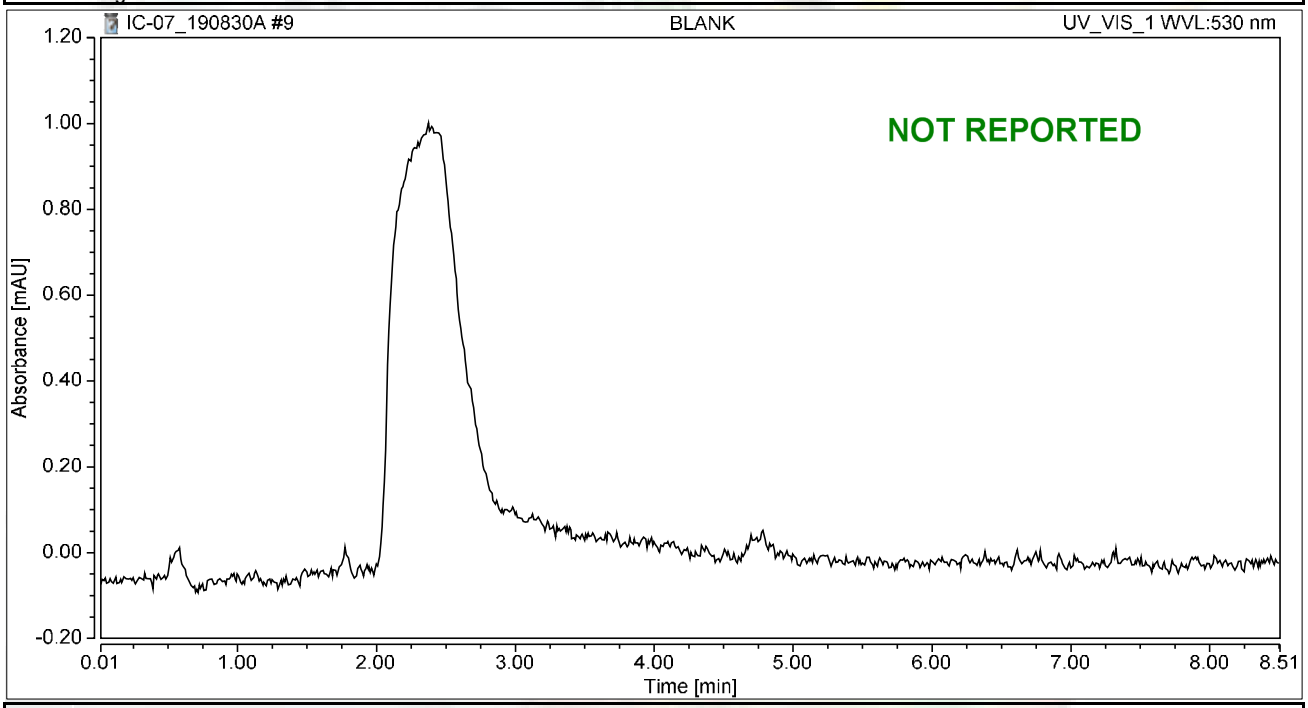
61	Eluent: R190828B	32	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190828A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 09:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

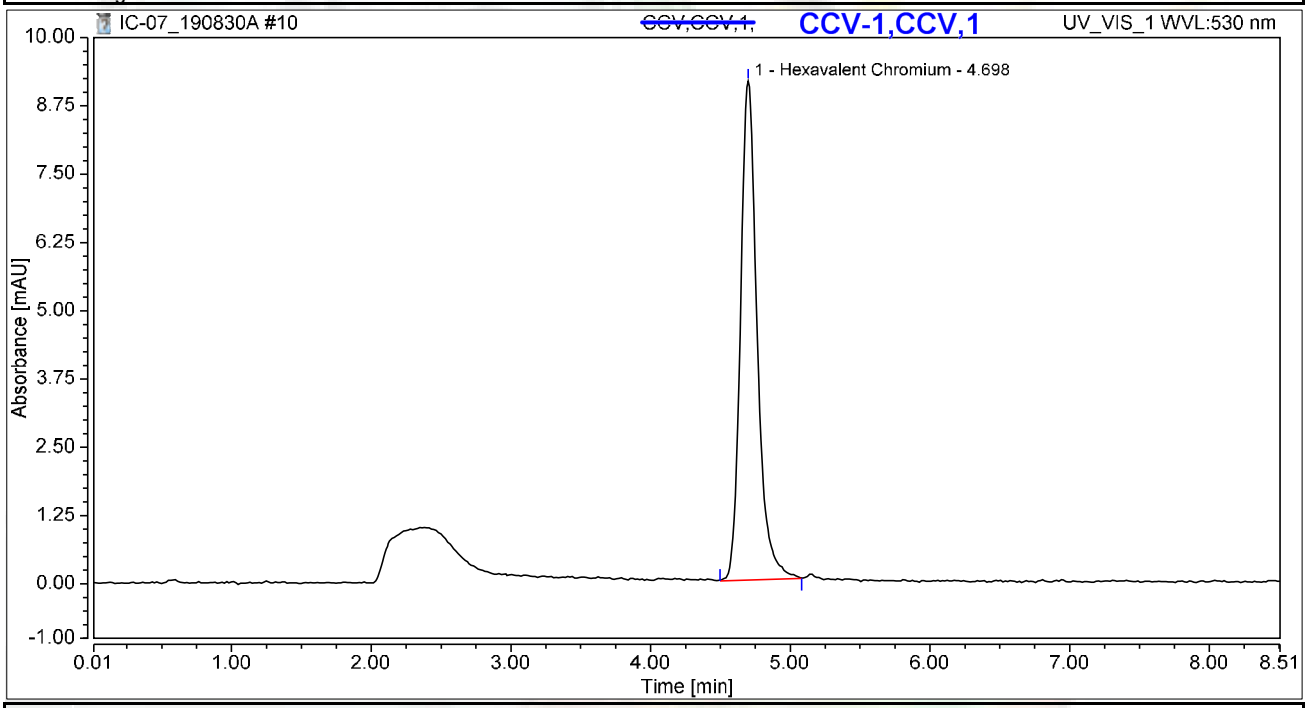
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV,CCV,1,~~ CCV-1,CCV,1	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.264	9.137	100.00	100.00	4.8727
Total:			**1.264**	**9.137**	**100.00**	**100.00**	

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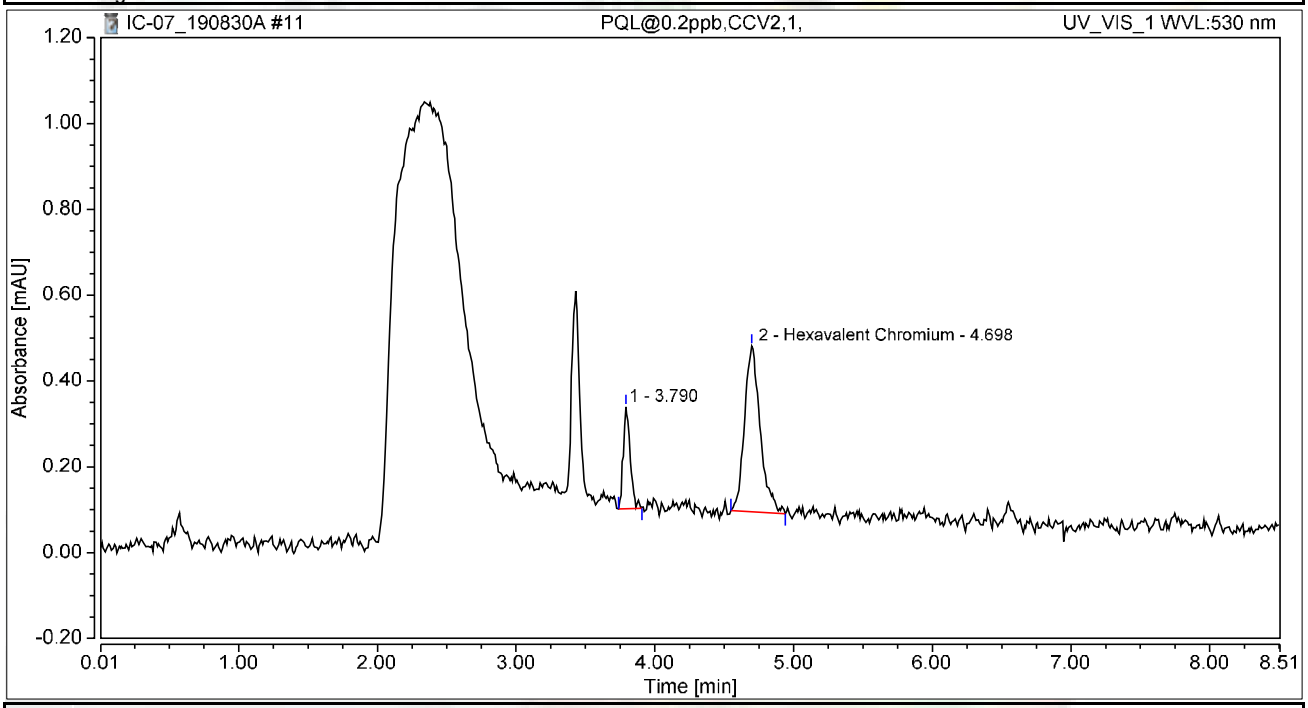
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.790	0.014	0.238	21.65	38.10	n.a.
2	Hexavalent Chromium	4.698	0.051	0.386	78.35	61.90	0.1951
Total:			**0.065**	**0.623**	**100.00**	**100.00**	

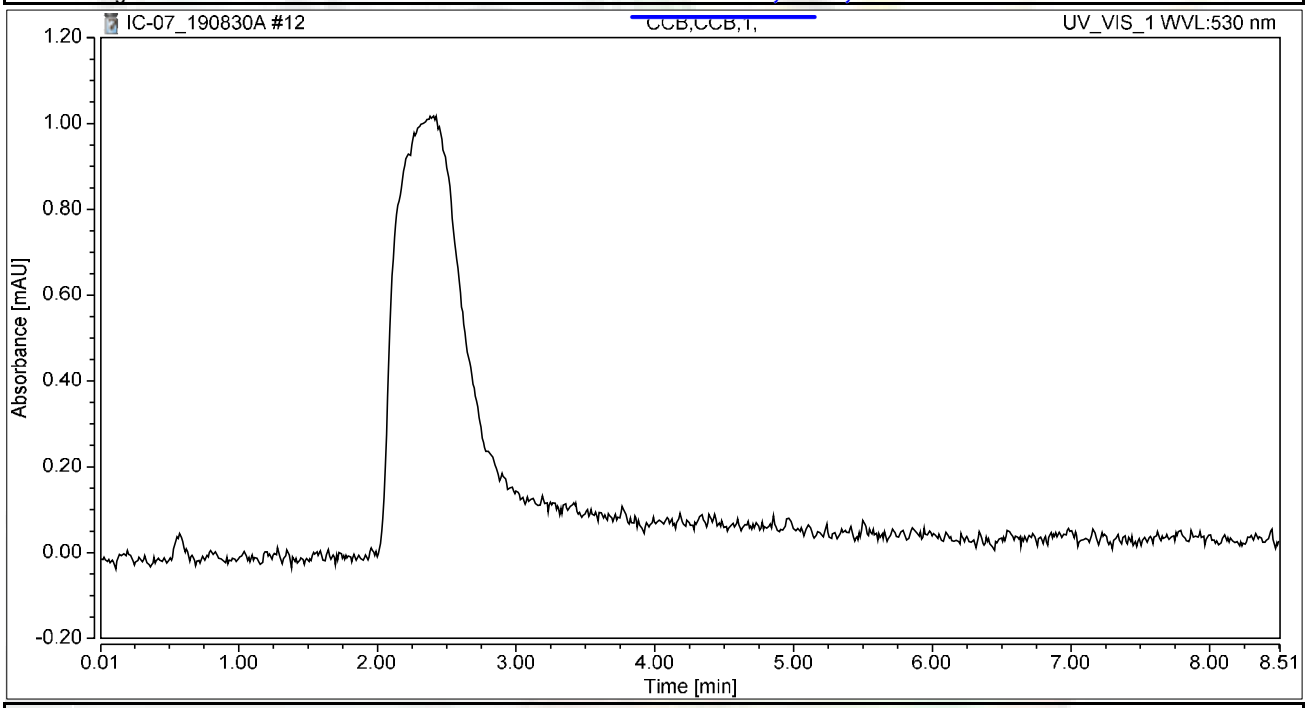
Chromatogram and Results

Injection Details

Injection Name:	~~CCB,CCB,1,~~ CCB-1,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:26**	*Sample Weight:*	**1.0000**

Chromatogram

CCB-1,CCB,1



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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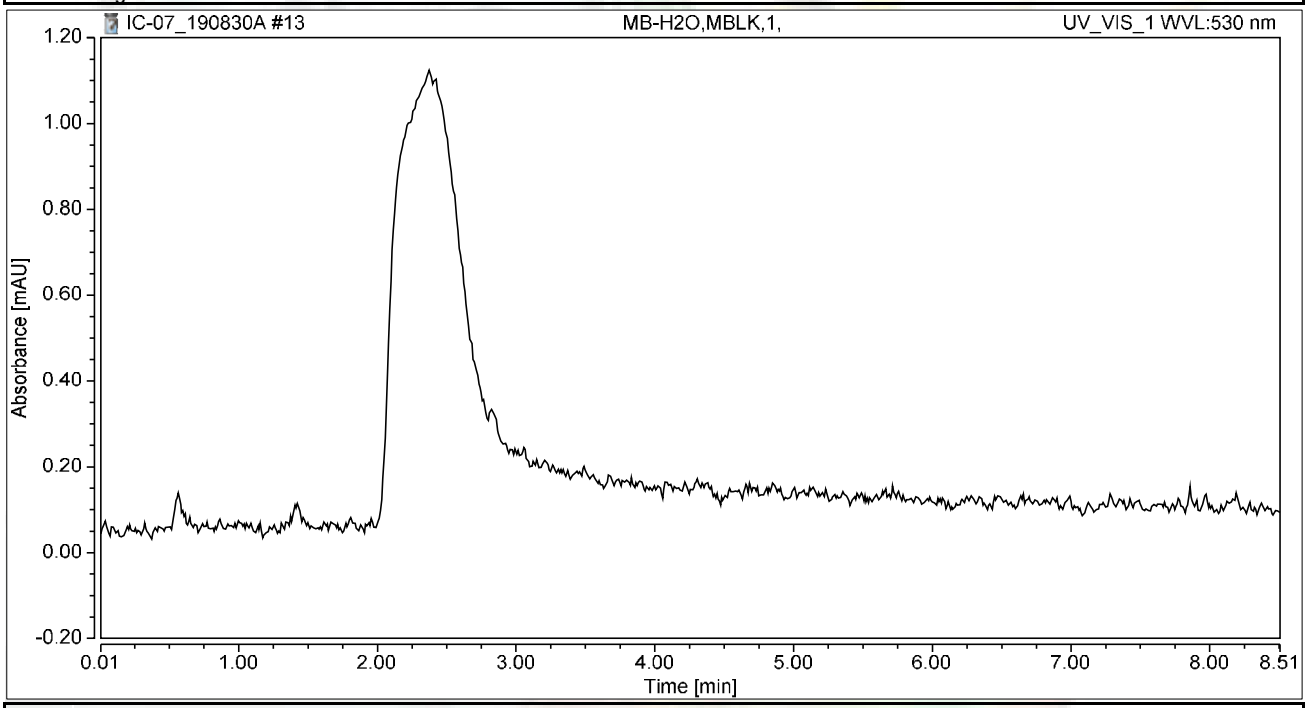
Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

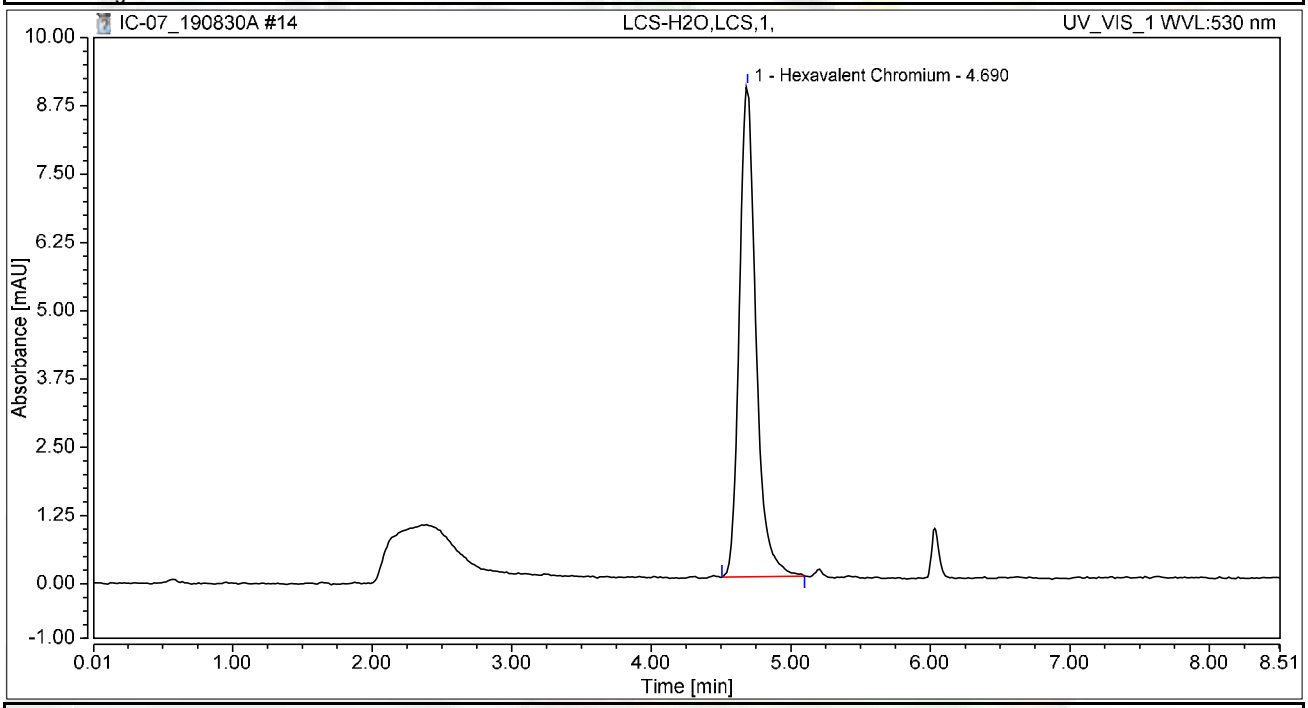
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

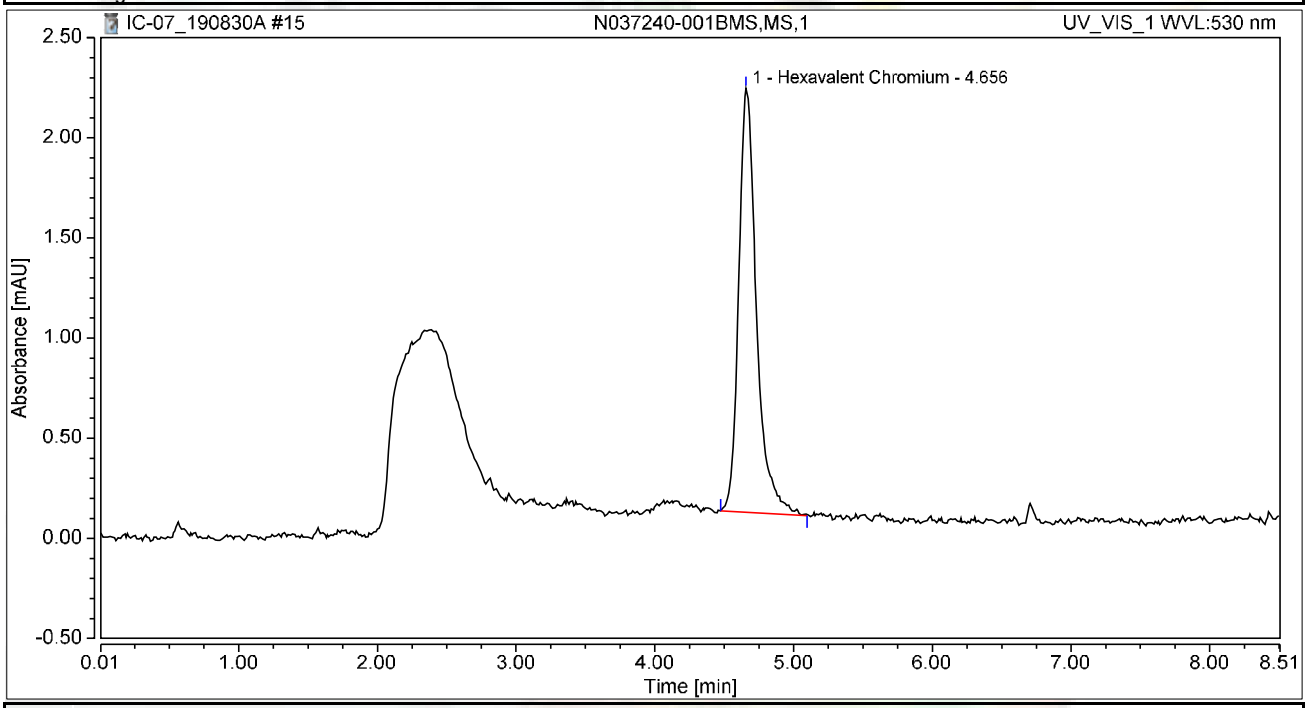
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.244	8.982	100.00	100.00	4.7925
Total:			**1.244**	**8.982**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037240-001BMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

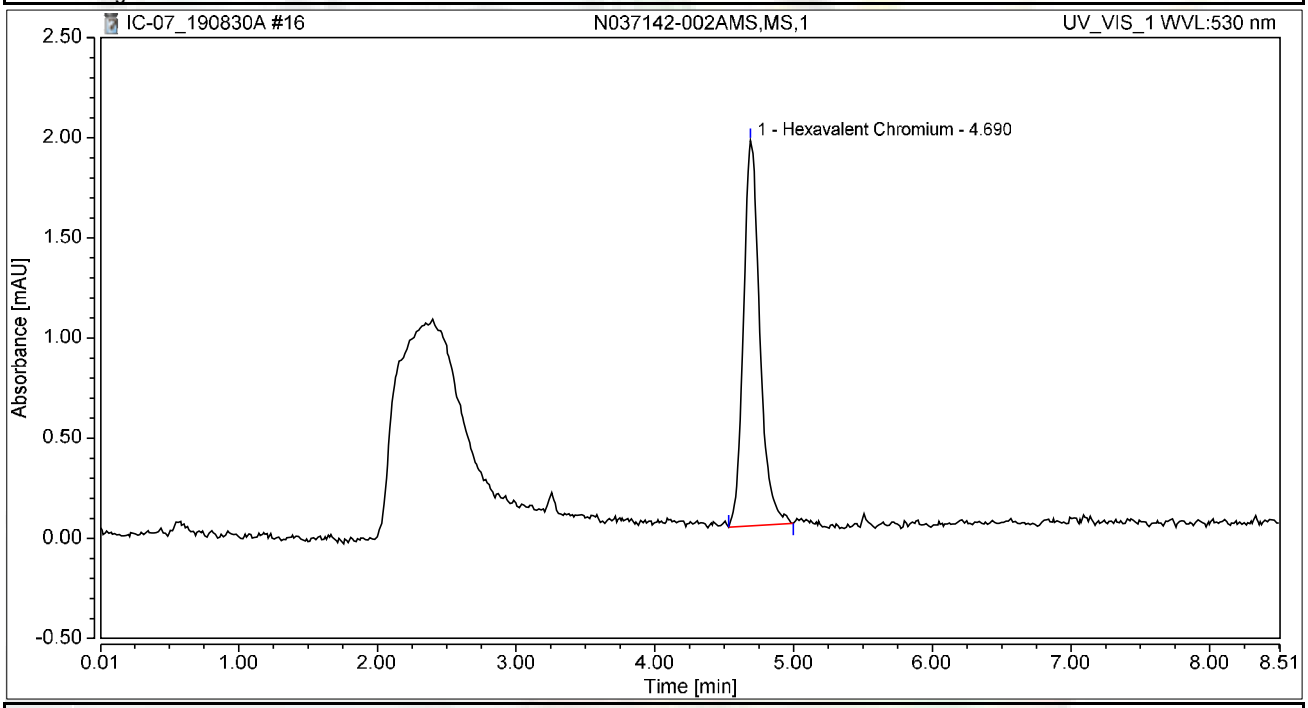
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.314	2.116	100.00	100.00	1.2094
Total:			**0.314**	**2.116**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037142-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

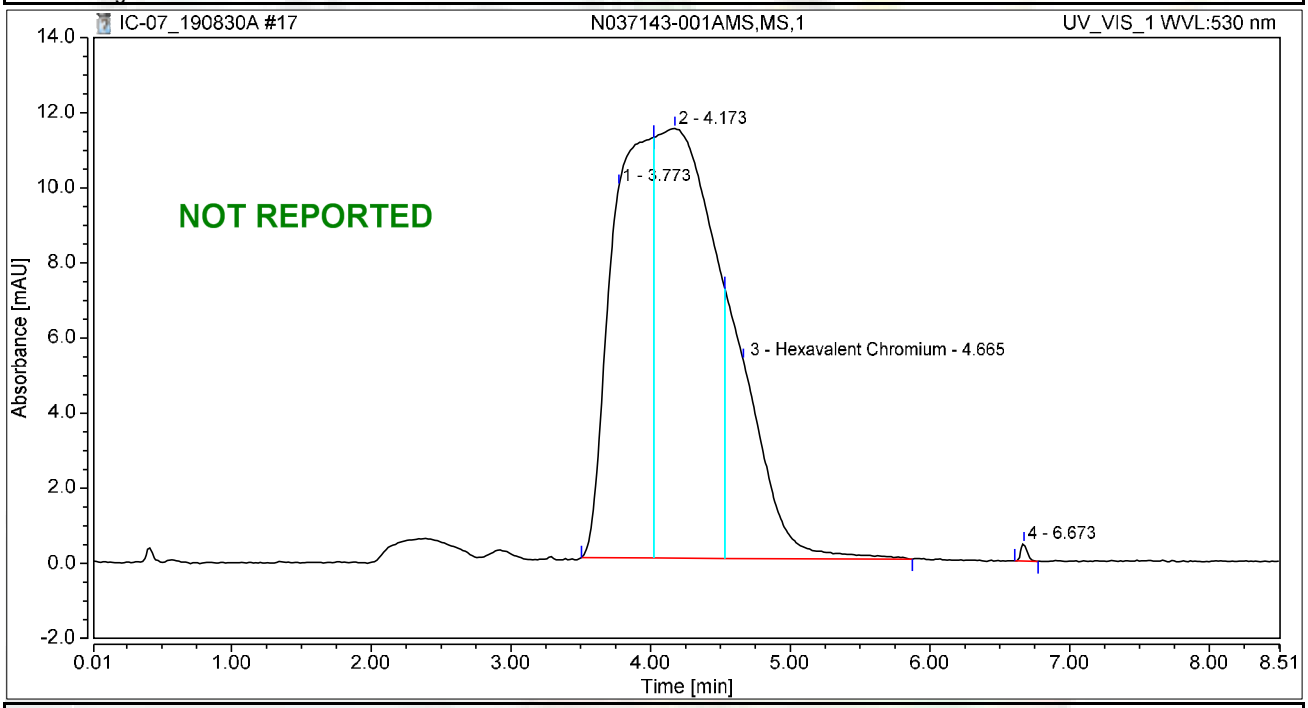
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.264	1.924	100.00	100.00	1.0163
Total:			**0.264**	**1.924**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

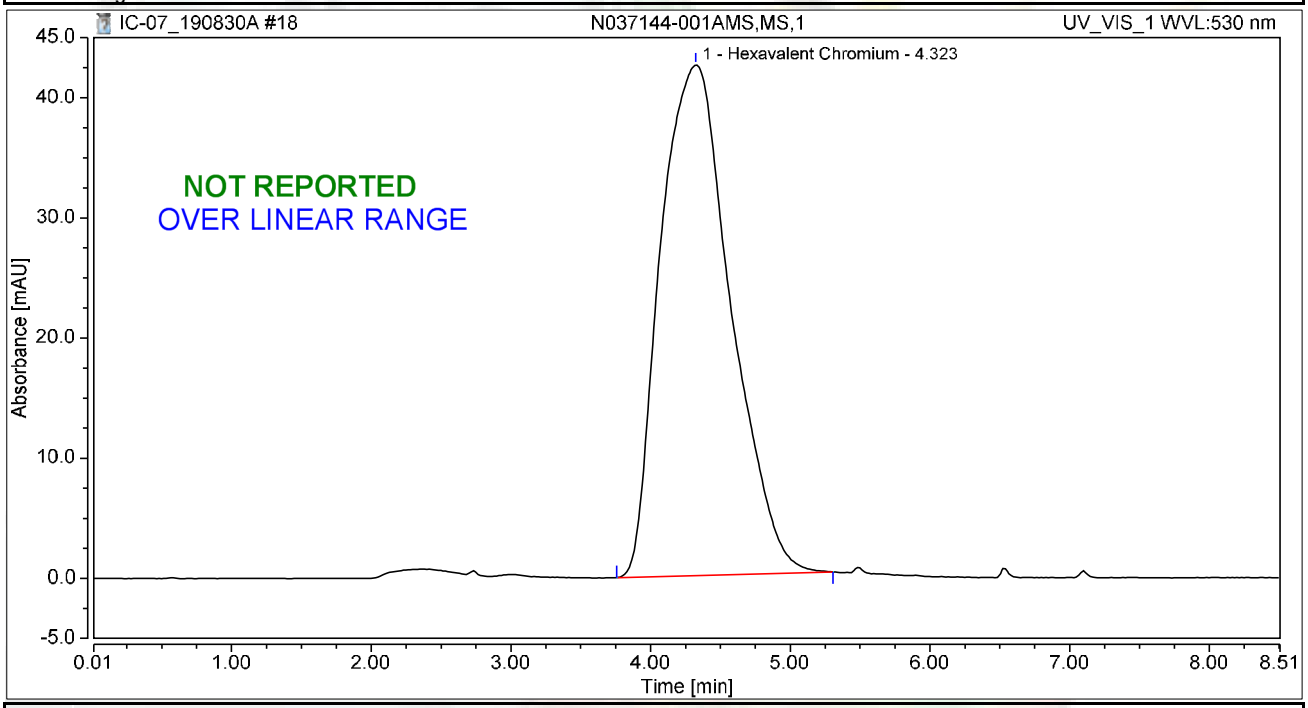
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.773	3.836	9.896	35.24	36.56	n.a.
2		4.173	5.197	11.438	47.74	42.25	n.a.
3	Hexavalent Chromium	4.665	1.827	5.272	16.79	19.48	7.0419
4		6.673	0.025	0.463	0.23	1.71	n.a.
Total:			**10.886**	**27.069**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

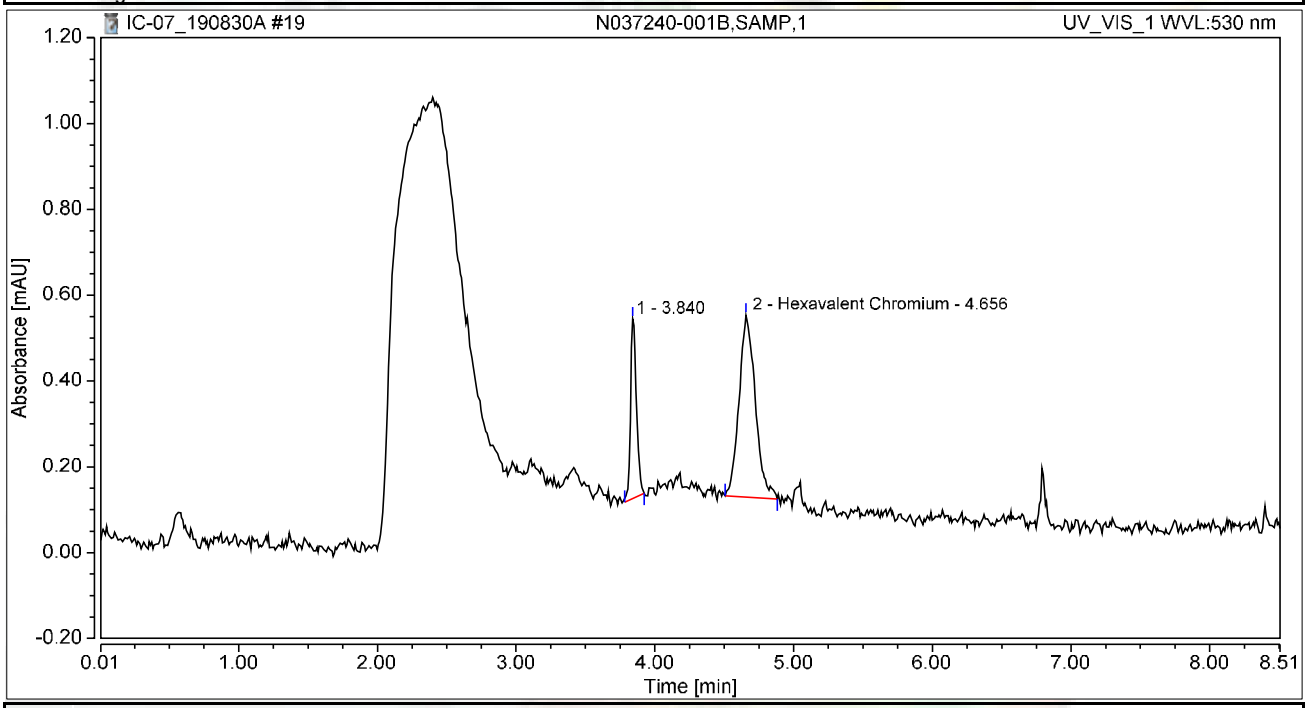
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	24.864	42.491	100.00	100.00	95.8193
Total:			**24.864**	**42.491**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037240-001B,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

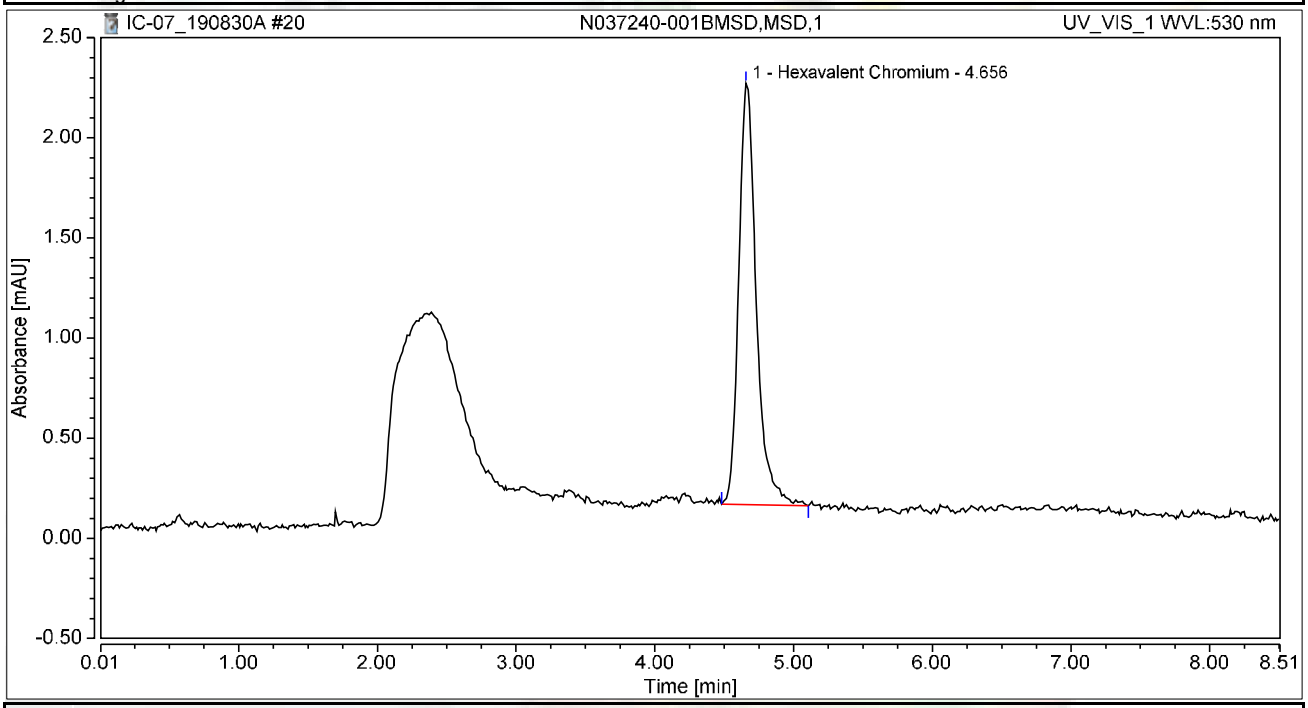
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.840	0.021	0.419	26.51	49.74	n.a.
2	Hexavalent Chromium	4.656	0.058	0.423	73.49	50.26	0.2223
Total:			**0.078**	**0.842**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037240-001BMSD,MSD,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

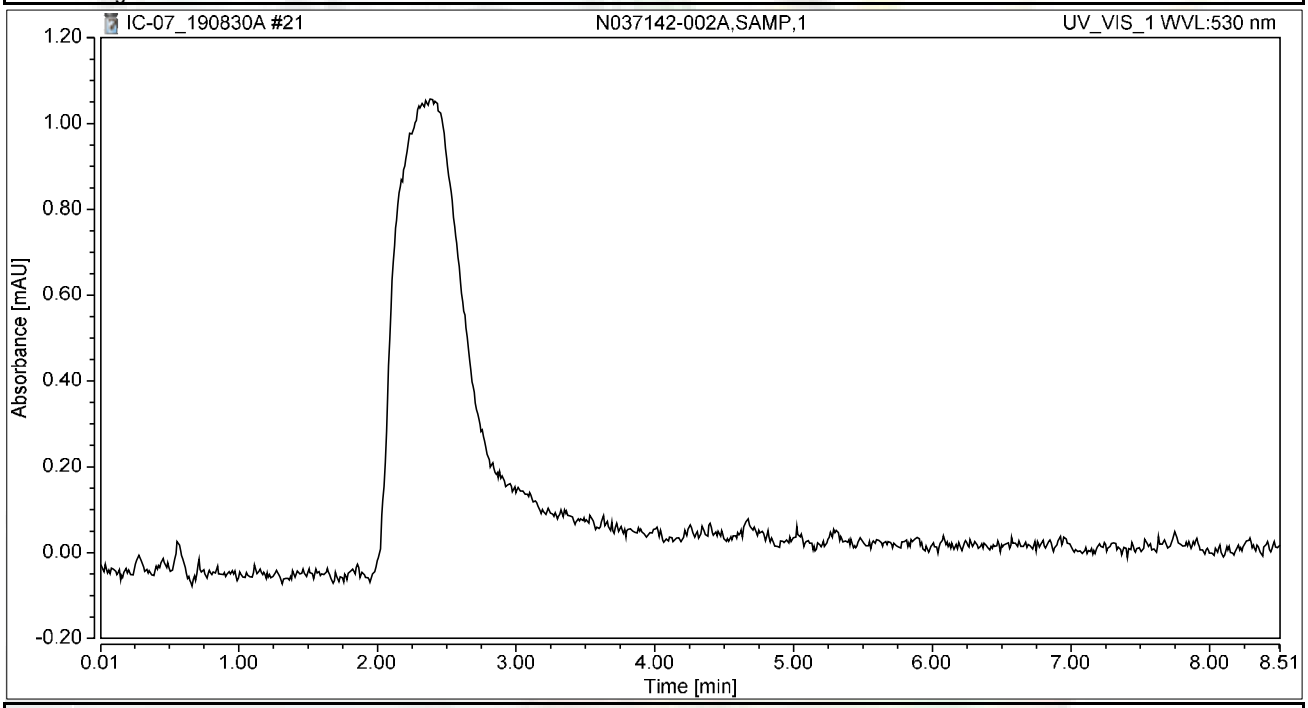
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.309	2.104	100.00	100.00	1.1903
Total:			**0.309**	**2.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037142-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

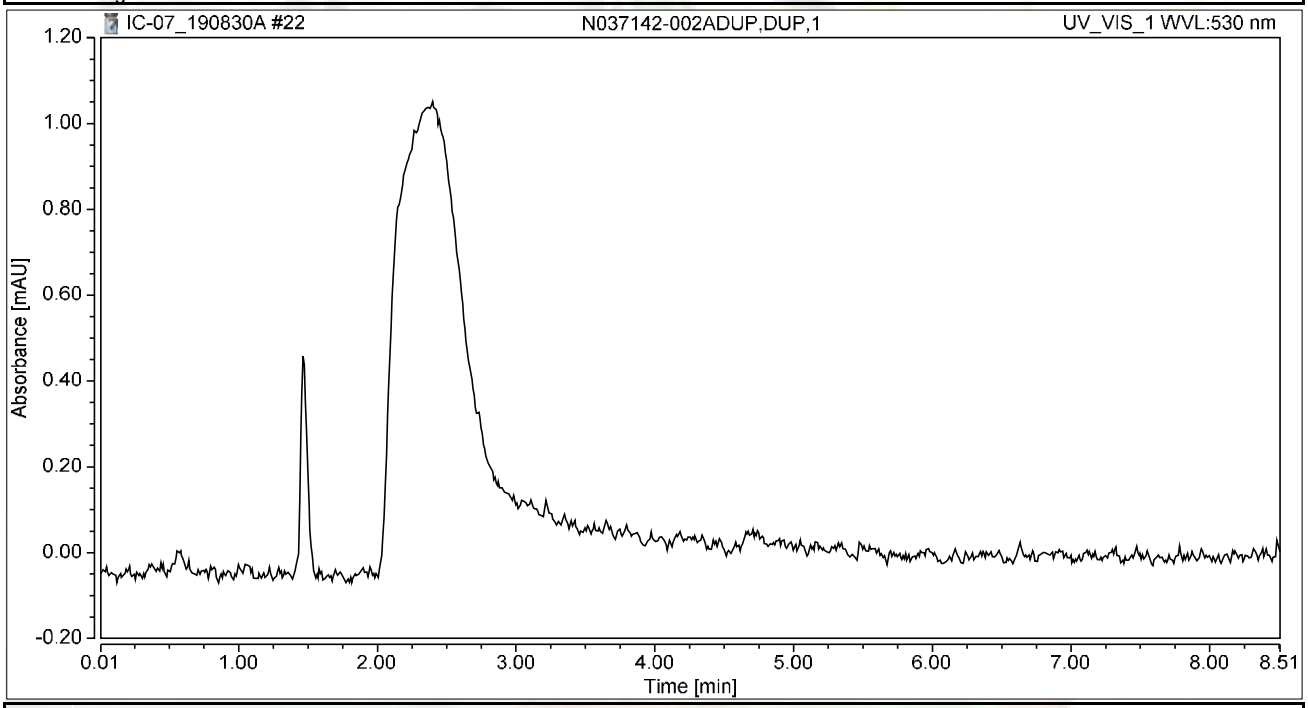
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037142-002ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

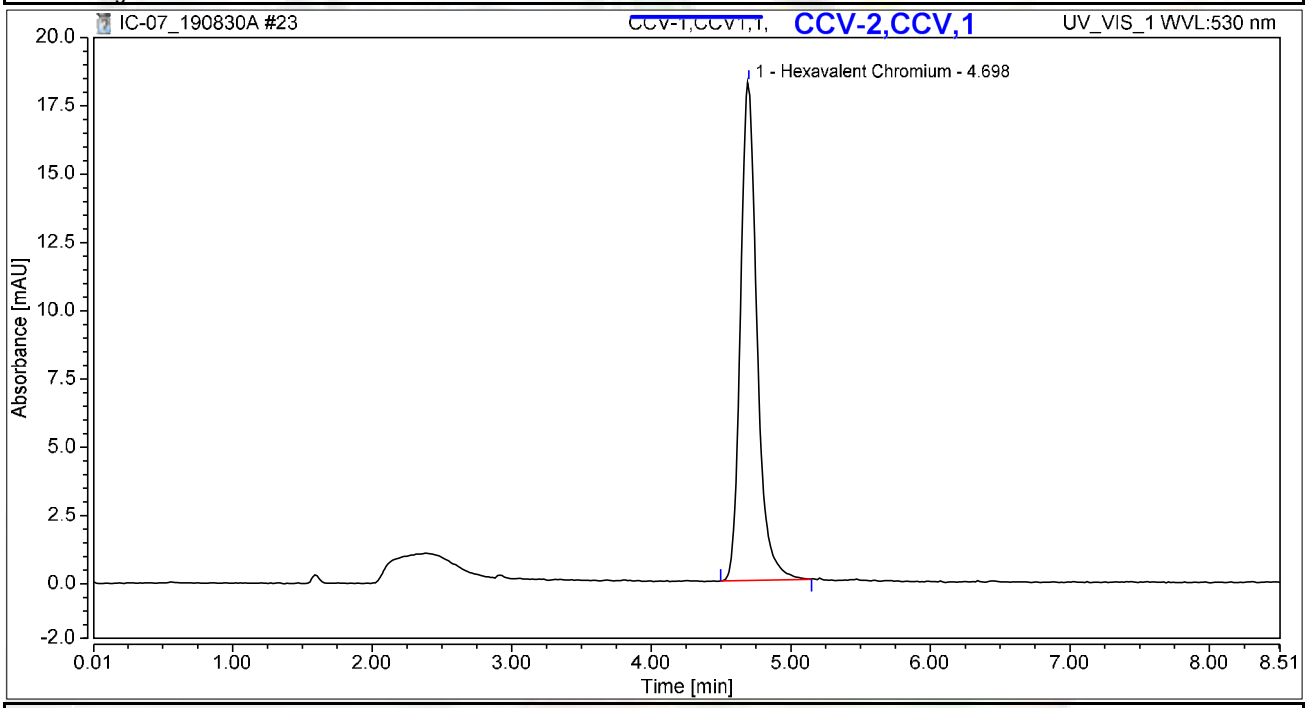
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**~~CCV-1,CCV1,1,~~ CCV-2,CCV,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.514	18.239	100.00	100.00	9.6871
Total:			**2.514**	**18.239**	**100.00**	**100.00**	

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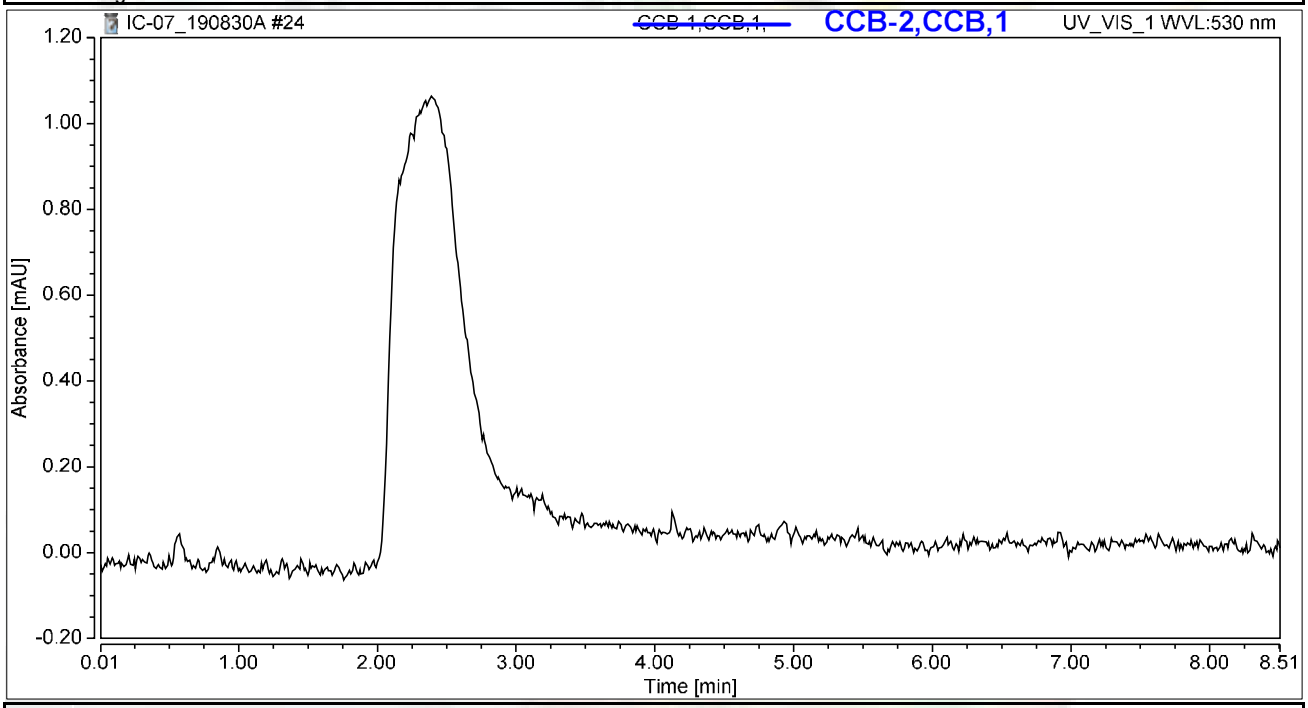
Chromatogram and Results

Injection Details

Injection Name:	~~CCB-1,CCB,1,~~ CCB-2,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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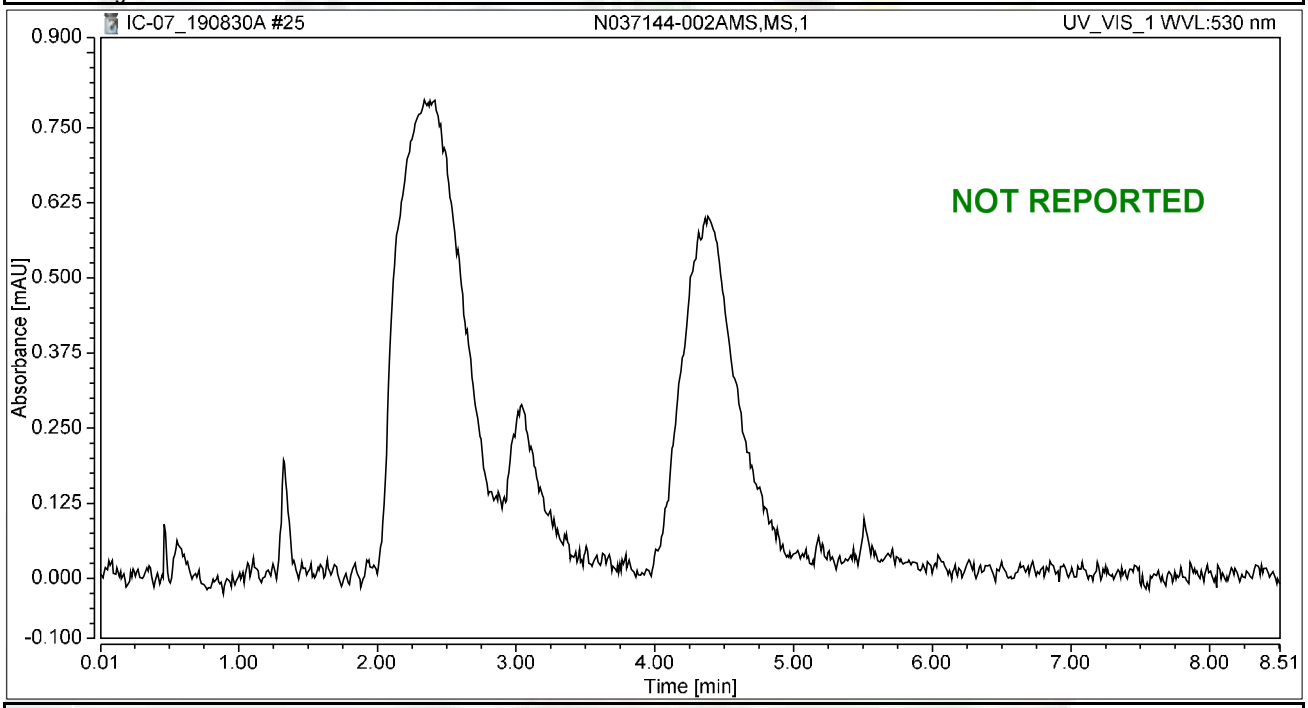
Chromatogram and Results

Injection Details

Injection Name:	**N037144-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

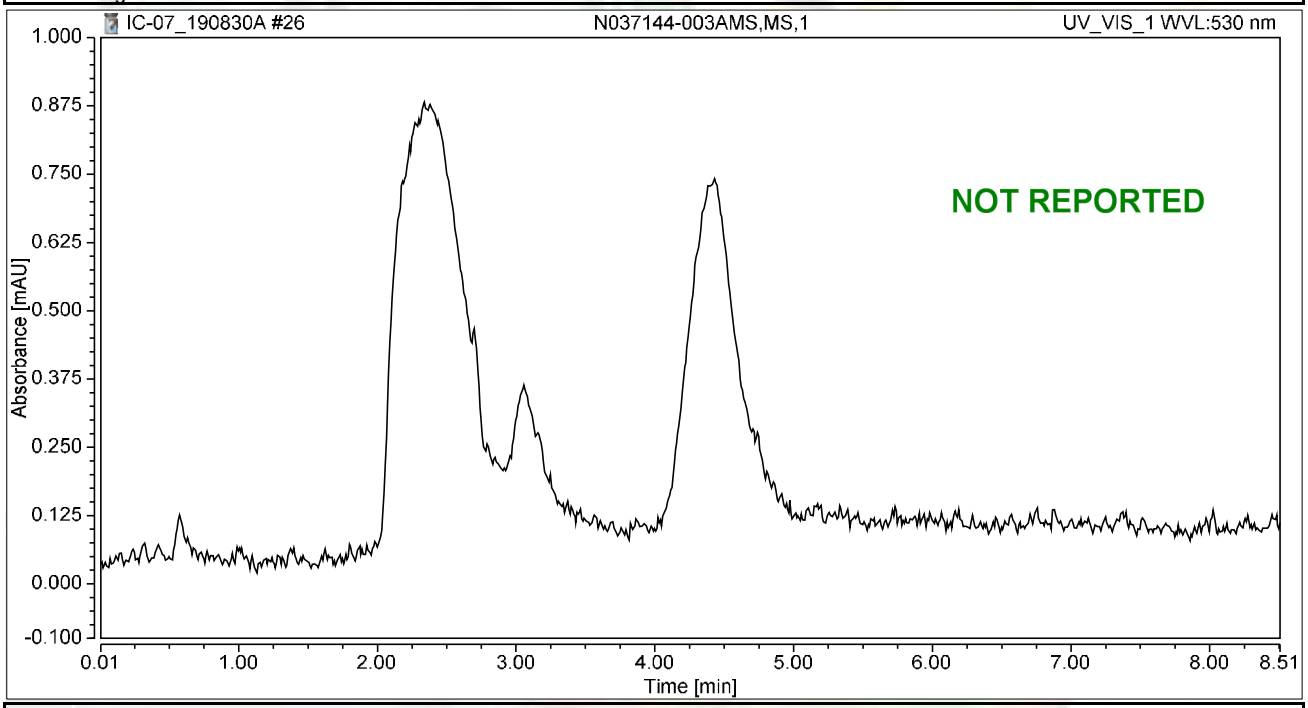
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

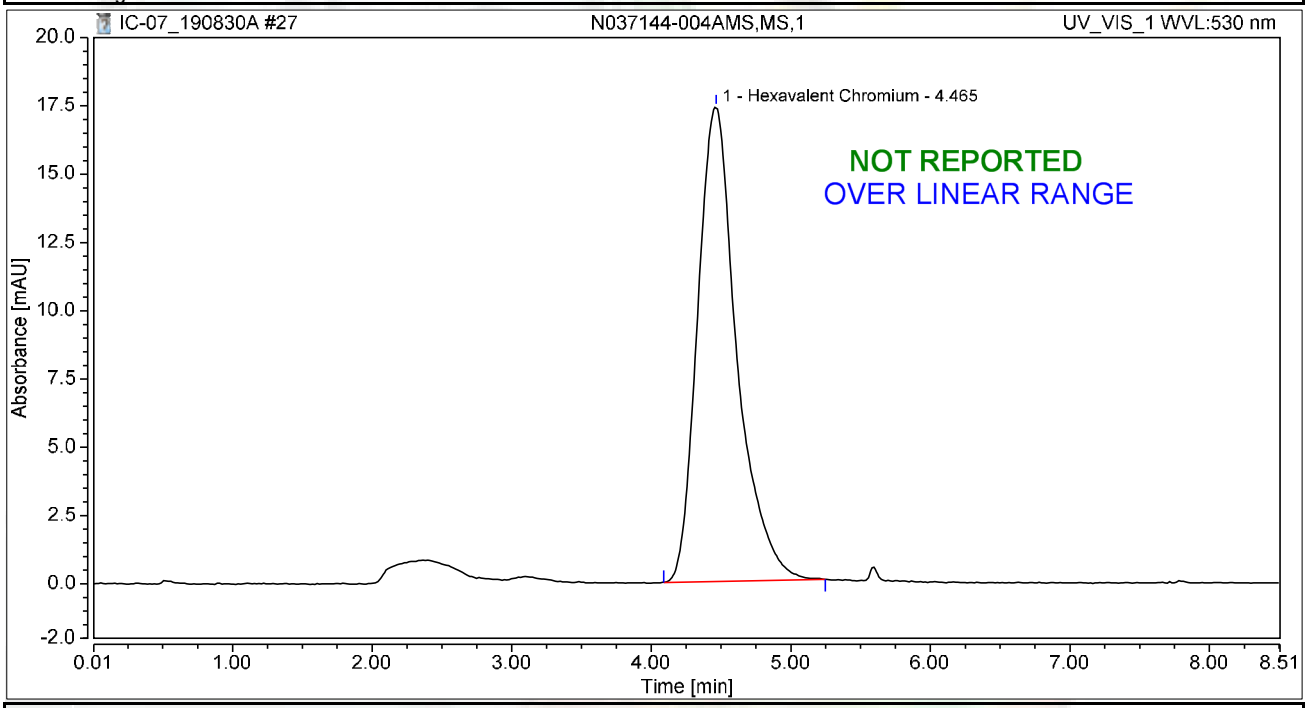
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

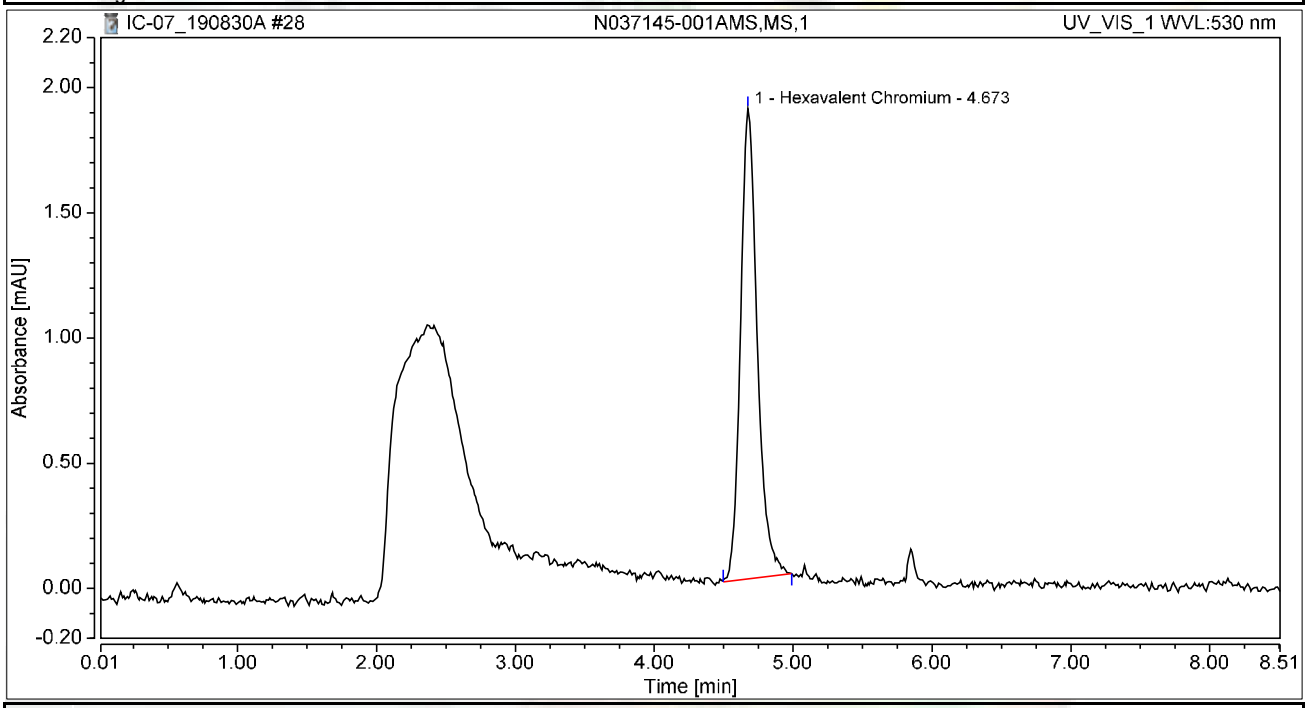
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.465	5.660	17.375	100.00	100.00	21.8112
Total:			**5.660**	**17.375**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

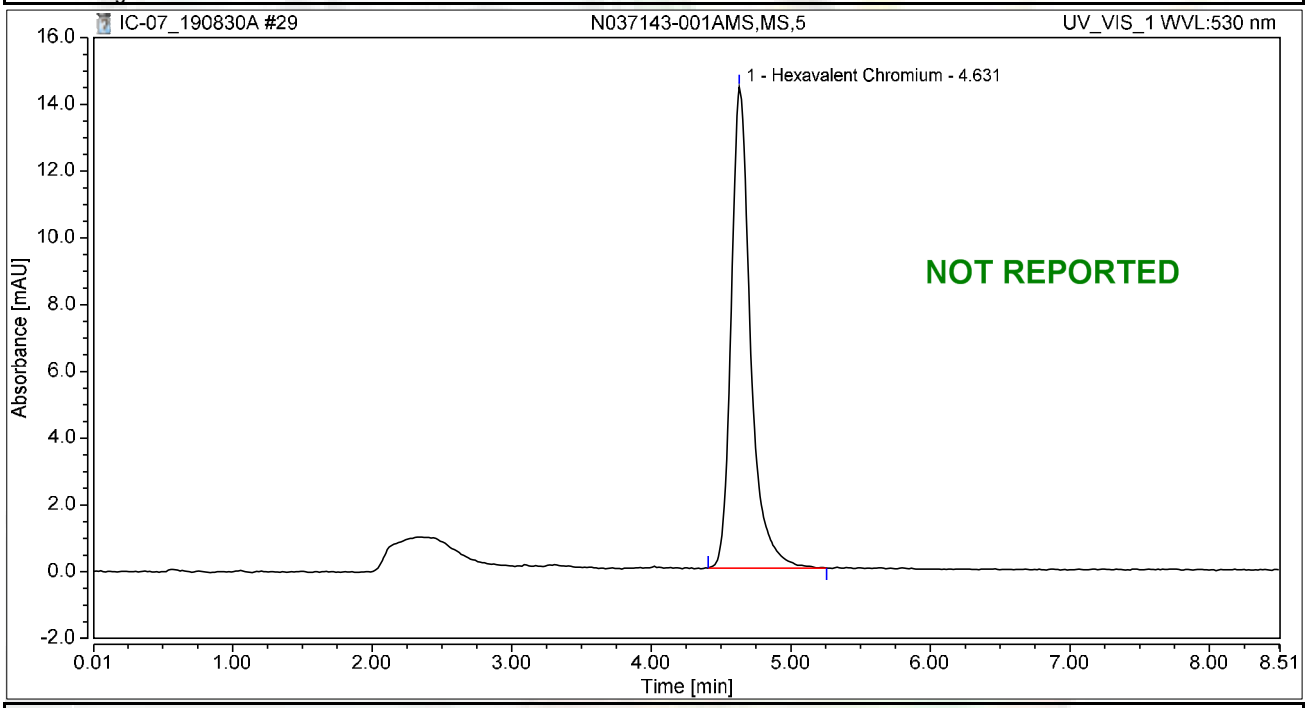
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.263	1.878	100.00	100.00	1.0141
Total:			**0.263**	**1.878**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

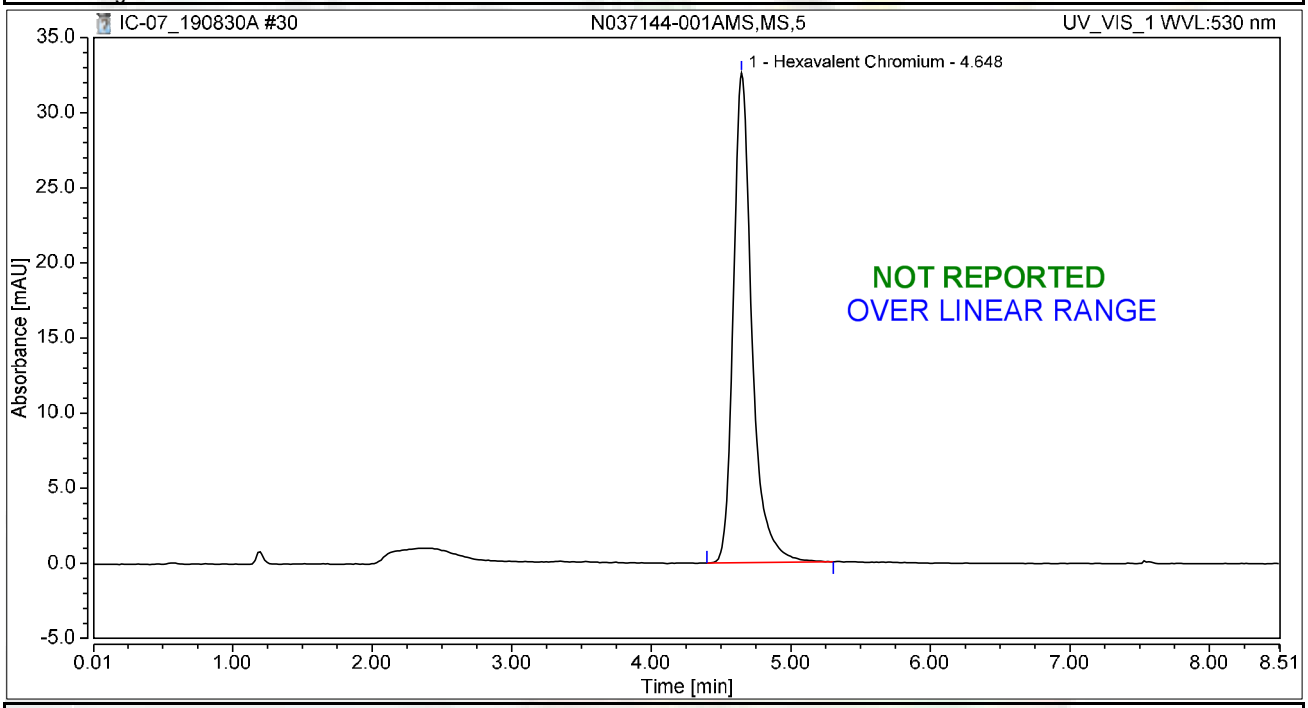
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	2.321	14.419	100.00	100.00	8.9453
Total:			**2.321**	**14.419**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

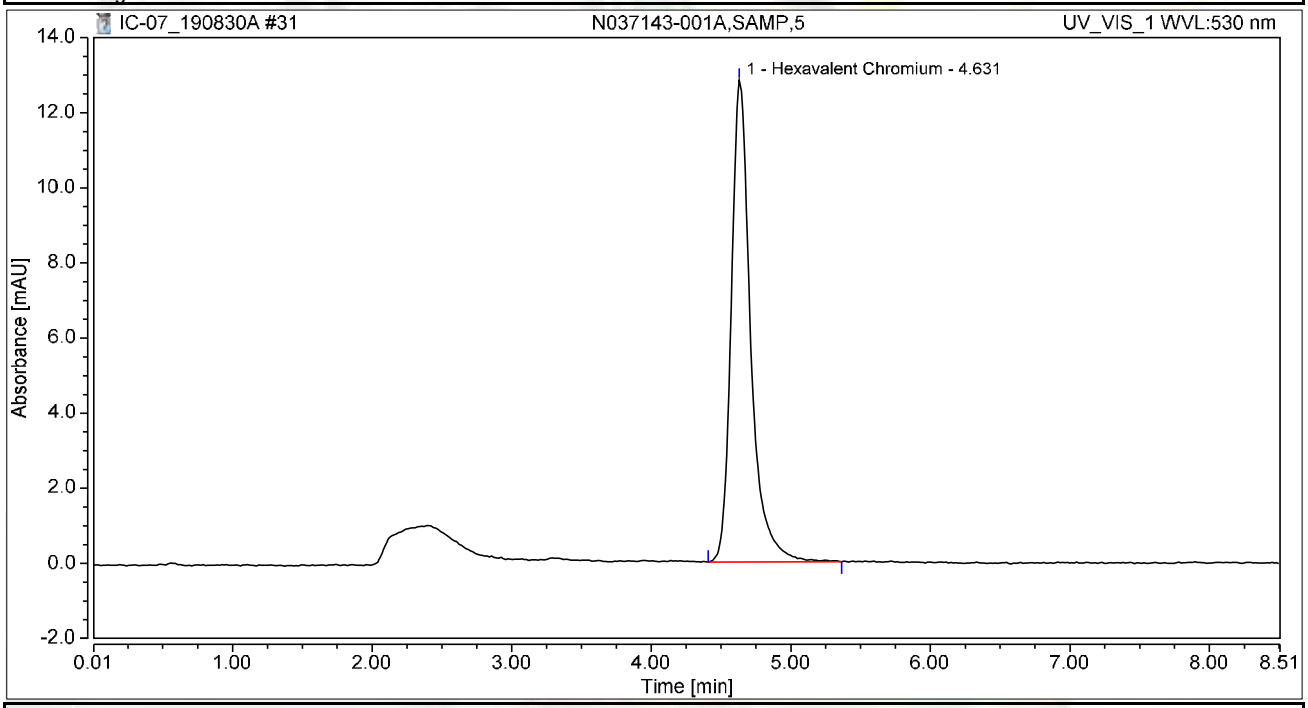
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	5.038	32.608	100.00	100.00	19.4158
Total:			**5.038**	**32.608**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

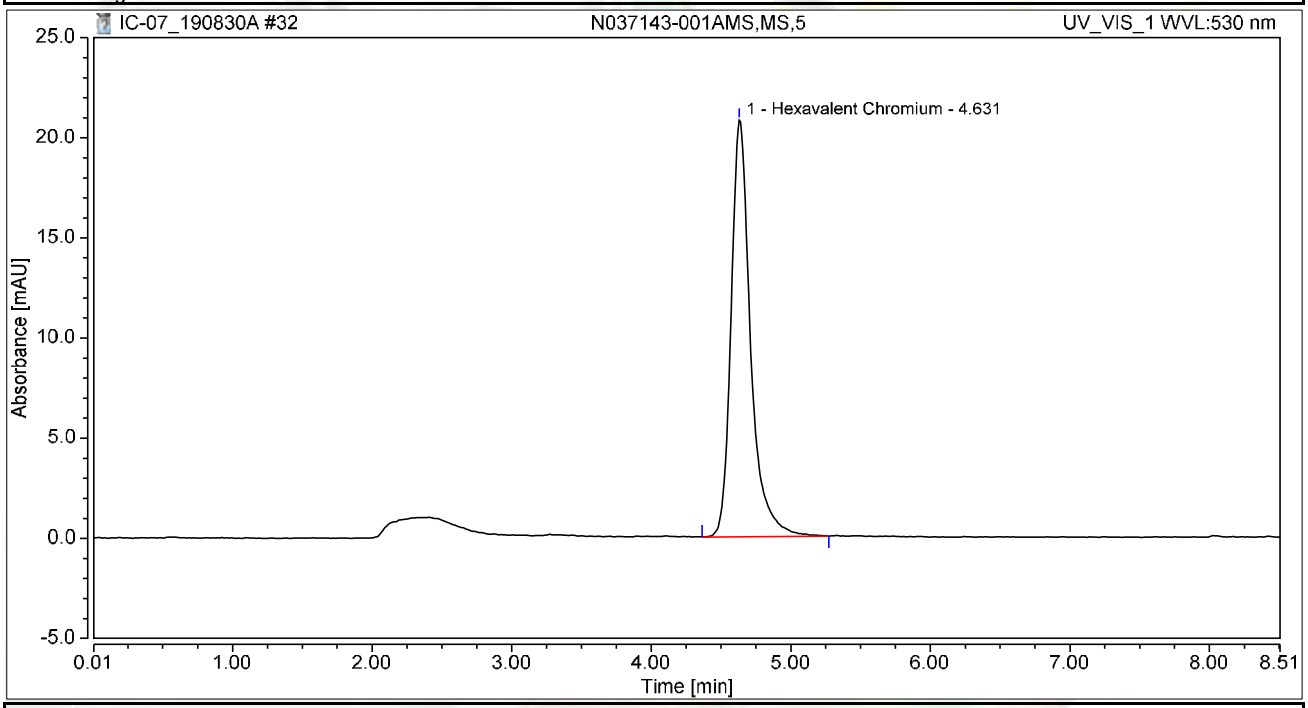
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	2.072	12.830	100.00	100.00	7.9861
Total:			**2.072**	**12.830**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

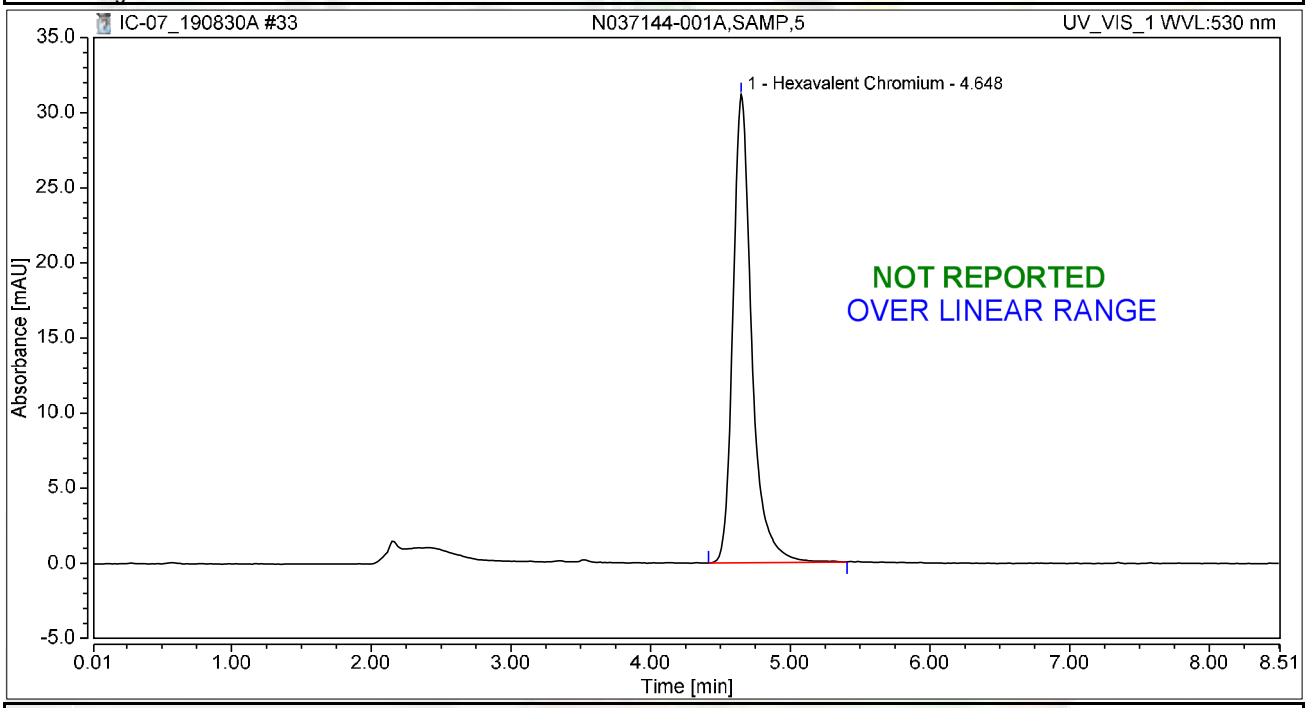
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	3.361	20.794	100.00	100.00	12.9540
Total:			**3.361**	**20.794**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

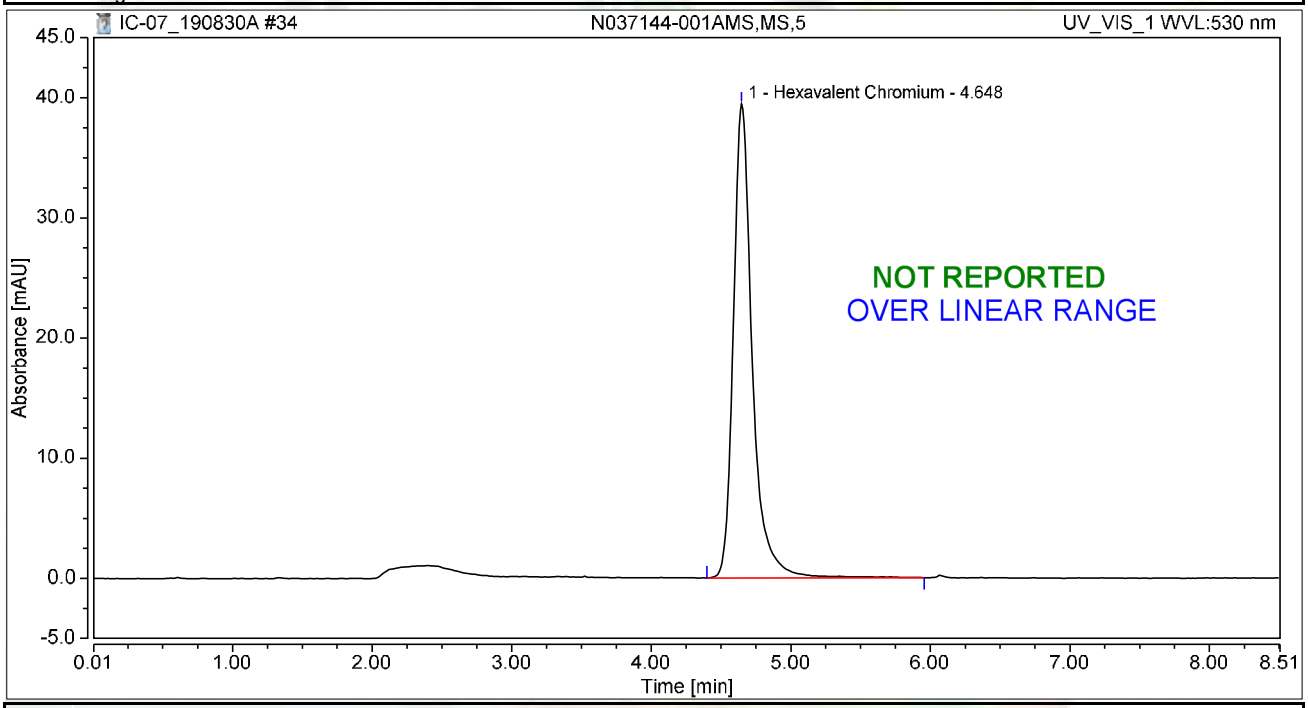
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	4.845	31.168	100.00	100.00	18.6724
Total:			**4.845**	**31.168**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

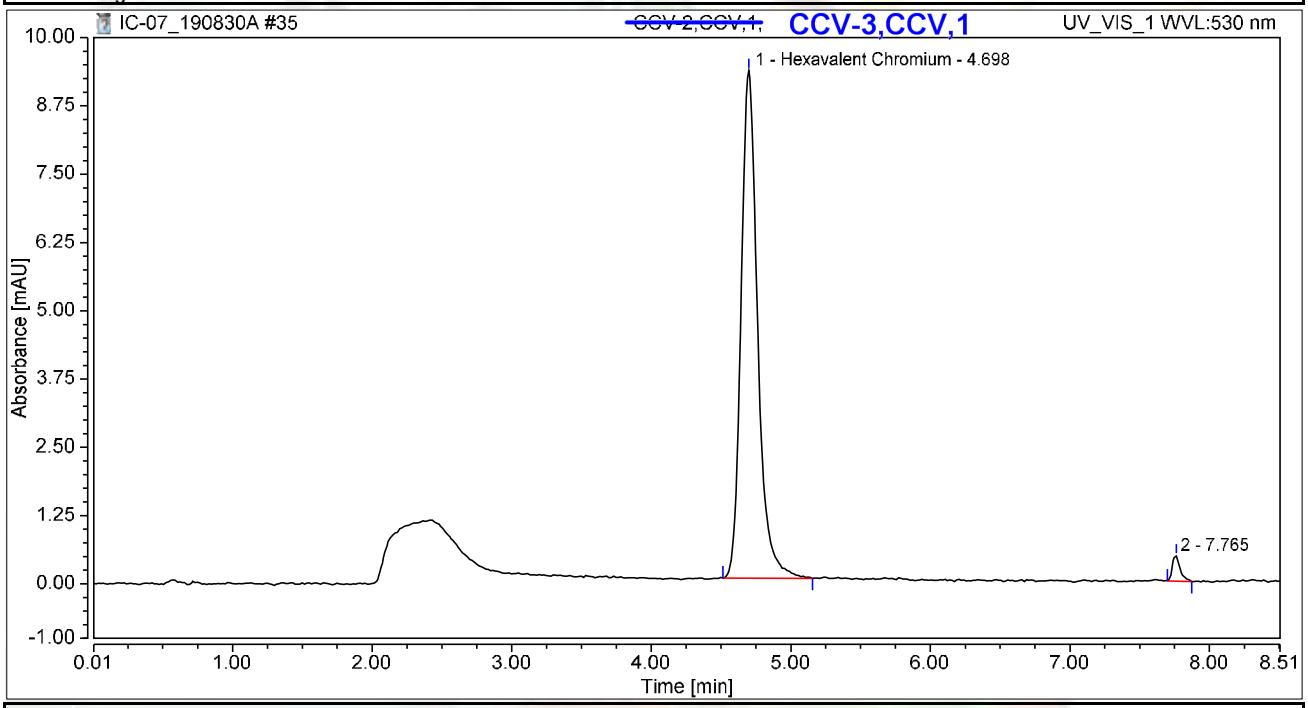
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	6.197	39.458	100.00	100.00	23.8817
Total:			**6.197**	**39.458**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV-2,CCV,1,~~ CCV-3,CCV,1	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.277	9.290	97.71	95.28	4.9207
2		7.765	0.030	0.460	2.29	4.72	n.a.
Total:			**1.307**	**9.750**	**100.00**	**100.00**	

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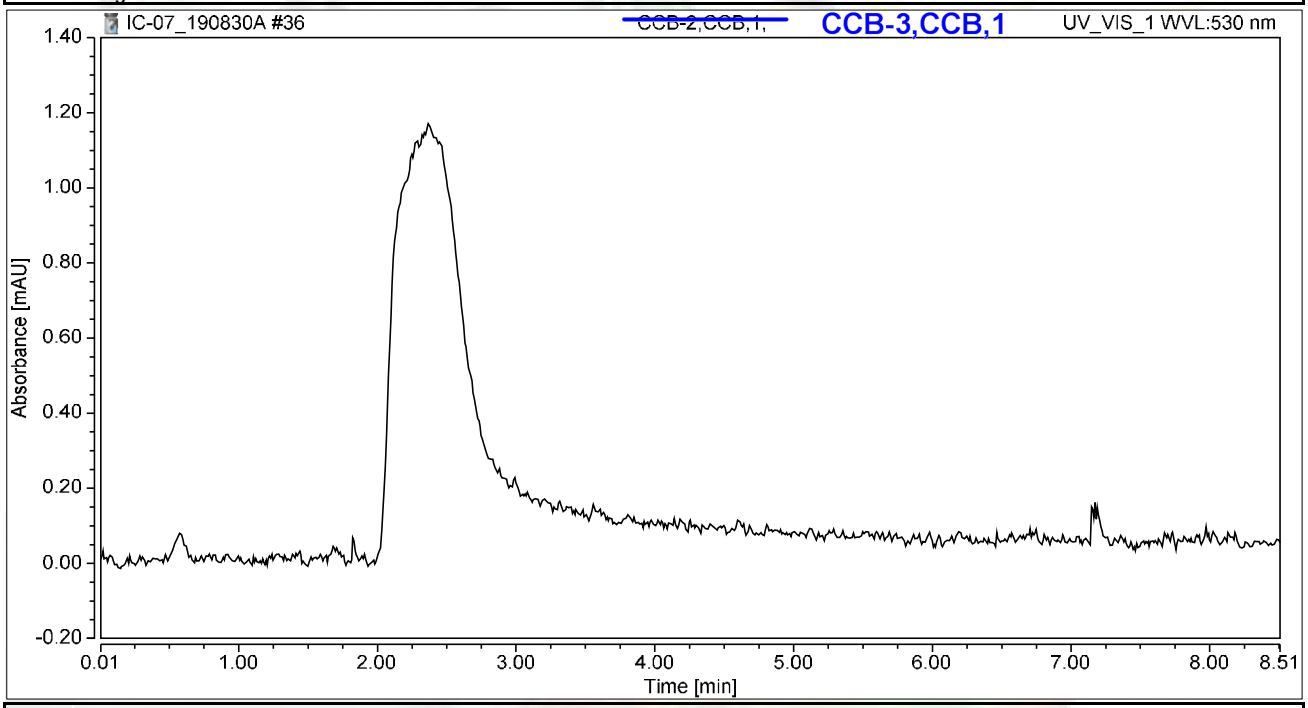
Chromatogram and Results

Injection Details

Injection Name:	~~CCB-2,CCB,1,~~ CCB3,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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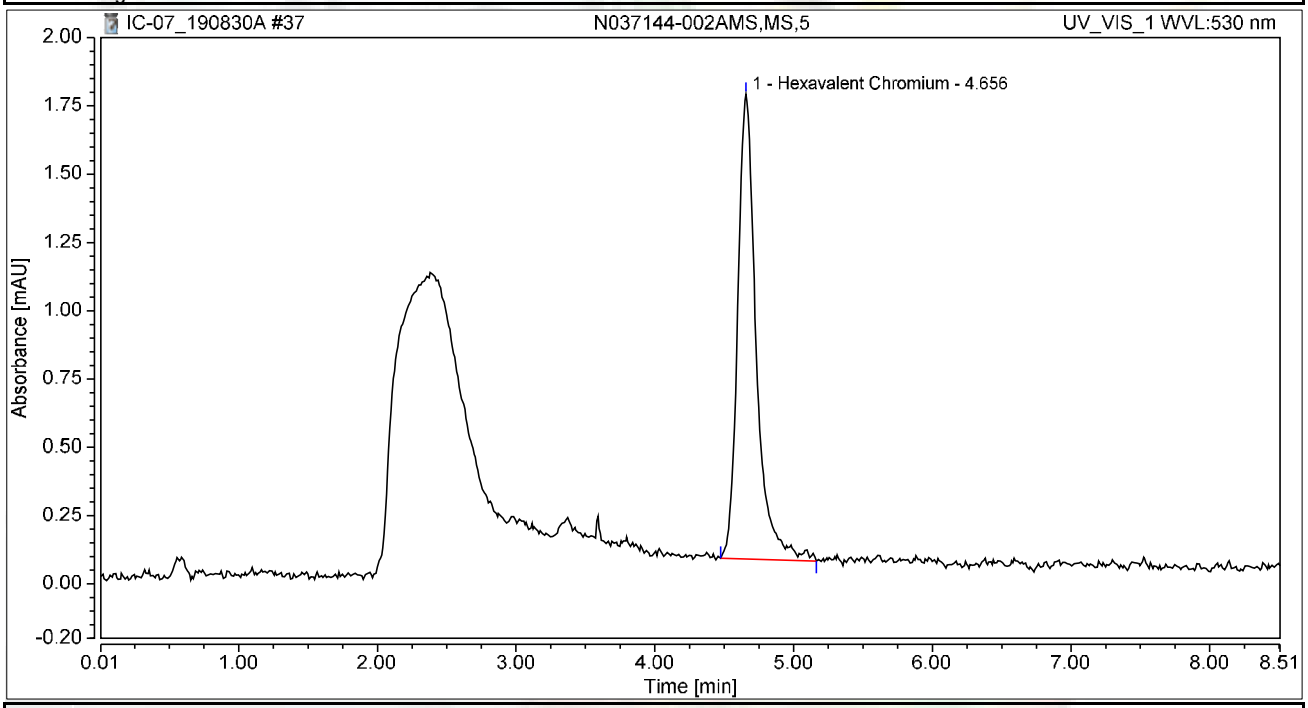
Chromatogram and Results

Injection Details

Injection Name:	**N037144-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

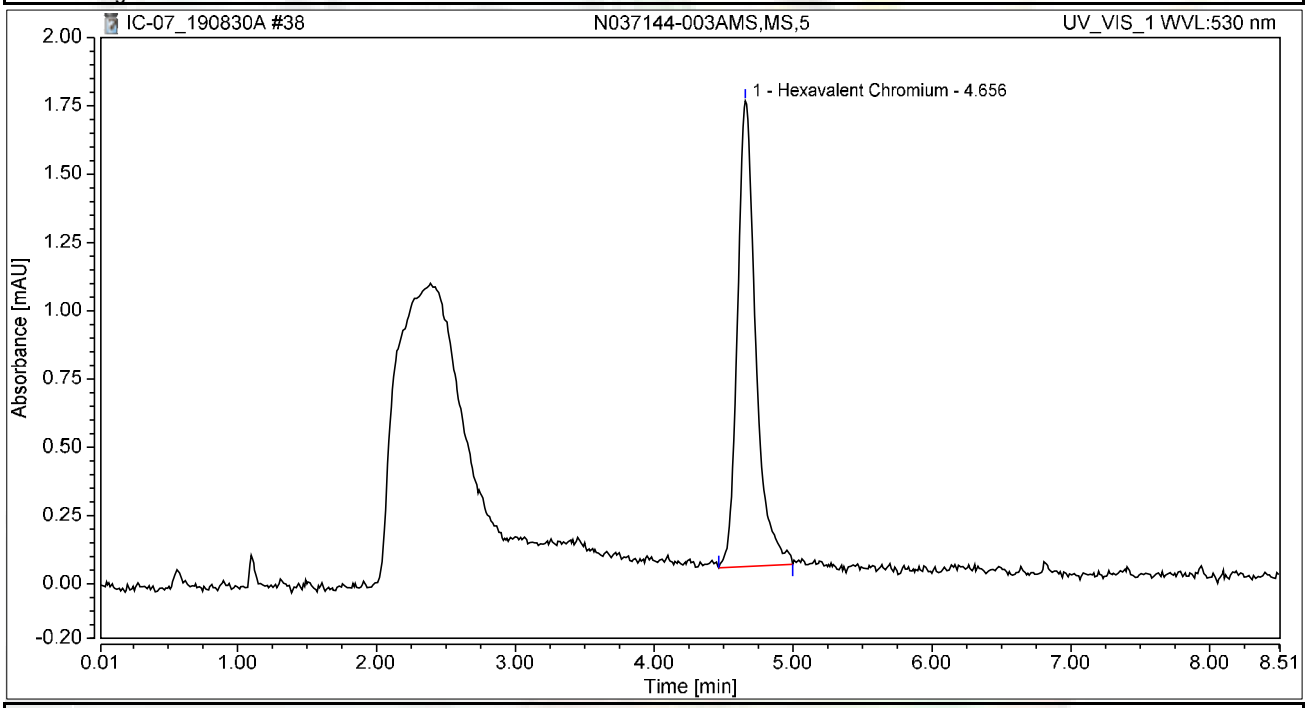
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.264	1.701	100.00	100.00	1.0160
Total:			**0.264**	**1.701**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

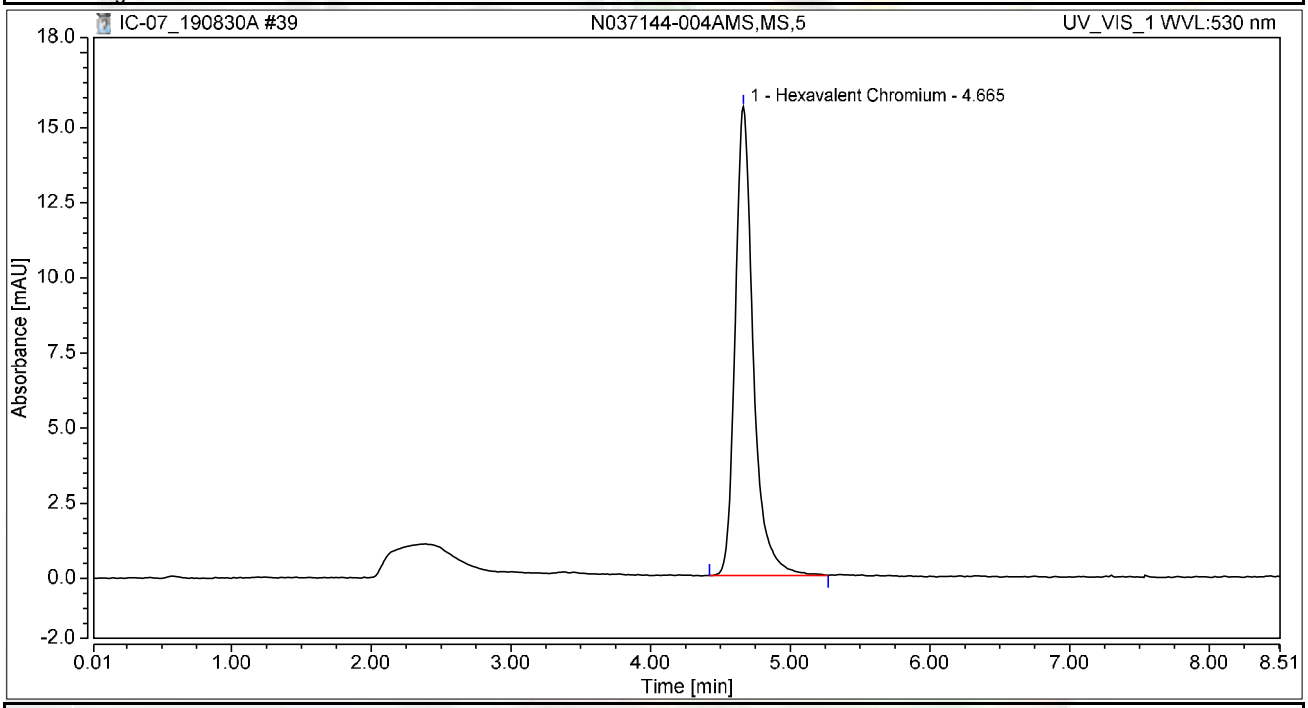
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.260	1.704	100.00	100.00	1.0036
Total:			**0.260**	**1.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-004AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

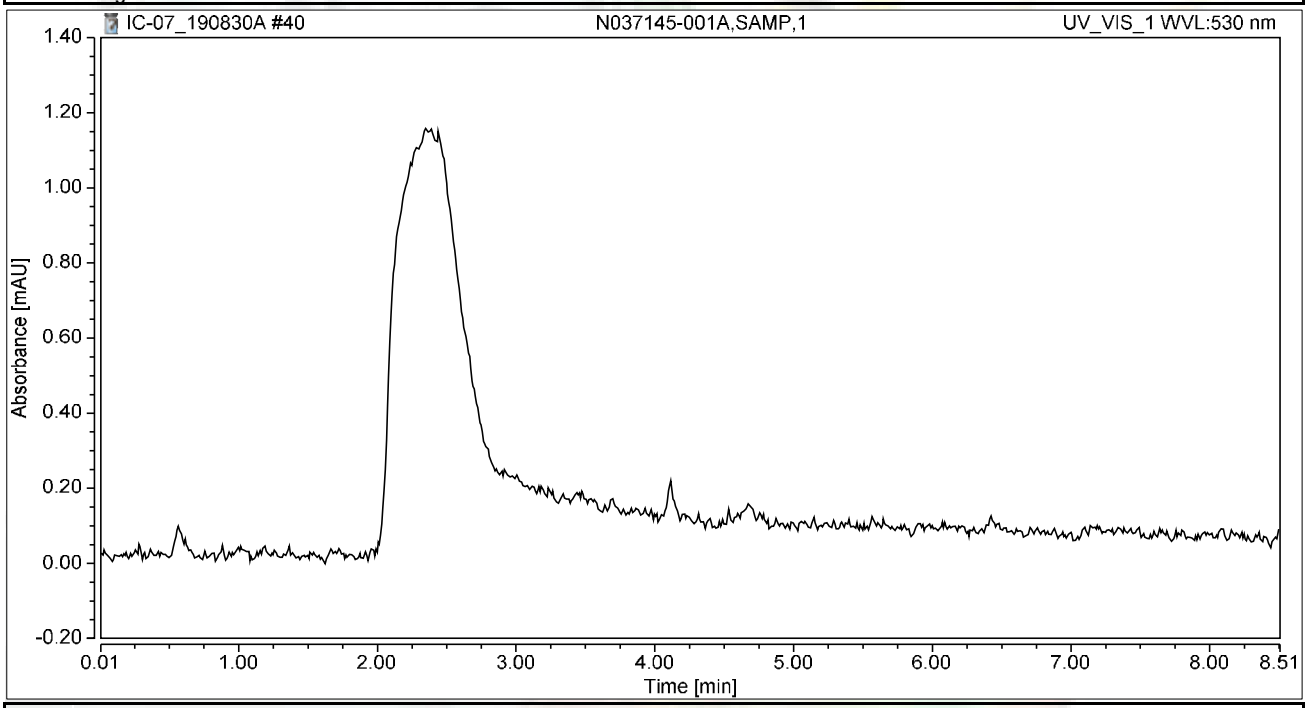
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	2.339	15.611	100.00	100.00	9.0128
Total:			**2.339**	**15.611**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

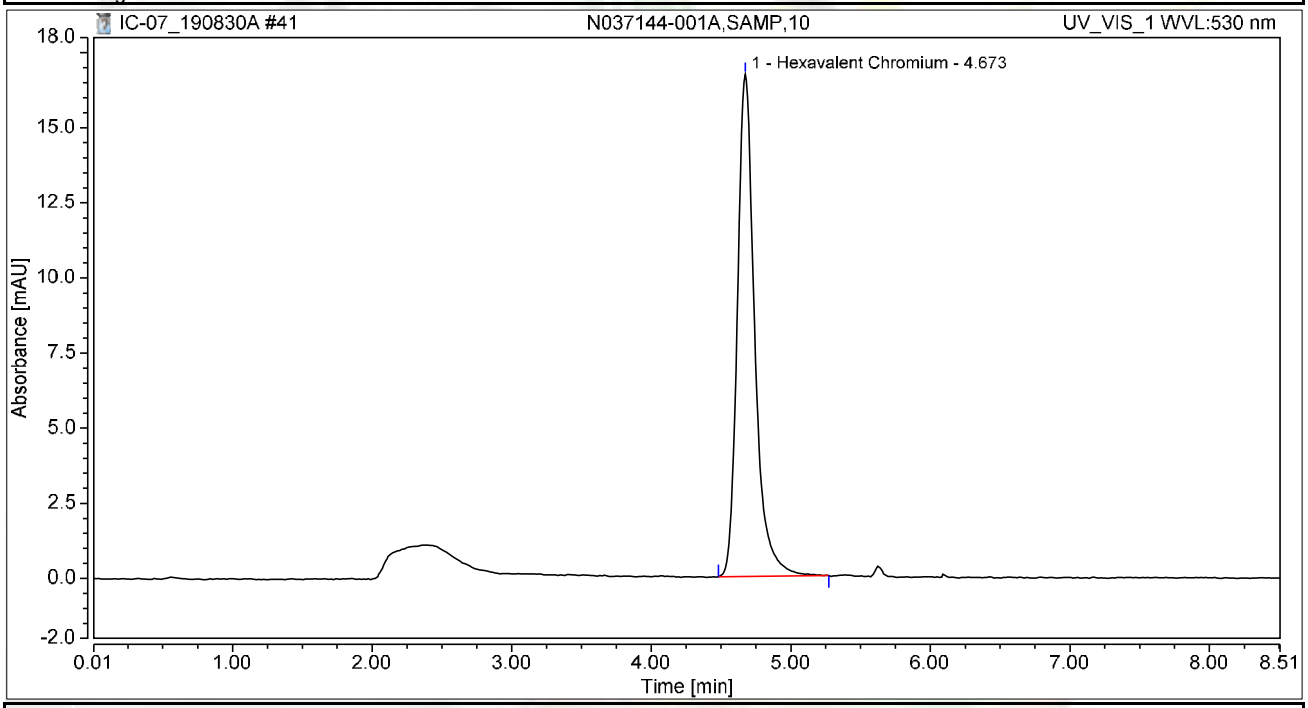
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

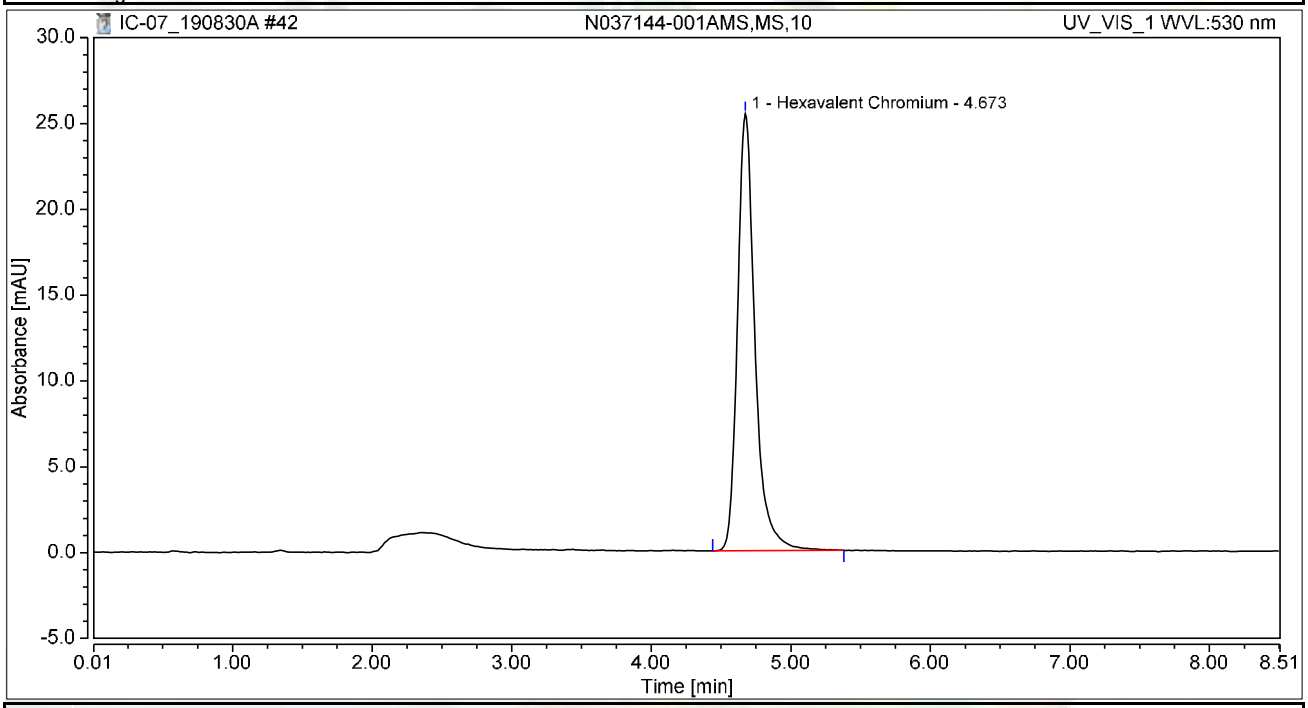
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	2.408	16.714	100.00	100.00	9.2788
Total:			**2.408**	**16.714**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

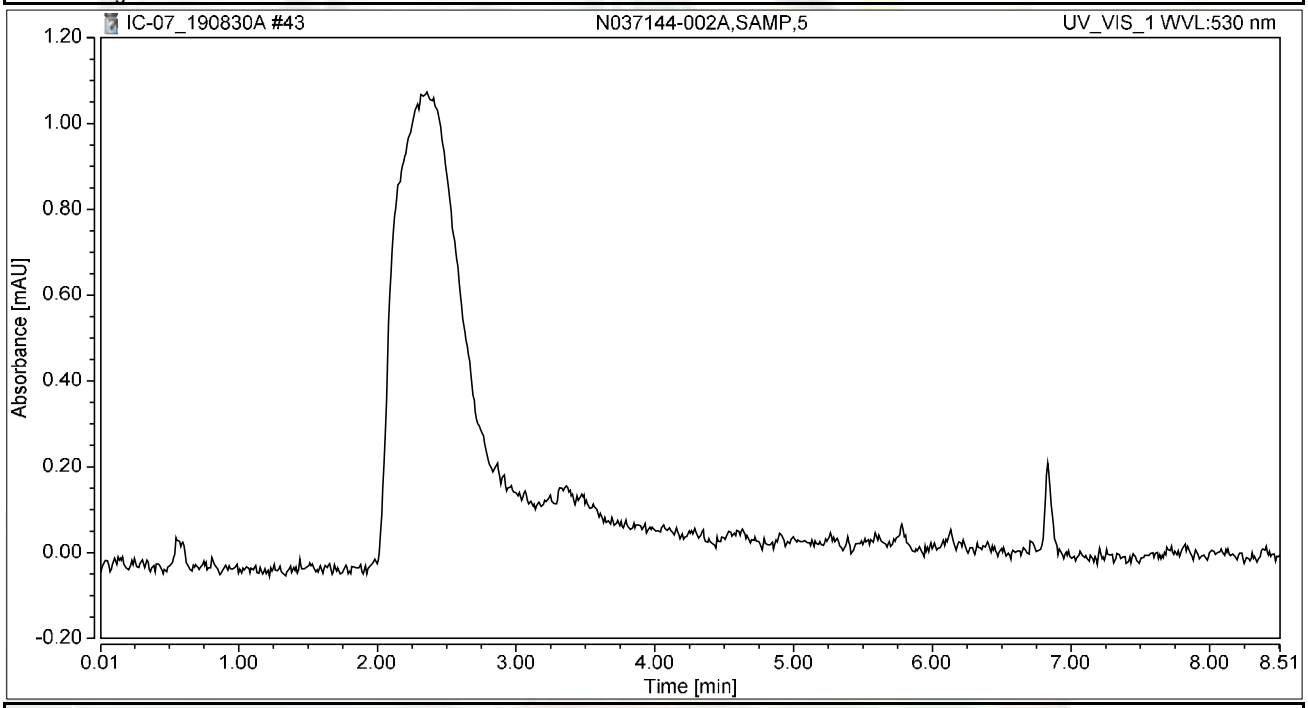
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	3.702	25.459	100.00	100.00	14.2663
Total:			**3.702**	**25.459**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

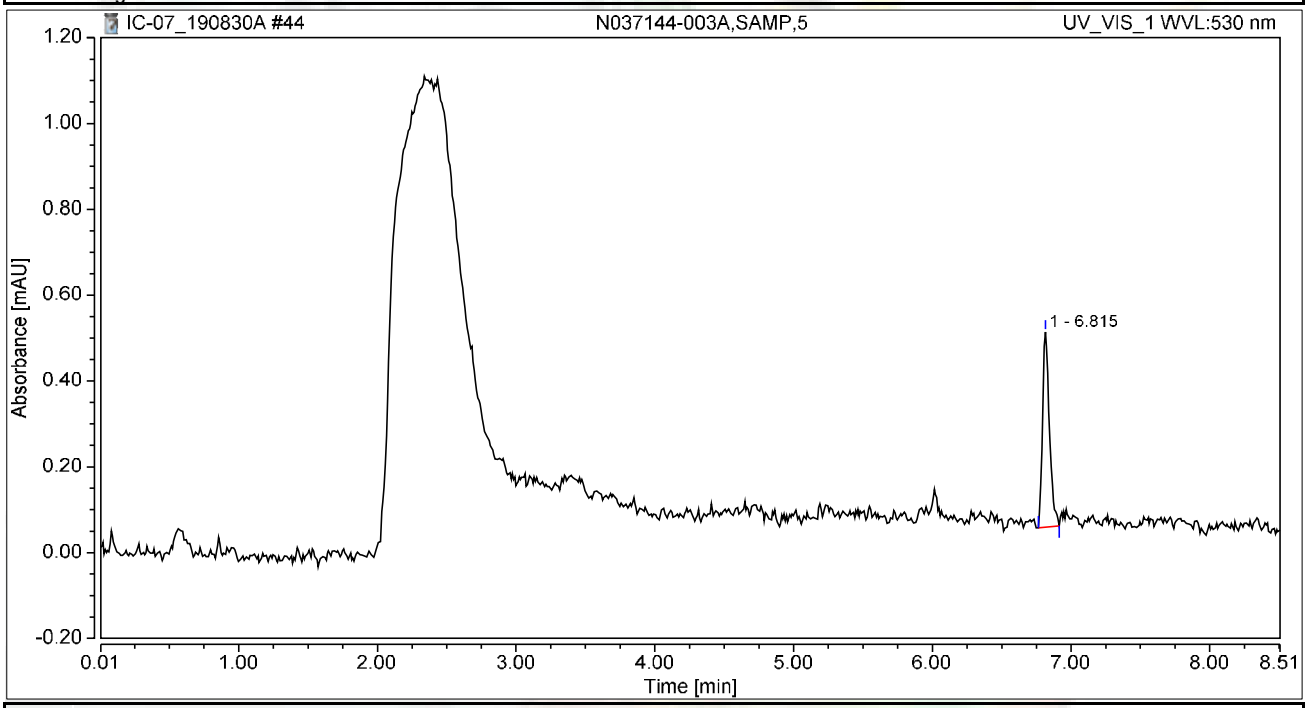
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

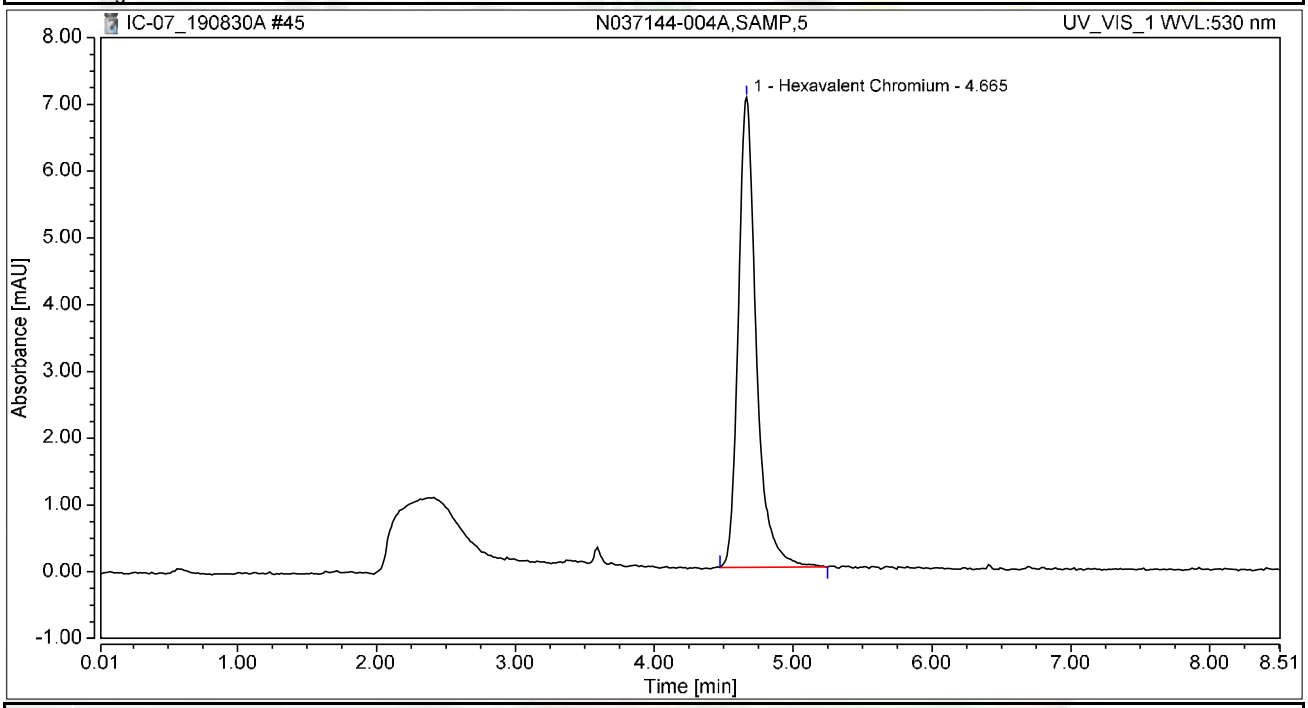
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.815	0.026	0.455	100.00	100.00	n.a.
Total:			**0.026**	**0.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-004A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

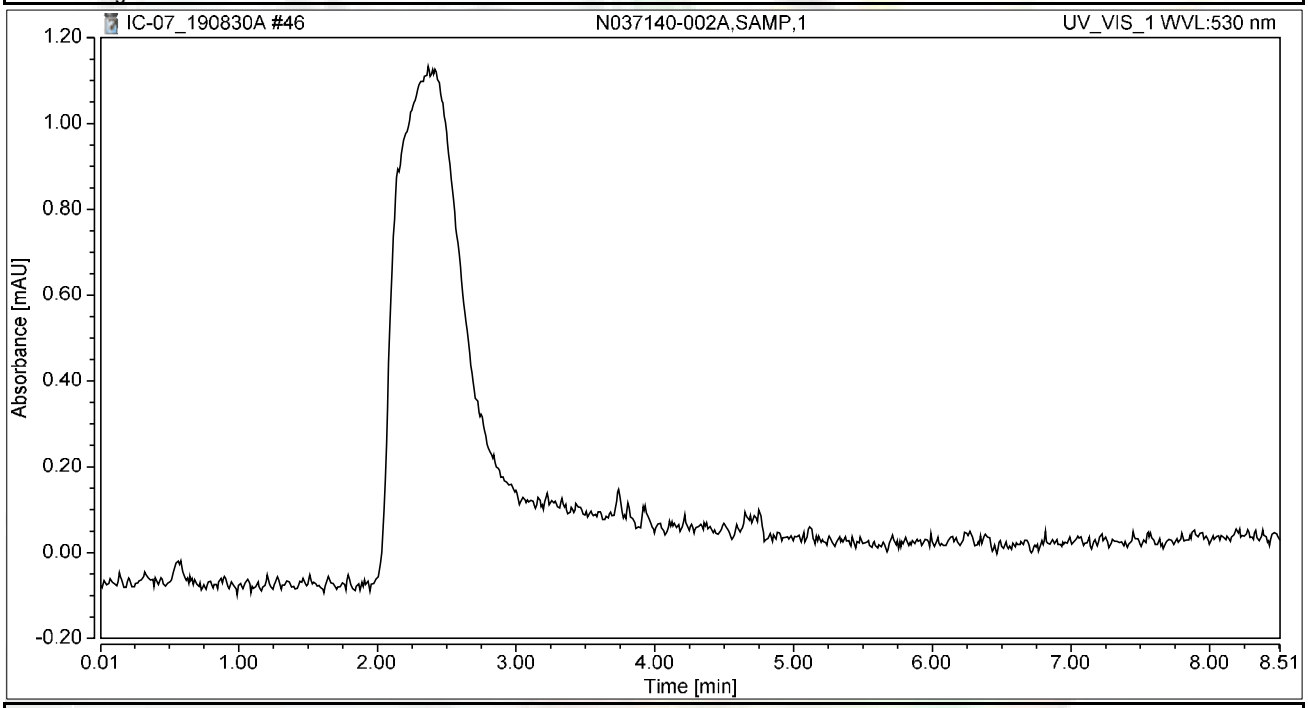
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	1.059	7.038	100.00	100.00	4.0823
Total:			**1.059**	**7.038**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037140-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

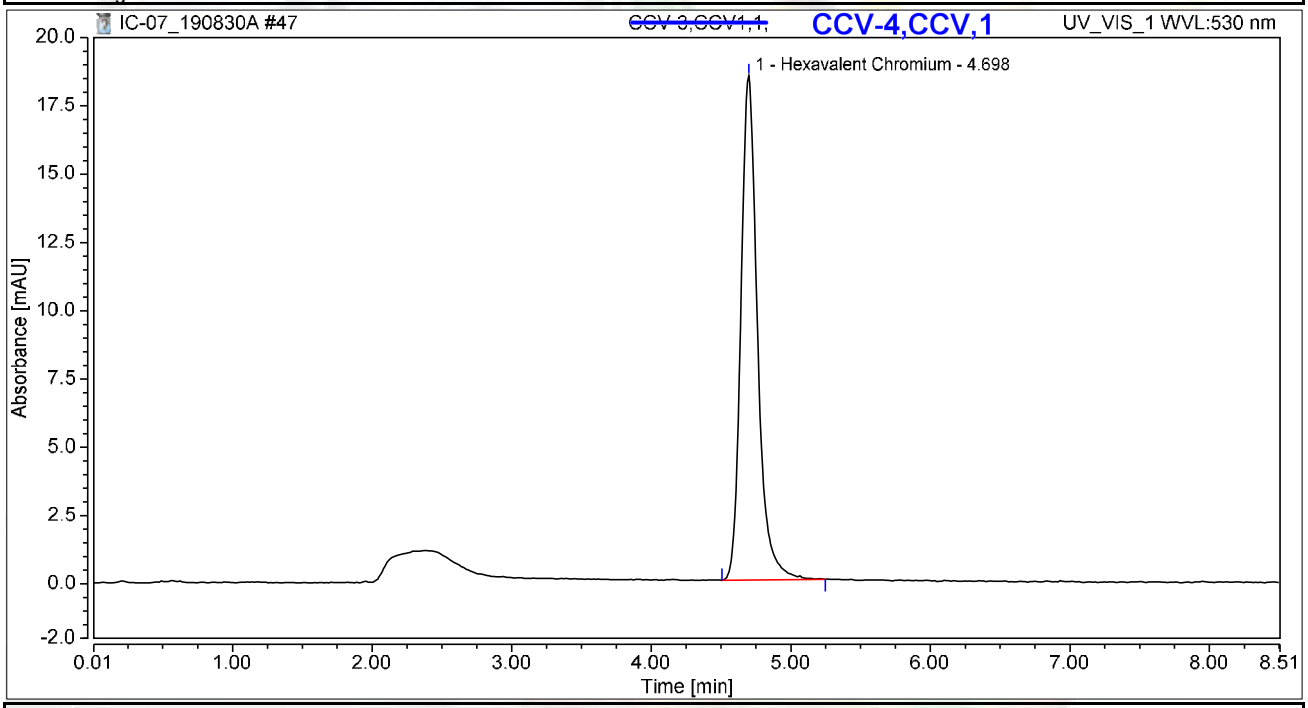
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV-3,CCV1,1,~~ CCV-4,CCV,1	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.546	18.466	100.00	100.00	9.8113
Total:			**2.546**	**18.466**	**100.00**	**100.00**	

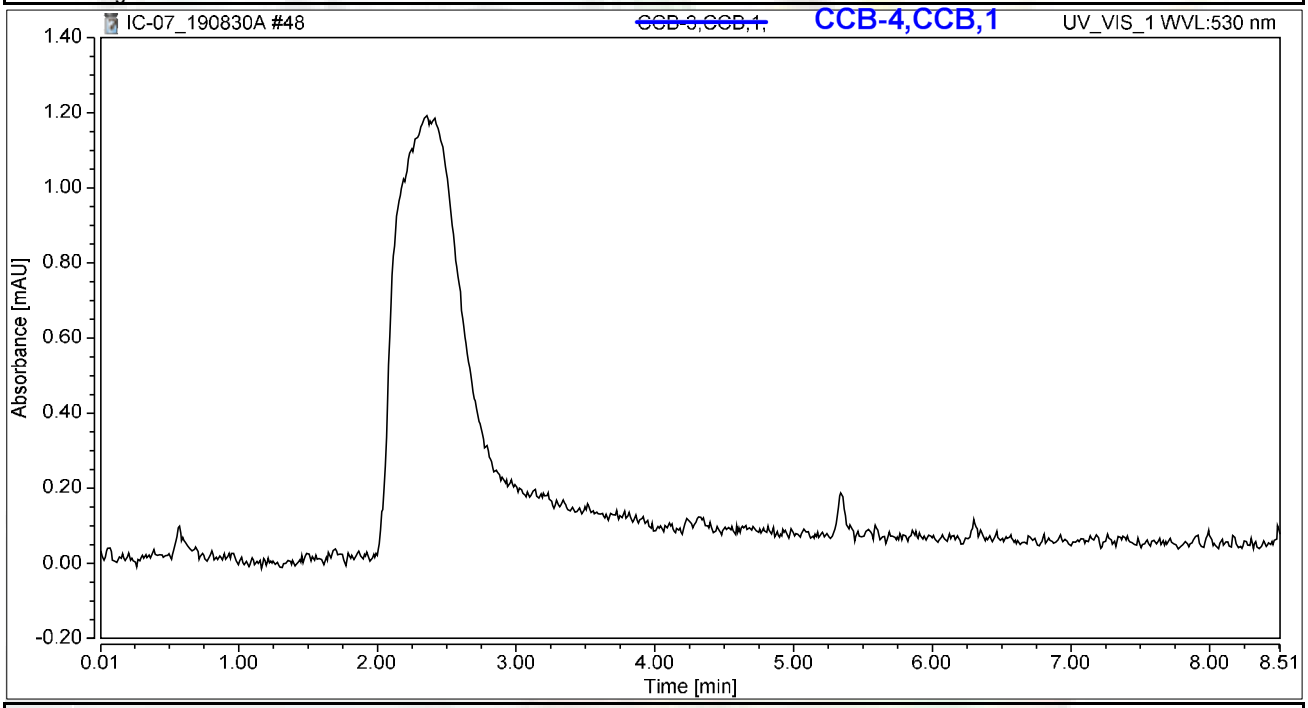
NS 9/11/2019

Chromatogram and Results

Injection Details

Injection Name:	~~CCB-3,CCB,1,~~ CCB-4,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

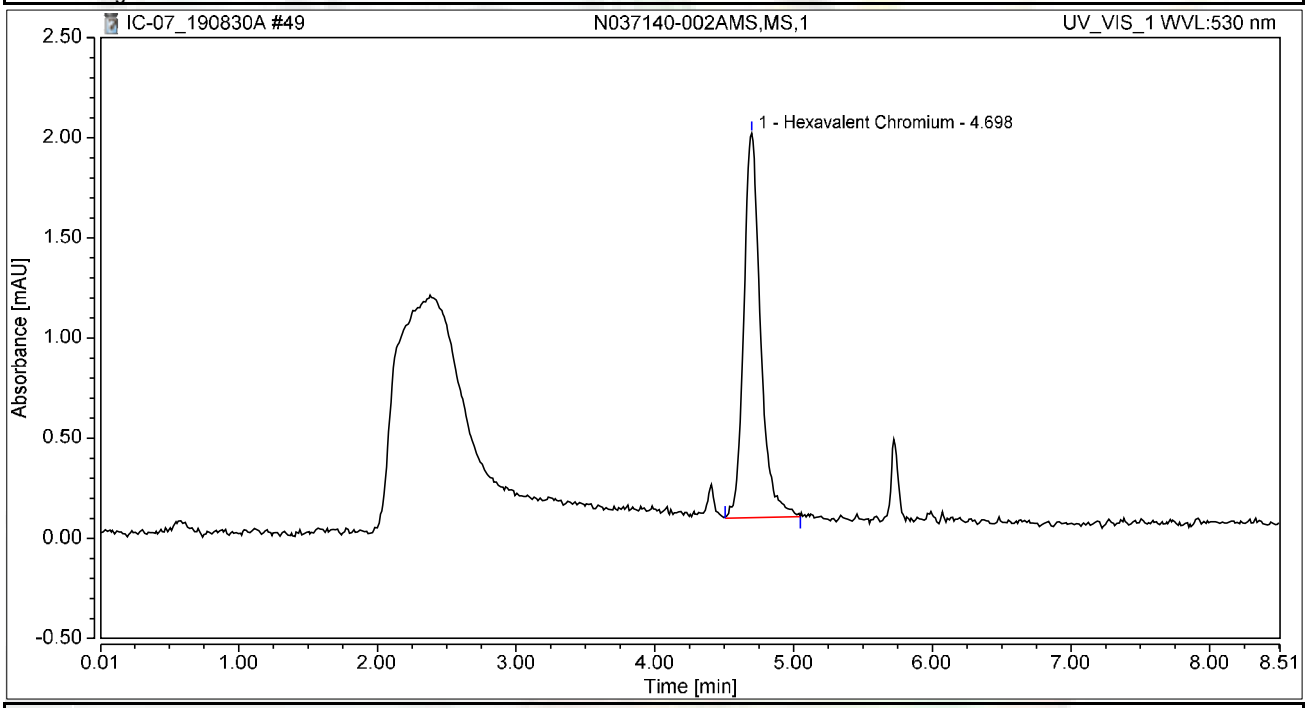
NS 9/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037140-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

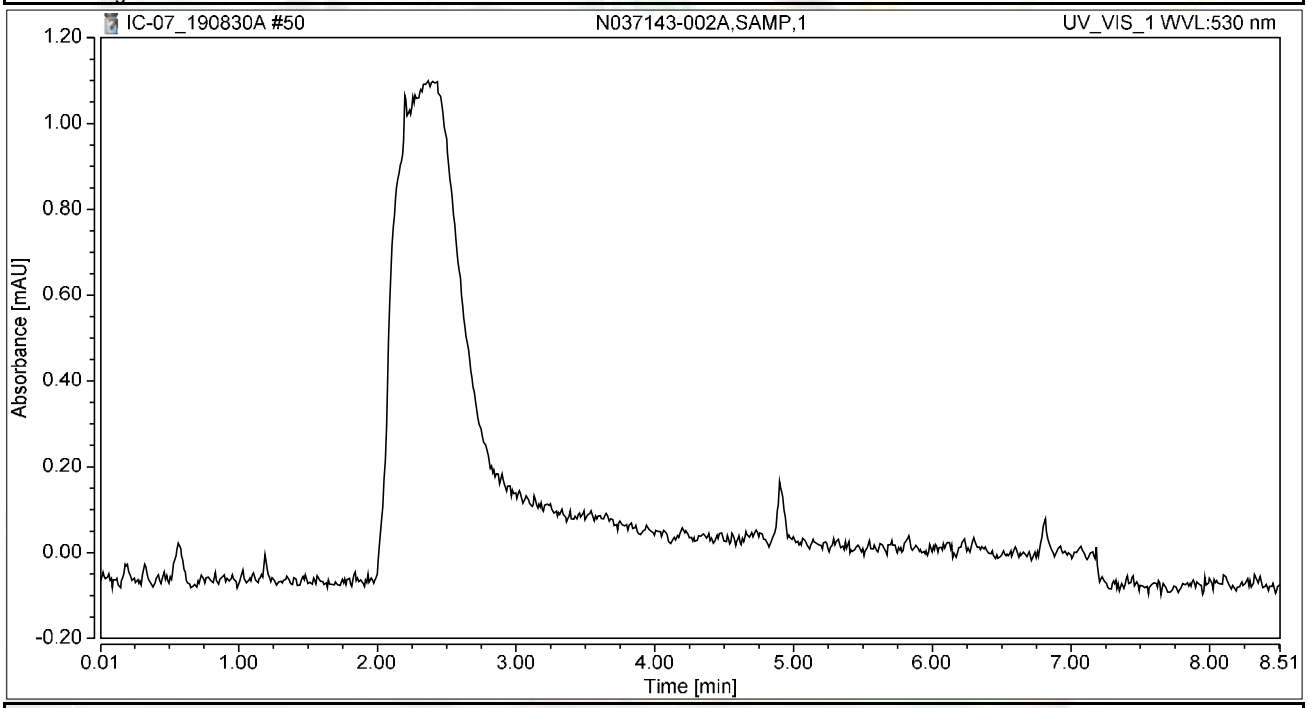
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.268	1.918	100.00	100.00	1.0341
Total:			**0.268**	**1.918**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

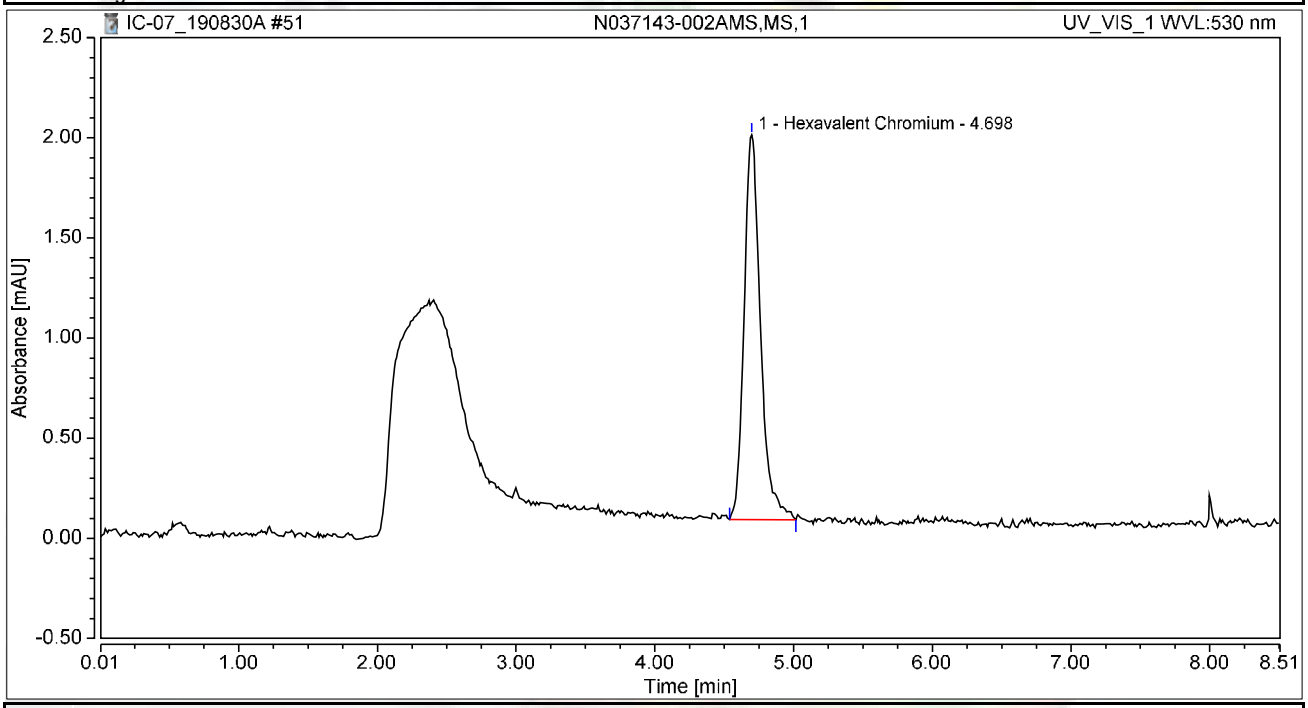
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

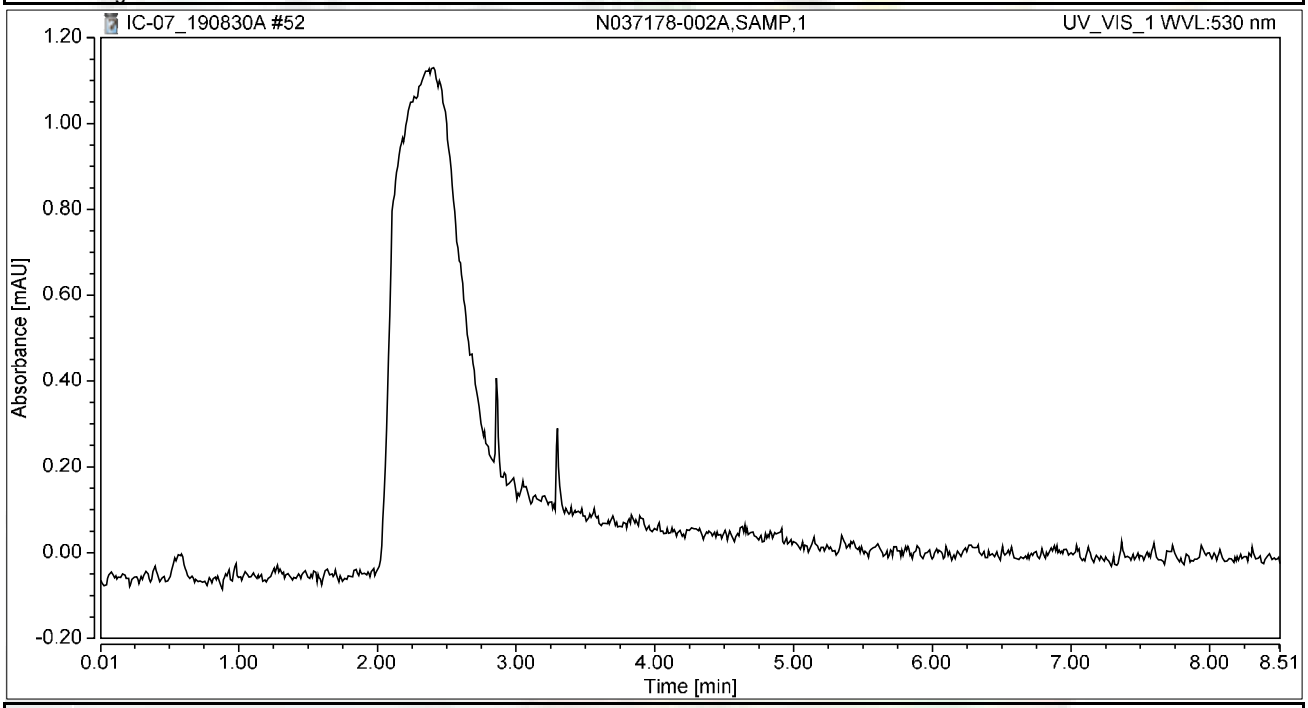
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.263	1.922	100.00	100.00	1.0151
Total:			**0.263**	**1.922**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037178-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

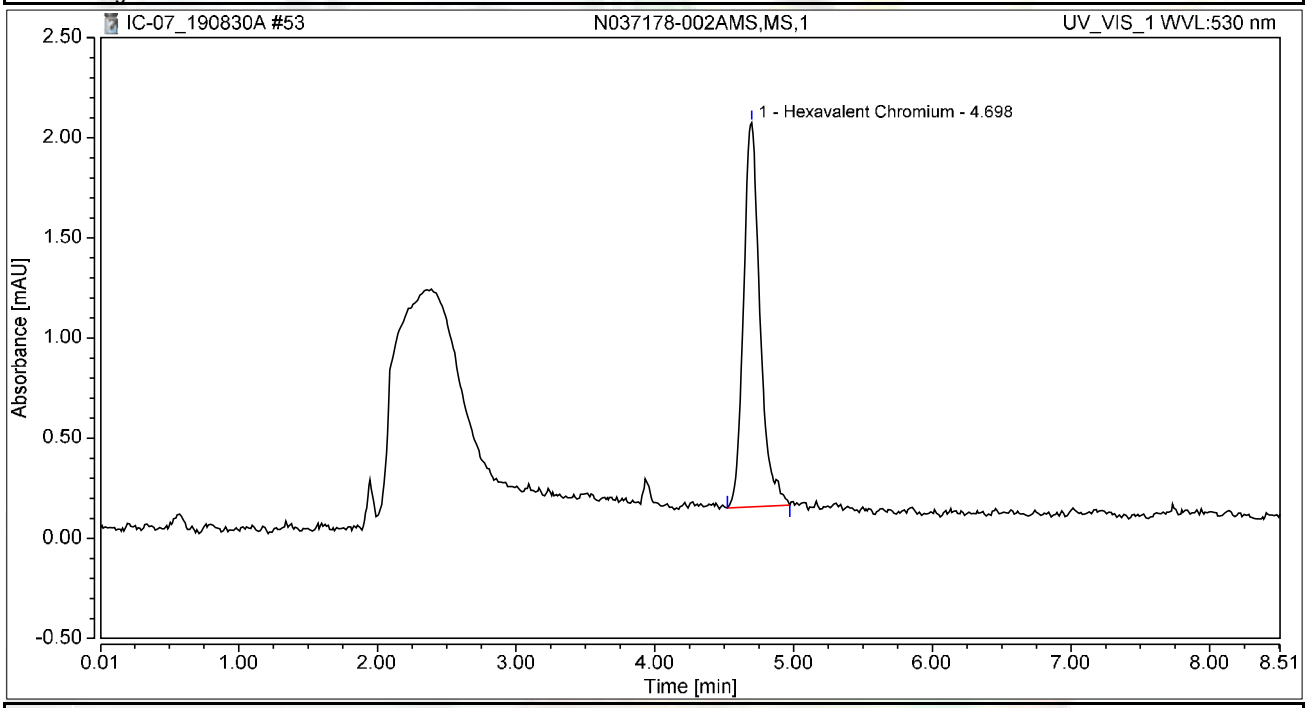
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037178-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

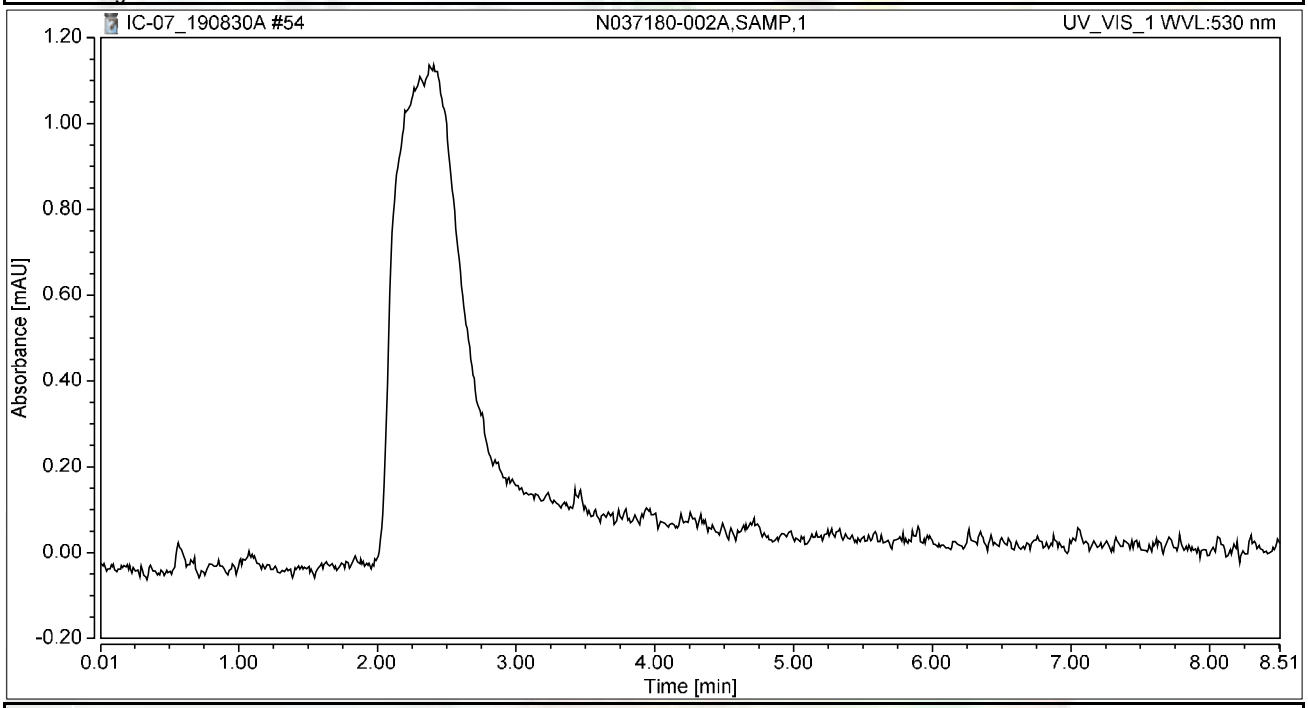
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.264	1.918	100.00	100.00	1.0174
Total:			**0.264**	**1.918**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037180-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

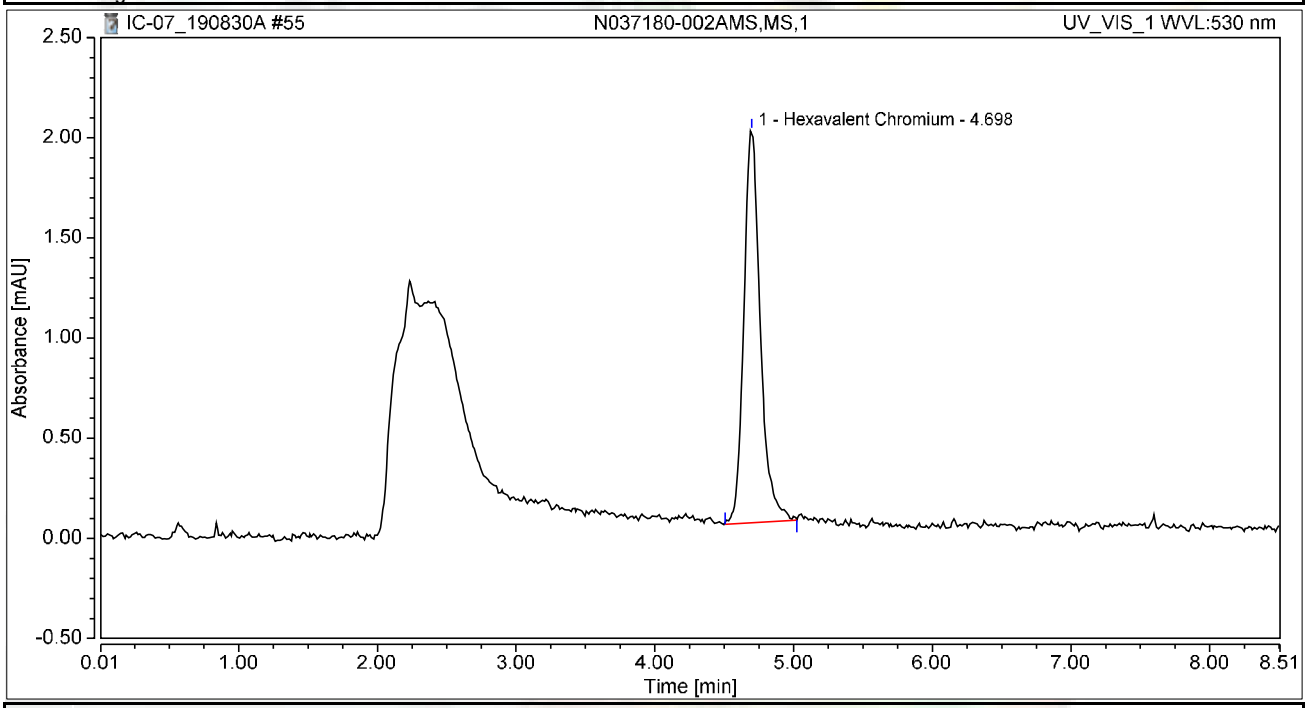
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037180-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

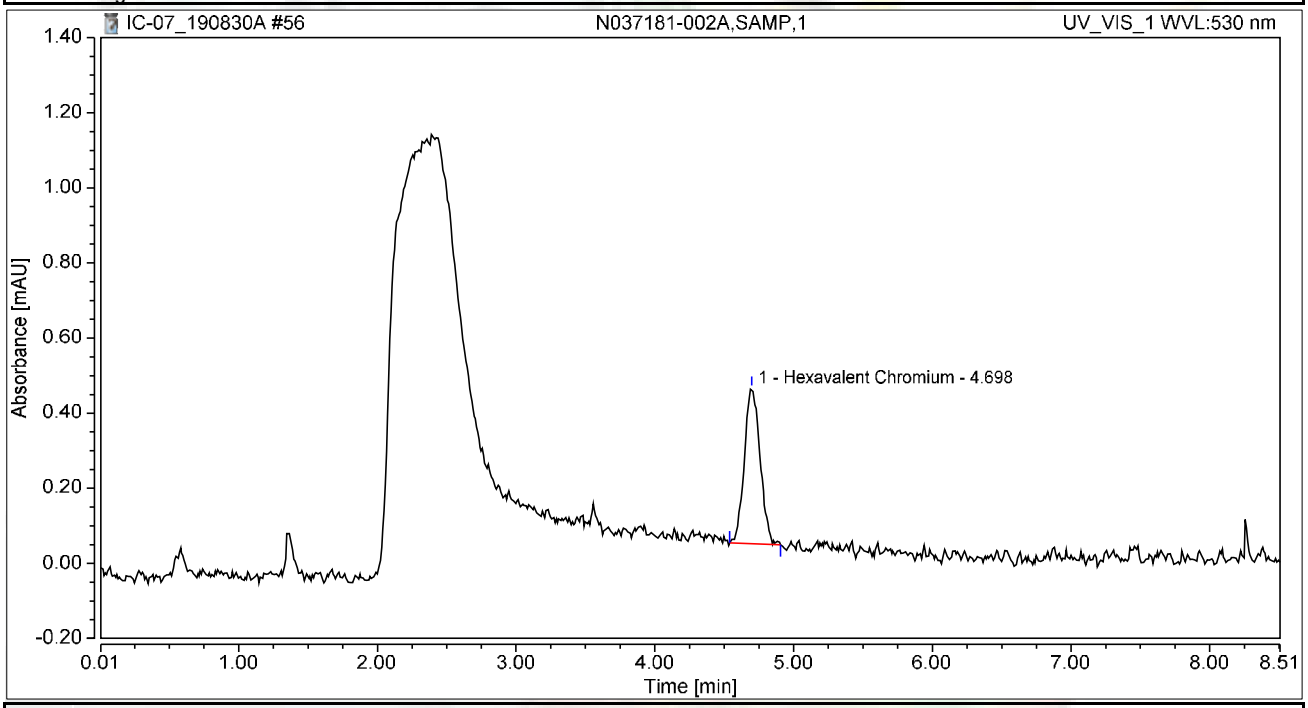
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.271	1.958	100.00	100.00	1.0428
Total:			**0.271**	**1.958**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

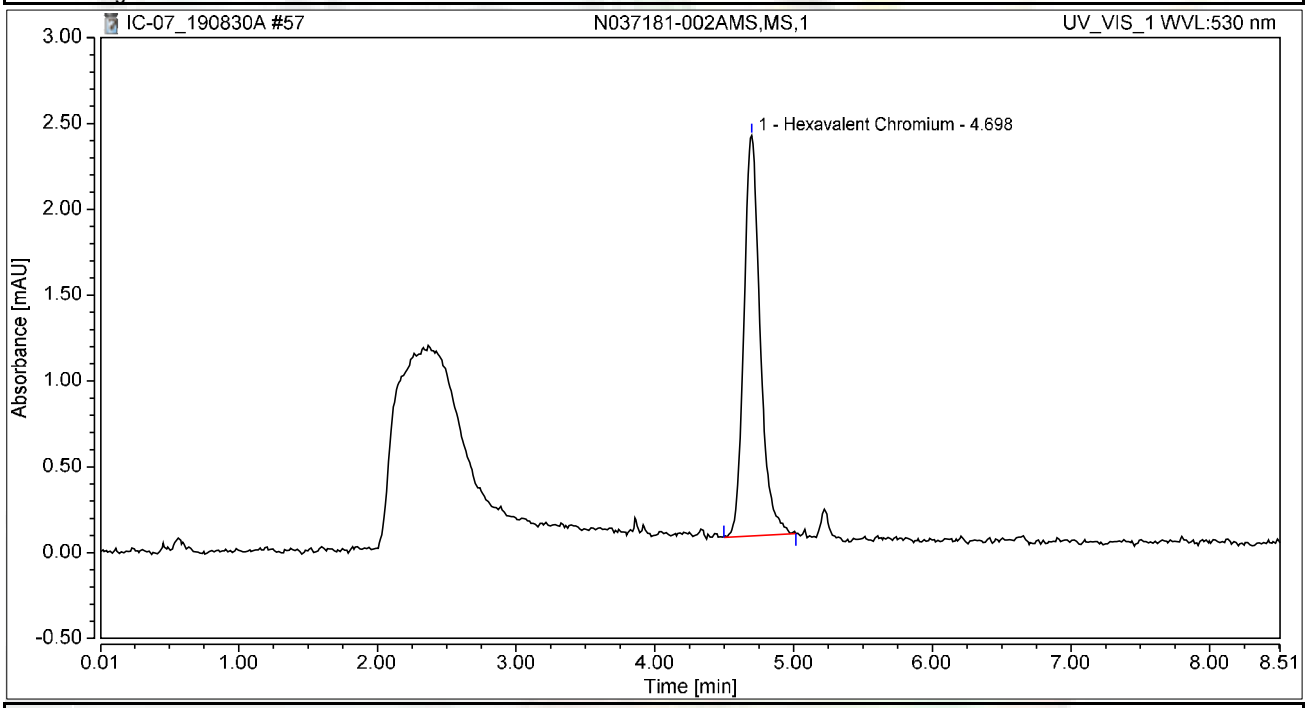
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.413	100.00	100.00	0.2093
Total:			**0.054**	**0.413**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

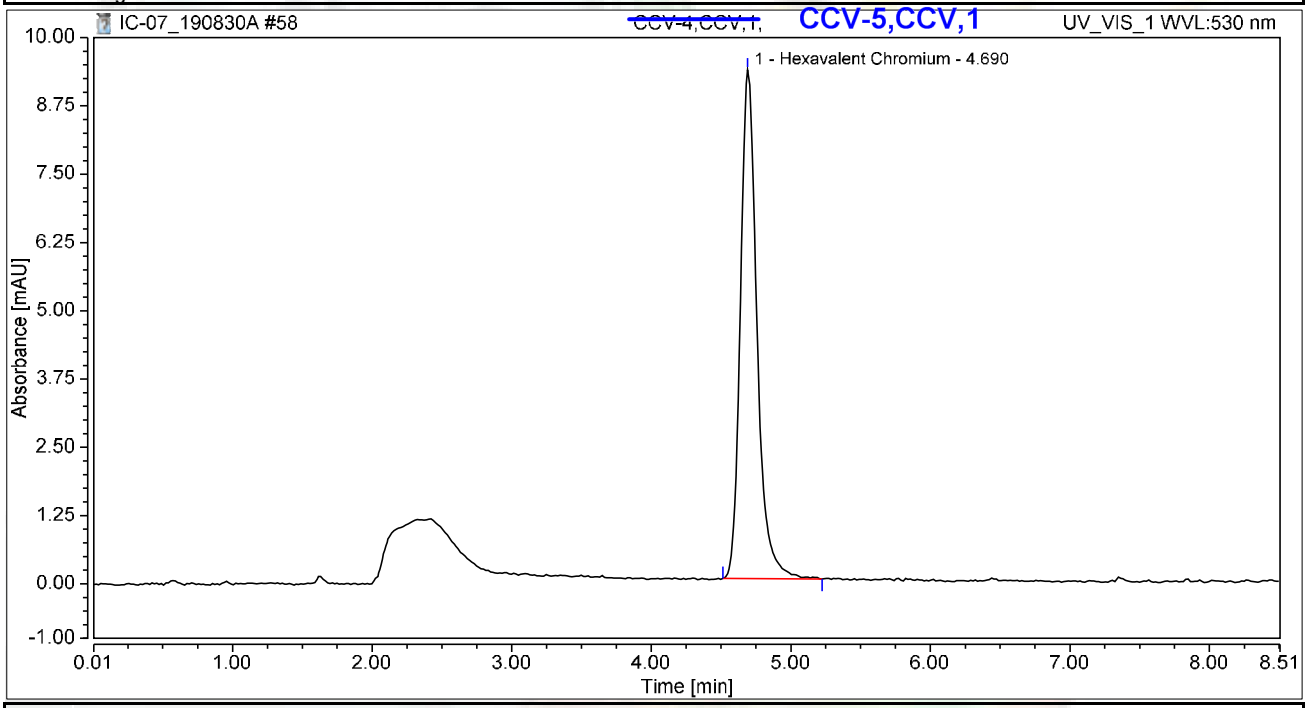
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.318	2.333	100.00	100.00	1.2249
Total:			**0.318**	**2.333**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV-4,CCV,1,~~ CCV-5,CCV,1	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.287	9.316	100.00	100.00	4.9601
Total:			**1.287**	**9.316**	**100.00**	**100.00**	

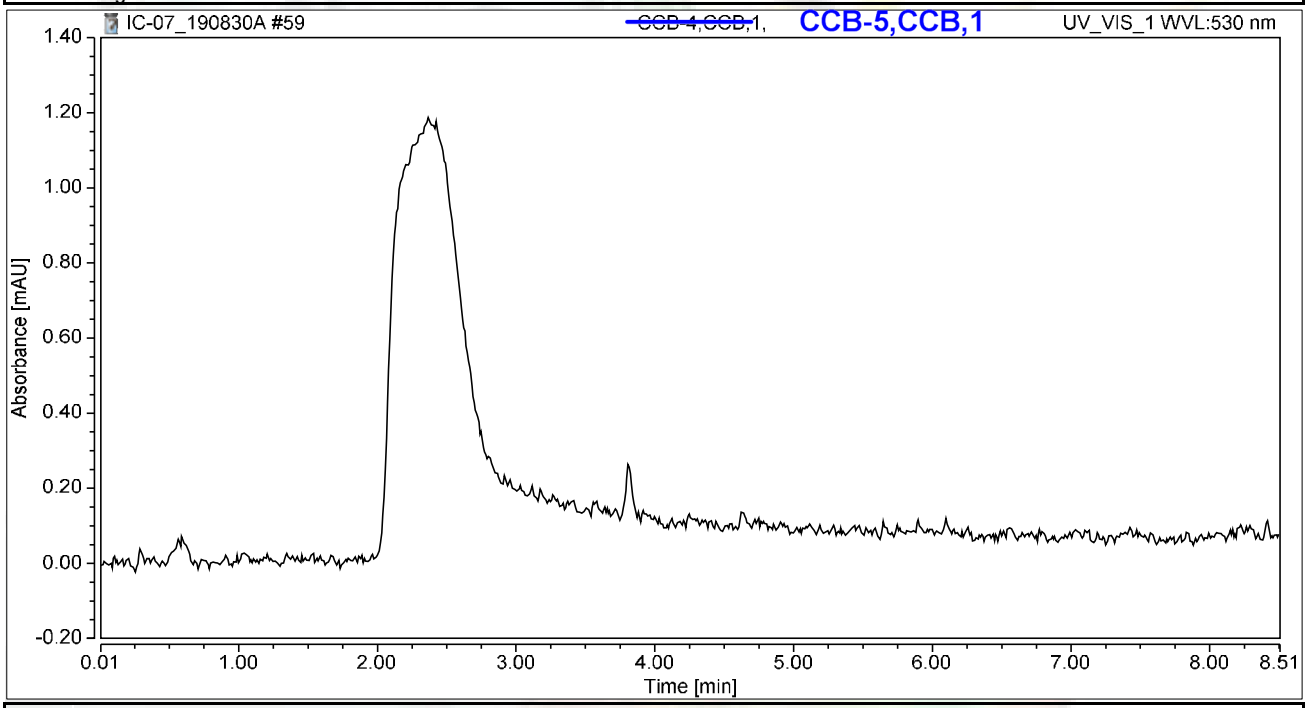
NS 9/11/2019

Chromatogram and Results

Injection Details

Injection Name:	~~CCB-4,CCB,~~1, CCB-5,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

NS 9/11/2019

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136435 **Analyst:** ~~RBA~~ MBC

ASSET #: N037107, 144, 148 **Date Analyzed:** 9/12/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer RBA Date: 9/20/2019

2nd Level Reviewer NS 9/26/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037144-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.7141	*	1
	=	0.7141	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.71 mg/L

NS 9/26/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

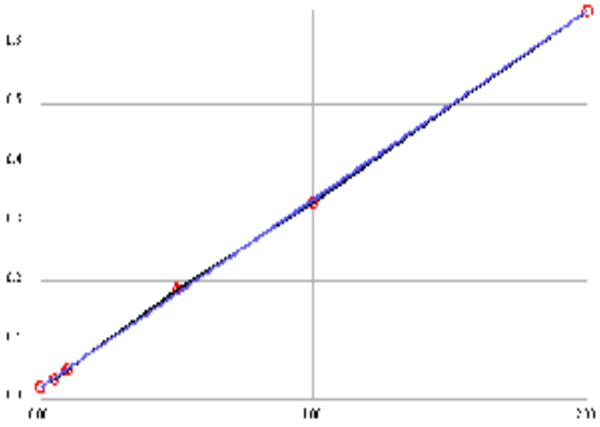
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3184x + 0.0201
Correlation	.999839

Calibrant	Energy	Set	Conc
1	0.0199	0.0000	-0.0007
2	0.0340	0.0500	0.0435
3	0.0506	0.1000	0.0957
4	0.1875	0.5000	0.5256
5	0.3334	1.0000	0.9838
6	0.6576	2.0000	2.0020

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **ICV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.501	0.050	0.5000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.493	0.050	0.5000	0	98.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.548	0.050	0.5000	0	110	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.480	0.050	0.5000	0	96.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **ICB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 09-12-2019 14:19
Time end: 09-12-2019 17:17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:35:38	0.0005		0.0203
2	<BLANK>	16:36:31	0.0018		0.0207
3	<CAL1>	16:37:33	-0.0007	[0]	0.0199
4	<CAL2>	16:38:28	0.0435	[0.05]	0.0340
5	<CAL3>	16:39:22	0.0957	[0.1]	0.0506
6	<CAL4>	16:40:23	0.5256	[0.5]	0.1875
7	<CAL5>	16:41:19	0.9838	[1]	0.3334
8	<CAL6>	16:42:14	2.0020	[2]	0.6576
9	,BLANK,BLANK,1, NOT REPORTED	16:43:08	0.0467		0.0350
10	,ICV,ICV,1,	16:44:10	0.5005		0.1795
11	,ICB,ICB,1,	16:45:05	0.0109		0.0236
12	,MB-H2O,MBLK,1,	16:45:59	0.0015		0.0206
13	,LCS-H2O,LCS,1,	16:47:01	0.4870		0.1752
14	,N037097-001D,SAMP,1,	16:47:56	0.2364		0.0954
15	,N037097-001DDUP,DUP,1,	16:48:52	0.2263		0.0922
16	,N037107-005B,SAMP,10,	16:49:52	0.7904		0.2718
17	,N037107-005BMS,MS,10,	16:50:48	1.4132		0.4701
18	,N037107-005BMSD,MSD,10,	16:51:43	1.2750		0.4261
19	,N037107-006B,SAMP,1,	16:52:38	0.6745		0.2349
20	,N037107-007B,SAMP,1,	16:53:39	0.1280		0.0609
21	,BLANK, NOT REPORTED	16:54:35	0.0027		0.0210
22	,CCV-1,CCV,1,	16:55:30	0.4933		0.1772
23	,CCB-1,CCB,1,	16:56:31	0.0194		0.0263
24	,N037107-008B,SAMP,1,	16:57:26	0.4509		0.1637
25	,N037144-001C,SAMP,1,	16:58:22	0.7141		0.2475

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N037144-002C,SAMP,1,	16:59:23	0.0373		0.0320
27	,N037144-003C,SAMP,1,	17:00:17	0.0313		0.0301
28	,N037144-004C,SAMP,5,	17:01:13	0.5850		0.2064
29	,N037145-001D,SAMP,1,	17:02:02	0.0190		0.0262
30	,N037145-002D,SAMP,5,	17:02:44	0.5131		0.1835
31	,N037148-001E,SAMP,1,	17:03:34	0.3607		0.1350
32	,N037148-002E,SAMP,1,	17:04:16	0.3639		0.1360
33	,BLANK, NOT REPORTED	17:04:59	0.0052		0.0218
34	,CCV-2,CCV,1,	17:05:47	0.5482		0.1947
35	,CCB-2,CCB,1,	17:06:31	0.0040		0.0214
36	,N037148-003E,SAMP,1,	17:07:13	0.5347		0.1904
37	,N037148-004E,SAMP,1,	17:07:56	0.3623		0.1355
38	,N037148-005E,SAMP,1,	17:08:46	0.3460		0.1303
39	,N037148-006E,SAMP,1,	17:09:28	0.3413		0.1288
40	,N037148-007E,SAMP,1,	17:10:11	0.3444		0.1298
41	,N037148-008E,SAMP,1,	17:11:00	0.3400		0.1284
42	,N037148-009E,SAMP,1,	17:11:43	0.4923		0.1769
43	,N037148-010E,SAMP,1,	17:12:25	0.3388		0.1280
44	,N037148-011E,SAMP,1,	17:13:09	0.3146		0.1203
45	,BLANK, NOT REPORTED	17:13:58	-0.0017		0.0196
46	,CCV-3,CCV,1,	17:14:40	0.4798		0.1729
47	,CCB-3,CCB,1,	17:15:23	0.0033		0.0212

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/12/2019
Time Analyzed: 2:19 PM ; 5:17 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190904A
Color reagent: R190904C
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037097-001D		6.39							
N037107-005B		8.05							
N037107-006B		7.79							
N037107-007B		8.35							
N037107-008B		8.80							
N037144-001C		8.07							
N037144-002C		7.84							
N037144-003C		7.49							
N037144-004C		7.47							
N037145-001D		8.84							
N037145-002D		8.46							
N037148-001E		5.97							
N037148-002E		8.79							
N037148-004E		7.06							
N037148-005E		8.29							
N037148-006E		5.42							
N037148-007E		7.86							
N037148-008E		7.21							
N037148-010E		5.48							
N037148-011E		7.40							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75130
ASSET #: N037144
Instrument ID: ICPMS-02
Analyst: ~~CEI~~ CI
Method:
Date Analyzed: 9/6/2019

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Mn in N037117-001D-MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CI Date: –

2nd Level Reviewer 9/26/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Molybdenum concentration, in ug/L , in the original sample as follows:

Molybdenum , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037144-001D** , the concentration in ug/L is calculated as follows:

Molybdenum , ug/L = 76.7647 * 1 *(25 / 25)

Molybdenum , ug/L = 76.7647

Reporting results in two significant figures,

Molybdenum, ug/L = 77

% RSD SUMMARY

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	107 Ag [3]				111 Cd [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.071	12.45	15	PASS	0.085	12.42	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	7.16	15	PASS	0.5	8.71	15	PASS
Std3-5/50 ppb	ICAL	1	5.12	8.14	15	PASS	5.11	1.57	15	PASS
Std4-10/100 ppb	ICAL	1	9.9	0.11	15	PASS	10.032	1.31	15	PASS
Std5-20/200 ppb	ICAL	1	19.78	0.55	15	PASS	19.67	3.54	15	PASS
Std6-40/400 ppb	ICAL	1	39.51	0.52	15	PASS	39.99	0.83	15	PASS
Std7-100/1000 ppb	ICAL	1	100.24	0.34	15	PASS	100.061	1.032	15	PASS
Std8-200/2000 ppb	ICAL	1	194.89	2.15	15	PASS	208.96	7.69	15	PASS
ICV	ICV	1	10.45	0.83	15	PASS	10.13	0.88	15	PASS
ICB	ICB	1	0.042	14.13	15	PASS	0.019	20.54	15	<PQL
LLICV	CCV1	1	0.51	4.74	20	PASS	0.53	2.15	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.0035	163.62	15	<PQL
ICSAB1	ICSAB	1	19.24	0.24	15	PASS	20.54	0.59	15	PASS
LLICV	CCV1	1	0.56	2.073	20	PASS	0.58	5.16	20	PASS
CCV1	CCV	1	19.76	0.91	15	PASS	20.18	2.63	15	PASS
CCB1	CCB	1	0.031	15.85	15	<PQL	0.011	44.44	15	<PQL
MB-75130	MBLK	1	0.011	2.41	15	PASS	0.0088	62.29	15	<PQL
CCV2	CCV	1	19.84	0.38	15	PASS	20.82	9.15	15	PASS
CCB2	CCB	1	0.026	17.89	15	<PQL	0.012	43.89	15	<PQL
LCS-75130	LCS	1	10.27	1.018	15	PASS	10.15	1.87	15	PASS
N037117-001D	SAMP	1	<0.000	N/A	15	<PQL	0.021	36.48	15	<PQL
N037117-001D	SAMP	5	<0.000	N/A	15	<PQL	0.0093	49.4	15	<PQL
N037117-001D	SAMP	25	0.01	38.71	15	<PQL	0.0034	125.12	15	<PQL
N037117-001D-PS	PS	1	9.38	0.27	15	PASS	9.67	1.26	15	PASS
N037117-001D-PS	PS	5	1.99	1.11	15	PASS	2.13	3.33	15	PASS
N037117-001D-MS	MS	1	9.49	1.16	15	PASS	9.89	1.46	15	PASS
N037117-001D-MS	MS	5	2.064	2.88	15	PASS	2.091	3.84	15	PASS
N037117-001D-MSD	MSD	1	9.37	0.41	15	PASS	10.064	0.22	15	PASS
N037117-001D-MSD	MSD	5	2.043	1.13	15	PASS	2.037	4.79	15	PASS
CCV3	CCV	1	19.75	0.58	15	PASS	20.027	0.95	15	PASS
CCB3	CCB	1	0.033	17.13	15	<PQL	0.018	44.73	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.011	63.83	15	<PQL
ICSAB2	ICSAB	1	19.12	0.5	15	PASS	20.39	0.56	15	PASS
N037117-002D	SAMP	1	<0.000	N/A	15	<PQL	0.021	24.24	15	<PQL
N037117-002D	SAMP	5	<0.000	N/A	15	<PQL	0.0098	47.75	15	<PQL
N037117-003D	SAMP	1	<0.000	N/A	15	<PQL	0.054	9.57	15	PASS
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	0.016	67.66	15	<PQL
N037117-004D	SAMP	1	<0.000	N/A	15	<PQL	0.071	10.92	15	PASS
N037117-004D	SAMP	5	<0.000	N/A	15	<PQL	0.017	35.85	15	<PQL
N037117-005D	SAMP	1	<0.000	N/A	15	<PQL	0.025	46.28	15	<PQL

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	107 Ag [3]				111 Cd [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	<0.000	N/A	15	<PQL	0.0084	66.44	15	<PQL
N037117-008D	SAMP	1	<0.000	N/A	15	<PQL	0.06	32.38	15	<PQL
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	0.017	40.68	15	<PQL
CCV4	CCV	1	19.2	5.23	15	PASS	19.37	2.39	15	PASS
CCB4	CCB	1	0.022	37.91	15	<PQL	0.013	46.54	15	<PQL
N037144-001D	SAMP	1	<0.000	N/A	15	<PQL	0.077	4.39	15	PASS
N037144-001D	SAMP	5	<0.000	N/A	15	<PQL	0.02	33.047	15	<PQL
N037144-002D	SAMP	1	<0.000	N/A	15	<PQL	0.052	7.57	15	PASS
N037144-002D	SAMP	5	<0.000	N/A	15	<PQL	0.019	40.4	15	<PQL
N037144-003D	SAMP	1	<0.000	N/A	15	<PQL	0.067	26.73	15	<PQL
N037144-003D	SAMP	5	<0.000	N/A	15	<PQL	0.023	15.53	15	<PQL
N037144-004D	SAMP	1	<0.000	N/A	15	<PQL	0.052	29.2	15	<PQL
N037144-004D	SAMP	5	<0.000	N/A	15	<PQL	0.014	35.54	15	<PQL
N037147-001D	SAMP	1	<0.000	N/A	15	<PQL	0.11	7.24	15	PASS
N037147-001D	SAMP	5	<0.000	N/A	15	<PQL	0.021	11.00048	15	PASS
CCV5	CCV	1	19.61	0.39	15	PASS	20.089	4.8	15	PASS
CCB5	CCB	1	0.024	35.89	15	<PQL	0.011	19.62	15	<PQL
N037147-002D	SAMP	1	<0.000	N/A	15	<PQL	0.045	33.49	15	<PQL
N037147-002D	SAMP	5	<0.000	N/A	15	<PQL	0.012	17.73	15	<PQL
N037117-002D	SAMP	5	<0.000	N/A	15	<PQL	0.012	47.9	15	<PQL
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	0.019	38.8	15	<PQL
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	0.0081	12.62	15	PASS
CCV6	CCV	1	19.7	0.82	15	PASS	20.099	3.3	15	PASS
CCB6	CCB	1	0.026	24.21	15	<PQL	0.015	23.043	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.0039	84.78	15	<PQL
ICSAB3	ICSAB	1	18.81	0.22	15	PASS	20.056	0.53	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	121 Sb [3]				137 Ba [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.067	13.067	15	PASS	0.1	17.5	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.52	3.35	15	PASS	0.51	6.23	15	PASS
Std3-5/50 ppb	ICAL	1	4.99	0.4	15	PASS	4.93	1.52	15	PASS
Std4-10/100 ppb	ICAL	1	9.88	0.66	15	PASS	10.037	0.59	15	PASS
Std5-20/200 ppb	ICAL	1	19.32	4.082	15	PASS	20.19	1.28	15	PASS
Std6-40/400 ppb	ICAL	1	39.96	0.89	15	PASS	39.91	0.084	15	PASS
Std7-100/1000 ppb	ICAL	1	100.17	0.47	15	PASS	100.68	0.86	15	PASS
Std8-200/2000 ppb	ICAL	1	228.77	7.14	15	PASS	199.66	0.34	15	PASS
ICV	ICV	1	12.23	0.5	15	PASS	9.98	1.43	15	PASS
ICB	ICB	1	0.51	3.76	15	PASS	0.013	123.8	15	<PQL
LLICV	CCV1	1	0.82	2	20	PASS	1.049	7.26	20	PASS
ICSA1	ICSA	1	0.14	6.24	15	PASS	0.31	4.18	15	PASS
ICSAB1	ICSAB	1	21.075	0.11	15	PASS	20.86	0.96	15	PASS
LLICV	CCV1	1	0.81	0.62	20	PASS	1.066	2.79	20	PASS
CCV1	CCV	1	19.79	2.61	15	PASS	20.29	1.48	15	PASS
CCB1	CCB	1	0.12	10.58	15	PASS	0.011	42.4	15	<PQL
MB-75130	MBLK	1	<0.000	N/A	15	<PQL	0.048	15.62	15	<PQL
CCV2	CCV	1	20.57	9.078	15	PASS	20.19	0.36	15	PASS
CCB2	CCB	1	0.18	8.74	15	PASS	0.01	101.96	15	<PQL
LCS-75130	LCS	1	10.51	1.4	15	PASS	9.9	1.25	15	PASS
N037117-001D	SAMP	1	0.045	22.059	15	<PQL	76.89	0.6	15	PASS
N037117-001D	SAMP	5	<0.000	N/A	15	<PQL	15.91	0.68	15	PASS
N037117-001D	SAMP	25	<0.000	N/A	15	<PQL	3.2	3.1	15	PASS
N037117-001D-PS	PS	1	10.73	0.43	15	PASS	87.5	0.81	15	PASS
N037117-001D-PS	PS	5	2.19	1.09	15	PASS	18.36	1.31	15	PASS
N037117-001D-MS	MS	1	10.63	1.12	15	PASS	82.091	0.38	15	PASS
N037117-001D-MS	MS	5	2.18	3.76	15	PASS	17.21	0.93	15	PASS
N037117-001D-MSD	MSD	1	10.69	0.63	15	PASS	81.92	1.12	15	PASS
N037117-001D-MSD	MSD	5	2.22	0.9	15	PASS	17.21	1.86	15	PASS
CCV3	CCV	1	19.54	0.58	15	PASS	20.46	1.64	15	PASS
CCB3	CCB	1	0.18	4.95	15	PASS	0.012	88.66	15	<PQL
ICSA2	ICSA	1	0.024	1.4	15	PASS	0.3	20.77	15	<PQL
ICSAB2	ICSAB	1	21.07	0.64	15	PASS	21.088	2.52	15	PASS
N037117-002D	SAMP	1	0.19	7.73	15	PASS	78.52	1.64	15	PASS
N037117-002D	SAMP	5	0.0096	103.82	15	<PQL	16.43	0.95	15	PASS
N037117-003D	SAMP	1	0.049	3.79	15	PASS	85.29	0.99	15	PASS
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	17.93	0.58	15	PASS
N037117-004D	SAMP	1	0.05	6.53	15	PASS	117.79	1.21	15	PASS
N037117-004D	SAMP	5	<0.000	N/A	15	<PQL	25.28	1.37	15	PASS
N037117-005D	SAMP	1	<0.000	N/A	15	<PQL	160.56	0.85	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	121 Sb [3]				137 Ba [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	<0.000	N/A	15	<PQL	34.3	2.47	15	PASS
N037117-008D	SAMP	1	0.024	30.073	15	<PQL	83.61	0.56	15	PASS
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	17.48	2.15	15	PASS
CCV4	CCV	1	19.43	0.8	15	PASS	20.88	2.26	15	PASS
CCB4	CCB	1	0.11	16.1	15	<PQL	0.011	89.85	15	<PQL
N037144-001D	SAMP	1	0.079	7.7	15	PASS	51.042	0.45	15	PASS
N037144-001D	SAMP	5	<0.000	N/A	15	<PQL	11.05	1.025	15	PASS
N037144-002D	SAMP	1	0.0098	71.72	15	<PQL	132.2	0.51	15	PASS
N037144-002D	SAMP	5	<0.000	N/A	15	<PQL	27.95	1.23	15	PASS
N037144-003D	SAMP	1	0.032	36.86	15	<PQL	144.34	0.49	15	PASS
N037144-003D	SAMP	5	<0.000	N/A	15	<PQL	30.97	0.28	15	PASS
N037144-004D	SAMP	1	0.062	5.25	15	PASS	116.29	0.7	15	PASS
N037144-004D	SAMP	5	<0.000	N/A	15	<PQL	24.66	1.1	15	PASS
N037147-001D	SAMP	1	0.013	48.017	15	<PQL	35.49	0.34	15	PASS
N037147-001D	SAMP	5	<0.000	N/A	15	<PQL	7.57	2.29	15	PASS
CCV5	CCV	1	19.76	4.65	15	PASS	21.43	0.6	15	PASS
CCB5	CCB	1	0.16	6.036	15	PASS	0.025	21.53	15	<PQL
N037147-002D	SAMP	1	0.066	7.61	15	PASS	51.39	1.92	15	PASS
N037147-002D	SAMP	5	<0.000	N/A	15	<PQL	10.99	0.99	15	PASS
N037117-002D	SAMP	5	<0.000	N/A	15	<PQL	16.9	1.53	15	PASS
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	18.16	0.28	15	PASS
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	17.58	1.2	15	PASS
CCV6	CCV	1	19.81	3.58	15	PASS	21.088	1.18	15	PASS
CCB6	CCB	1	0.12	6.78	15	PASS	0.013	33.82	15	<PQL
ICSA3	ICSA	1	0.017	26.24	15	<PQL	0.31	4.97	15	PASS
ICSAB3	ICSAB	1	20.78	0.33	15	PASS	21.79	0.2	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	205 Tl [3]				208 Pb [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.073	8.69	15	PASS	0.083	6.43	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.38	3.85	15	PASS	0.42	4.19	15	PASS
Std3-5/50 ppb	ICAL	1	4.45	4.32	15	PASS	4.59	4.38	15	PASS
Std4-10/100 ppb	ICAL	1	9.052	10.52	15	PASS	9.31	11.073	15	PASS
Std5-20/200 ppb	ICAL	1	16.93	6.0041	15	PASS	17.35	5.2	15	PASS
Std6-40/400 ppb	ICAL	1	34.7	5.21	15	PASS	35.24	4.59	15	PASS
Std7-100/1000 ppb	ICAL	1	102.86	4.58	15	PASS	102.52	4.49	15	PASS
Std8-200/2000 ppb	ICAL	1	192.053	1.5	15	PASS	195.74	1.49	15	PASS
ICV	ICV	1	9.18	4.3	15	PASS	9.74	3.99	15	PASS
ICB	ICB	1	0.077	16.47	15	<PQL	0.023	15.67	15	<PQL
LLICV	CCV1	1	0.45	5.76	20	PASS	1.035	3.73	20	PASS
ICSA1	ICSA	1	0.029	14.33	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.34	0.2	15	PASS	18.98	0.14	15	PASS
LLICV	CCV1	1	0.41	11.36	20	PASS	0.94	9.52	20	PASS
CCV1	CCV	1	17.11	9.35	15	PASS	17.62	9.11	15	PASS
CCB1	CCB	1	0.02	7.55	15	PASS	0.011	5.86	15	PASS
MB-75130	MBLK	1	<0.000	N/A	15	<PQL	0.0014	172.61	15	<PQL
CCV2	CCV	1	17.93	5.63	15	PASS	18.41	5.43	15	PASS
CCB2	CCB	1	0.02	4.11	15	PASS	0.012	18.99	15	<PQL
LCS-75130	LCS	1	9.41	0.09	15	PASS	9.91	0.83	15	PASS
N037117-001D	SAMP	1	0.088	12.46	15	PASS	<0.000	N/A	15	<PQL
N037117-001D	SAMP	5	0.014	11.23	15	PASS	<0.000	N/A	15	<PQL
N037117-001D	SAMP	25	0.0058	9.99	15	PASS	<0.000	N/A	15	<PQL
N037117-001D-PS	PS	1	9.56	1.074	15	PASS	8.84	0.68	15	PASS
N037117-001D-PS	PS	5	2.0041	2.28	15	PASS	1.87	1.059	15	PASS
N037117-001D-MS	MS	1	9.71	0.88	15	PASS	9.068	0.39	15	PASS
N037117-001D-MS	MS	5	1.98	0.56	15	PASS	1.89	1.073	15	PASS
N037117-001D-MSD	MSD	1	9.69	0.76	15	PASS	9.025	1.051	15	PASS
N037117-001D-MSD	MSD	5	2.023	0.36	15	PASS	1.92	1.61	15	PASS
CCV3	CCV	1	18.4	8.27	15	PASS	18.71	7.82	15	PASS
CCB3	CCB	1	0.02	16.062	15	<PQL	0.013	6.48	15	PASS
ICSA2	ICSA	1	0.0041	50.35	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.53	0.3	15	PASS	18.98	0.89	15	PASS
N037117-002D	SAMP	1	0.0074	8.025	15	PASS	<0.000	N/A	15	<PQL
N037117-002D	SAMP	5	0.0015	26.45	15	<PQL	<0.000	N/A	15	<PQL
N037117-003D	SAMP	1	0.019	17.49	15	<PQL	<0.000	N/A	15	<PQL
N037117-003D	SAMP	5	0.0017	80.72	15	<PQL	<0.000	N/A	15	<PQL
N037117-004D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-004D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-005D	SAMP	1	0.07	1.99	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	205 Tl [3]				208 Pb [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	0.01	11.63	15	PASS	<0.000	N/A	15	<PQL
N037117-008D	SAMP	1	0.017	15.5	15	<PQL	<0.000	N/A	15	<PQL
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV4	CCV	1	19.81	6.7	15	PASS	20.28	6.35	15	PASS
CCB4	CCB	1	0.016	22.8	15	<PQL	0.0053	58.062	15	<PQL
N037144-001D	SAMP	1	0.22	4.028	15	PASS	<0.000	N/A	15	<PQL
N037144-001D	SAMP	5	0.041	6.25	15	PASS	<0.000	N/A	15	<PQL
N037144-002D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-002D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-003D	SAMP	1	0.008	19.58	15	<PQL	<0.000	N/A	15	<PQL
N037144-003D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-004D	SAMP	1	0.14	3.82	15	PASS	<0.000	N/A	15	<PQL
N037144-004D	SAMP	5	0.02	16.15	15	<PQL	<0.000	N/A	15	<PQL
N037147-001D	SAMP	1	0.25	1.37	15	PASS	<0.000	N/A	15	<PQL
N037147-001D	SAMP	5	0.047	8.2	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	19.21	0.1	15	PASS	19.63	0.29	15	PASS
CCB5	CCB	1	0.02	16.22	15	<PQL	0.0049	46.17	15	<PQL
N037147-002D	SAMP	1	0.058	6.59	15	PASS	<0.000	N/A	15	<PQL
N037147-002D	SAMP	5	0.0087	40.86	15	<PQL	<0.000	N/A	15	<PQL
N037117-002D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	18.54	5.17	15	PASS	19.0003	5.055	15	PASS
CCB6	CCB	1	0.012	16.68	15	<PQL	0.0057	41.5	15	<PQL
ICSA3	ICSA	1	0.00083	220.28	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.29	0.25	15	PASS	18.84	0.096	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	51 V [2]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	3.012	15	PASS	0.1	26.81	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.54	11.98	15	PASS	0.51	5.67	15	PASS
Std3-5/50 ppb	ICAL	1	5.13	2.33	15	PASS	5.1	2.48	15	PASS
Std4-10/100 ppb	ICAL	1	10.35	2.37	15	PASS	10.15	2.29	15	PASS
Std5-20/200 ppb	ICAL	1	20.61	2.66	15	PASS	20.32	2.058	15	PASS
Std6-40/400 ppb	ICAL	1	40.78	2.44	15	PASS	40.66	1.68	15	PASS
Std7-100/1000 ppb	ICAL	1	100.92	0.52	15	PASS	101.054	1.74	15	PASS
Std8-200/2000 ppb	ICAL	1	199.3	0.83	15	PASS	199.3	1.024	15	PASS
ICV	ICV	1	10.33	0.72	15	PASS	10.32	1.76	15	PASS
ICB	ICB	1	0.061	12.33	15	PASS	0.038	46.59	15	<PQL
LLICV	CCV1	1	1.17	1.89	20	PASS	1.061	2.23	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.081	1.33	15	PASS	20.55	1.54	15	PASS
LLICV	CCV1	1	1.078	9.23	20	PASS	1.089	4.058	20	PASS
CCV1	CCV	1	20.17	1.59	15	PASS	20.084	0.84	15	PASS
CCB1	CCB	1	0.026	22.56	15	<PQL	0.019	58.87	15	<PQL
MB-75130	MBLK	1	0.015	49.88	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.08	2.083	15	PASS	20.11	1.14	15	PASS
CCB2	CCB	1	0.072	32.1	15	<PQL	<0.000	N/A	15	<PQL
LCS-75130	LCS	1	10.2	2.071	15	PASS	10.31	0.75	15	PASS
N037117-001D	SAMP	1	0.54	11.037	15	PASS	0.46	8.34	15	PASS
N037117-001D	SAMP	5	0.17	15.17	15	<PQL	0.1	3.79	15	PASS
N037117-001D	SAMP	25	0.089	29.75	15	<PQL	<0.000	N/A	15	<PQL
N037117-001D-PS	PS	1	10.85	2.84	15	PASS	9.96	3.2	15	PASS
N037117-001D-PS	PS	5	2.31	2.11	15	PASS	2.16	2.2	15	PASS
N037117-001D-MS	MS	1	10.81	1.59	15	PASS	10.15	0.84	15	PASS
N037117-001D-MS	MS	5	2.34	1.71	15	PASS	2.16	3.37	15	PASS
N037117-001D-MSD	MSD	1	10.79	3.49	15	PASS	10.026	1.21	15	PASS
N037117-001D-MSD	MSD	5	2.35	3.59	15	PASS	2.12	3.53	15	PASS
CCV3	CCV	1	20.16	0.56	15	PASS	20.51	2.3	15	PASS
CCB3	CCB	1	0.036	143.33	15	<PQL	0.017	142.88	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.64	1.21	15	PASS	19.9	0.97	15	PASS
N037117-002D	SAMP	1	0.088	29.32	15	<PQL	0.056	17.92	15	<PQL
N037117-002D	SAMP	5	0.02	134.56	15	<PQL	0.0054	262.22	15	<PQL
N037117-003D	SAMP	1	0.58	7.14	15	PASS	<0.000	N/A	15	<PQL
N037117-003D	SAMP	5	0.071	10.76	15	PASS	<0.000	N/A	15	<PQL
N037117-004D	SAMP	1	0.17	0.77	15	PASS	<0.000	N/A	15	<PQL
N037117-004D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-005D	SAMP	1	2.57	2.6	15	PASS	0.17	26.21	15	<PQL

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	51 V [2]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	0.55	2.082	15	PASS	0.025	79.48	15	<PQL
N037117-008D	SAMP	1	0.58	5.36	15	PASS	<0.000	N/A	15	<PQL
N037117-008D	SAMP	5	0.095	31.93	15	<PQL	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.13	2.0075	15	PASS	19.93	2.47	15	PASS
CCB4	CCB	1	0.076	22.13	15	<PQL	0.015	60.35	15	<PQL
N037144-001D	SAMP	1	2.82	4.35	15	PASS	91.14	0.61	15	PASS
N037144-001D	SAMP	5	0.63	10.31	15	PASS	19.2	0.77	15	PASS
N037144-002D	SAMP	1	0.27	29.16	15	<PQL	<0.000	N/A	15	<PQL
N037144-002D	SAMP	5	0.036	54.5	15	<PQL	<0.000	N/A	15	<PQL
N037144-003D	SAMP	1	0.068	52.46	15	<PQL	<0.000	N/A	15	<PQL
N037144-003D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-004D	SAMP	1	1.37	2.021	15	PASS	17.85	1.57	15	PASS
N037144-004D	SAMP	5	0.27	14.87	15	PASS	3.75	1.64	15	PASS
N037147-001D	SAMP	1	5.44	2.055	15	PASS	929.14	1.95	15	PASS
N037147-001D	SAMP	5	1.088	4.44	15	PASS	177.53	1.41	15	PASS
CCV5	CCV	1	19.72	2.64	15	PASS	19.8	1.14	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.11	8.22	15	PASS
N037147-002D	SAMP	1	6.79	2.36	15	PASS	2.45	1.77	15	PASS
N037147-002D	SAMP	5	1.44	1.84	15	PASS	0.59	6.35	15	PASS
N037117-002D	SAMP	5	0.011	156.24	15	<PQL	0.049	10.55	15	PASS
N037117-003D	SAMP	5	0.1	15.76	15	<PQL	<0.000	N/A	15	<PQL
N037117-008D	SAMP	5	0.11	23.11	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.12	1.35	15	PASS	19.7	0.94	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.021	33.61	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.38	1.13	15	PASS	19.78	1.35	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				59 Co [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.091	19.39	15	<PQL	0.1	7.24	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	8.093	15	PASS	0.5	4.27	15	PASS
Std3-5/50 ppb	ICAL	1	5.0038	1.42	15	PASS	4.97	1.51	15	PASS
Std4-10/100 ppb	ICAL	1	10.15	1.66	15	PASS	10.14	1.11	15	PASS
Std5-20/200 ppb	ICAL	1	20.51	0.2	15	PASS	20.26	0.87	15	PASS
Std6-40/400 ppb	ICAL	1	40.84	2.11	15	PASS	40.7	1.1	15	PASS
Std7-100/1000 ppb	ICAL	1	100.8	0.56	15	PASS	100.62	0.84	15	PASS
Std8-200/2000 ppb	ICAL	1	199.37	0.79	15	PASS	199.52	0.87	15	PASS
ICV	ICV	1	104.45	0.95	15	PASS	9.98	1.11	15	PASS
ICB	ICB	1	0.059	66.067	15	<PQL	0.018	38.68	15	<PQL
LLICV	CCV1	1	0.51	9.54	20	PASS	0.53	4.2	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.33	2.8	15	PASS	20.058	1.58	15	PASS
LLICV	CCV1	1	0.51	3.82	20	PASS	0.56	3.68	20	PASS
CCV1	CCV	1	20.45	0.85	15	PASS	20.018	1.11	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0054	69.017	15	<PQL
MB-75130	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.39	2.12	15	PASS	20.12	0.7	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0069	124.31	15	<PQL
LCS-75130	LCS	1	104.66	1.31	15	PASS	9.92	1.62	15	PASS
N037117-001D	SAMP	1	446.69	0.44	15	PASS	0.42	7.25	15	PASS
N037117-001D	SAMP	5	93.12	0.38	15	PASS	0.088	25.59	15	<PQL
N037117-001D	SAMP	25	19.36	0.7	15	PASS	0.015	38.63	15	<PQL
N037117-001D-PS	PS	1	542.35	1.3	15	PASS	9.67	1.31	15	PASS
N037117-001D-PS	PS	5	116.15	0.6	15	PASS	2.12	3.72	15	PASS
N037117-001D-MS	MS	1	508.94	1.18	15	PASS	9.7	1.11	15	PASS
N037117-001D-MS	MS	5	109.66	2.065	15	PASS	2.076	0.87	15	PASS
N037117-001D-MSD	MSD	1	506.87	1.37	15	PASS	9.52	1.083	15	PASS
N037117-001D-MSD	MSD	5	107.76	2.051	15	PASS	2.082	0.95	15	PASS
CCV3	CCV	1	20.86	0.33	15	PASS	20.2	1.42	15	PASS
CCB3	CCB	1	0.016	264.52	15	<PQL	0.0056	78.17	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.0064	1.61	15	PASS	19.52	1.74	15	PASS
N037117-002D	SAMP	1	826.076	5.24	15	PASS	0.025	18.11	15	<PQL
N037117-002D	SAMP	5	165.78	0.31	15	PASS	0.0045	132.87	15	<PQL
N037117-003D	SAMP	1	1128.79	1.17	15	PASS	<0.000	N/A	15	<PQL
N037117-003D	SAMP	5	213.19	1.3	15	PASS	<0.000	N/A	15	<PQL
N037117-004D	SAMP	1	2228.91	0.75	15	PASS	<0.000	N/A	15	<PQL
N037117-004D	SAMP	5	435.48	0.79	15	PASS	<0.000	N/A	15	<PQL
N037117-005D	SAMP	1	113.79	2.55	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				59 Co [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	24.42	2.48	15	PASS	<0.000	N/A	15	<PQL
N037117-008D	SAMP	1	1107.57	1.14	15	PASS	<0.000	N/A	15	<PQL
N037117-008D	SAMP	5	208.7	1.064	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.27	2.0082	15	PASS	19.65	2.026	15	PASS
CCB4	CCB	1	0.059	53.89	15	<PQL	0.0044	64.65	15	<PQL
N037144-001D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-001D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-002D	SAMP	1	128.29	1.16	15	PASS	<0.000	N/A	15	<PQL
N037144-002D	SAMP	5	27.53	1.71	15	PASS	<0.000	N/A	15	<PQL
N037144-003D	SAMP	1	852.71	1.53	15	PASS	0.35	4.09	15	PASS
N037144-003D	SAMP	5	168.19	0.94	15	PASS	0.068	15.26	15	<PQL
N037144-004D	SAMP	1	<0.000	N/A	15	<PQL	0.61	4.33	15	PASS
N037144-004D	SAMP	5	<0.000	N/A	15	<PQL	0.12	10.082	15	PASS
N037147-001D	SAMP	1	28.9	5.7	15	PASS	<0.000	N/A	15	<PQL
N037147-001D	SAMP	5	6.0015	0.7	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	20.23	0.6	15	PASS	19.41	1.36	15	PASS
CCB5	CCB	1	0.043	108.88	15	<PQL	0.011	36.4	15	<PQL
N037147-002D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037147-002D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-002D	SAMP	5	166.042	0.79	15	PASS	0.01	9.73	15	PASS
N037117-003D	SAMP	5	214.17	1.51	15	PASS	0.002	348.028	15	<PQL
N037117-008D	SAMP	5	208.42	1.93	15	PASS	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.41	0.36	15	PASS	19.53	1.75	15	PASS
CCB6	CCB	1	0.042	19.89	15	<PQL	0.0073	33.52	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.38	1.77	15	PASS	19.091	0.54	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.01	350.9	15	<PQL	0.1	2.25	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.39	7.62	15	PASS	0.49	7.32	15	PASS
Std3-5/50 ppb	ICAL	1	5.27	2.74	15	PASS	5.28	0.72	15	PASS
Std4-10/100 ppb	ICAL	1	9.75	1.51	15	PASS	10.12	0.38	15	PASS
Std5-20/200 ppb	ICAL	1	19.97	2.98	15	PASS	20.53	2.8	15	PASS
Std6-40/400 ppb	ICAL	1	40.42	1.94	15	PASS	40.83	0.47	15	PASS
Std7-100/1000 ppb	ICAL	1	99.85	1.95	15	PASS	101.44	1.94	15	PASS
Std8-200/2000 ppb	ICAL	1	195.8	1.26	15	PASS	199.049	1.7	15	PASS
ICV	ICV	1	10.33	2.57	15	PASS	9.84	1.73	15	PASS
ICB	ICB	1	0.21	24.57	15	<PQL	0.034	7.23	15	PASS
LLICV	CCV1	1	1.32	3.37	20	PASS	1.084	4.16	20	PASS
ICSA1	ICSA	1	0.077	81.91	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.75	0.79	15	PASS	18.12	2.43	15	PASS
LLICV	CCV1	1	1.19	8.15	20	PASS	1.11	1.72	20	PASS
CCV1	CCV	1	20.22	0.55	15	PASS	20.6	0.36	15	PASS
CCB1	CCB	1	0.45	5.24	15	PASS	0.011	113.27	15	<PQL
MB-75130	MBLK	1	0.11	50	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.76	0.96	15	PASS	20.46	1.34	15	PASS
CCB2	CCB	1	0.41	2.66	15	PASS	0.018	38.13	15	<PQL
LCS-75130	LCS	1	10.27	3.33	15	PASS	9.8	1.041	15	PASS
N037117-001D	SAMP	1	1.5	7.2	15	PASS	0.0053	51.81	15	<PQL
N037117-001D	SAMP	5	0.59	12.52	15	PASS	0.14	16.73	15	<PQL
N037117-001D	SAMP	25	0.52	8.6	15	PASS	0.14	8.56	15	PASS
N037117-001D-PS	PS	1	11.022	1.94	15	PASS	9.48	0.68	15	PASS
N037117-001D-PS	PS	5	2.63	5.64	15	PASS	1.93	2.65	15	PASS
N037117-001D-MS	MS	1	10.4	2.36	15	PASS	8.57	1.4	15	PASS
N037117-001D-MS	MS	5	2.56	2.53	15	PASS	1.93	2.54	15	PASS
N037117-001D-MSD	MSD	1	10.0017	2.31	15	PASS	8.6	1.13	15	PASS
N037117-001D-MSD	MSD	5	2.36	0.57	15	PASS	1.93	3.24	15	PASS
CCV3	CCV	1	19.66	2.16	15	PASS	20.037	1.053	15	PASS
CCB3	CCB	1	0.21	34.42	15	<PQL	0.017	32.88	15	<PQL
ICSA2	ICSA	1	0.001	3781.98	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.42	2.48	15	PASS	17.91	1.49	15	PASS
N037117-002D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-002D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-003D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-004D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-004D	SAMP	5	0.21	28.3	15	<PQL	<0.000	N/A	15	<PQL
N037117-005D	SAMP	1	1.58	5.26	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	60 Ni [2]				63 Cu [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	0.53	30.11	15	<PQL	<0.000	N/A	15	<PQL
N037117-008D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-008D	SAMP	5	0.37	8.82	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.15	1.21	15	PASS	19.99	1.78	15	PASS
CCB4	CCB	1	0.42	19.27	15	<PQL	<0.000	N/A	15	<PQL
N037144-001D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-001D	SAMP	5	0.57	14.61	15	PASS	<0.000	N/A	15	<PQL
N037144-002D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-002D	SAMP	5	1.12	2.37	15	PASS	<0.000	N/A	15	<PQL
N037144-003D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037144-003D	SAMP	5	5.26	3.77	15	PASS	<0.000	N/A	15	<PQL
N037144-004D	SAMP	1	2.69	4.43	15	PASS	<0.000	N/A	15	<PQL
N037144-004D	SAMP	5	2.026	10.96	15	PASS	<0.000	N/A	15	<PQL
N037147-001D	SAMP	1	0.68	17.97	15	<PQL	<0.000	N/A	15	<PQL
N037147-001D	SAMP	5	1.14	4.53	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	20.21	1.77	15	PASS	19.88	0.67	15	PASS
CCB5	CCB	1	0.88	6.77	15	PASS	<0.000	N/A	15	<PQL
N037147-002D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037147-002D	SAMP	5	0.73	10.75	15	PASS	<0.000	N/A	15	<PQL
N037117-002D	SAMP	5	0.72	6.76	15	PASS	<0.000	N/A	15	<PQL
N037117-003D	SAMP	5	0.47	10.65	15	PASS	<0.000	N/A	15	<PQL
N037117-008D	SAMP	5	0.46	19.98	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	20	1.82	15	PASS	19.79	1.056	15	PASS
CCB6	CCB	1	0.55	7.7	15	PASS	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.41	22.64	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.64	1.78	15	PASS	17.6	2.59	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	66 Zn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.084	32.24	15	<PQL	0.11	37.93	15	NR!
Std2-0.5/5 ppb	ICAL	1	0.52	22.069	15	<PQL	0.49	6.86	15	PASS
Std3-5/50 ppb	ICAL	1	5.056	8.31	15	PASS	5.1	1.58	15	PASS
Std4-10/100 ppb	ICAL	1	9.82	1.49	15	PASS	9.65	3.68	15	PASS
Std5-20/200 ppb	ICAL	1	20.36	2.21	15	PASS	20.076	2.24	15	PASS
Std6-40/400 ppb	ICAL	1	40.23	1.21	15	PASS	39.94	1.84	15	PASS
Std7-100/1000 ppb	ICAL	1	100.92	1.26	15	PASS	101.19	1.39	15	PASS
Std8-200/2000 ppb	ICAL	1	199.47	1.14	15	PASS	199.43	1.63	15	PASS
ICV	ICV	1	10.21	2.095	15	PASS	10.32	1.51	15	PASS
ICB	ICB	1	0.038	58.59	15	<PQL	0.043	15.28	15	<PQL
LLICV	CCV1	1	10.28	2.82	20	PASS	0.11	25.94	20	NR!
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	18.71	2.29	15	PASS	20.77	2.43	15	PASS
LLICV	CCV1	1	10.46	3.5	20	PASS	0.093	25.54	20	<PQL
CCV1	CCV	1	20.4	2.89	15	PASS	20.54	2.44	15	PASS
CCB1	CCB	1	0.019	386.032	15	<PQL	<0.000	N/A	15	<PQL
MB-75130	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.22	2.15	15	PASS	20.16	1.24	15	PASS
CCB2	CCB	1	0.021	201.56	15	<PQL	0.0063	155.65	15	<PQL
LCS-75130	LCS	1	10.29	2.95	15	PASS	10.09	1.91	15	PASS
N037117-001D	SAMP	1	3.66	4.72	15	PASS	3.91	7.77	15	PASS
N037117-001D	SAMP	5	1.32	7.79	15	PASS	0.79	14.5	15	PASS
N037117-001D	SAMP	25	0.83	11.41	15	PASS	0.17	10.2	15	PASS
N037117-001D-PS	PS	1	12.82	3.24	15	PASS	14.068	1.88	15	PASS
N037117-001D-PS	PS	5	3.41	4.053	15	PASS	2.98	1.88	15	PASS
N037117-001D-MS	MS	1	12.84	2.62	15	PASS	13.65	1.37	15	PASS
N037117-001D-MS	MS	5	3.33	3.1	15	PASS	2.89	1.66	15	PASS
N037117-001D-MSD	MSD	1	13.23	3.1	15	PASS	13.89	3.052	15	PASS
N037117-001D-MSD	MSD	5	3.6	2.3	15	PASS	2.86	3.48	15	PASS
CCV3	CCV	1	19.9	3.99	15	PASS	19.65	2.74	15	PASS
CCB3	CCB	1	0.036	63.92	15	<PQL	0.0087	168.6	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	18.37	2.75	15	PASS	21.11	0.5	15	PASS
N037117-002D	SAMP	1	<0.000	N/A	15	<PQL	3.36	4.18	15	PASS
N037117-002D	SAMP	5	0.39	29.3	15	<PQL	0.72	8.76	15	PASS
N037117-003D	SAMP	1	<0.000	N/A	15	<PQL	1.5	1.28	15	PASS
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	0.3	15.97	15	NR!
N037117-004D	SAMP	1	<0.000	N/A	15	<PQL	2.2	0.78	15	PASS
N037117-004D	SAMP	5	<0.000	N/A	15	<PQL	0.42	11.82	15	PASS
N037117-005D	SAMP	1	<0.000	N/A	15	<PQL	1.14	14.0071	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	66 Zn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	<0.000	N/A	15	<PQL	0.25	16.23	15	NR!
N037117-008D	SAMP	1	<0.000	N/A	15	<PQL	1.36	0.49	15	PASS
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	0.27	8.16	15	PASS
CCV4	CCV	1	19.77	1.38	15	PASS	19.91	2.28	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.04	90.26	15	<PQL
N037144-001D	SAMP	1	<0.000	N/A	15	<PQL	12.96	1.96	15	PASS
N037144-001D	SAMP	5	<0.000	N/A	15	<PQL	2.6	2.19	15	PASS
N037144-002D	SAMP	1	<0.000	N/A	15	<PQL	9.78	4.52	15	PASS
N037144-002D	SAMP	5	<0.000	N/A	15	<PQL	2.052	2.15	15	PASS
N037144-003D	SAMP	1	<0.000	N/A	15	<PQL	3.61	1.63	15	PASS
N037144-003D	SAMP	5	<0.000	N/A	15	<PQL	0.75	13.7	15	PASS
N037144-004D	SAMP	1	<0.000	N/A	15	<PQL	1.67	6.35	15	PASS
N037144-004D	SAMP	5	0.12	36.91	15	<PQL	0.35	1.68	15	PASS
N037147-001D	SAMP	1	0.78	19.22	15	<PQL	5.7	2.4	15	PASS
N037147-001D	SAMP	5	0.89	20.74	15	<PQL	1.17	6.067	15	PASS
CCV5	CCV	1	19.82	0.99	15	PASS	19.87	0.65	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.029	53.77	15	<PQL
N037147-002D	SAMP	1	<0.000	N/A	15	<PQL	3.37	1.28	15	PASS
N037147-002D	SAMP	5	<0.000	N/A	15	<PQL	0.68	6.017	15	PASS
N037117-002D	SAMP	5	0.34	32.95	15	<PQL	0.62	13.033	15	PASS
N037117-003D	SAMP	5	<0.000	N/A	15	<PQL	0.27	10.096	15	PASS
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	0.32	17.38	15	NR!
CCV6	CCV	1	19.34	1.78	15	PASS	20.39	1.81	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.056	36.25	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	17.95	3.45	15	PASS	20.78	2.33	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				9 Be [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.096	92.4	15	<PQL	0.096	16.97	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	25.77	15	<PQL	0.51	3.61	15	PASS
Std3-5/50 ppb	ICAL	1	4.53	7.23	15	PASS	5.092	1.13	15	PASS
Std4-10/100 ppb	ICAL	1	9.67	10.47	15	PASS	10.38	1.47	15	PASS
Std5-20/200 ppb	ICAL	1	19.53	6.99	15	PASS	20.9	0.42	15	PASS
Std6-40/400 ppb	ICAL	1	39.52	3.88	15	PASS	41.58	0.35	15	PASS
Std7-100/1000 ppb	ICAL	1	100.034	4.46	15	PASS	104.43	0.17	15	PASS
Std8-200/2000 ppb	ICAL	1	200.15	3.11	15	PASS	197.36	10.89	15	PASS
ICV	ICV	1	10.18	7.81	15	PASS	10.55	1.18	15	PASS
ICB	ICB	1	0.068	101.3	15	<PQL	0.055	1.7	15	PASS
LLICV	CCV1	1	0.53	49.95	20	NR!	0.55	1.59	20	PASS
ICSA1	ICSA	1	0.036	331.05	15	<PQL	0.015	56.023	15	<PQL
ICSAB1	ICSAB	1	20.5	8.26	15	PASS	21.75	0.6	15	PASS
LLICV	CCV1	1	0.46	50.007	20	<PQL	0.59	2.99	20	PASS
CCV1	CCV	1	19.076	9	15	PASS	20.77	0.59	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0091	39.95	15	<PQL
MB-75130	MBLK	1	<0.000	0	15	PASS	<0.000	N/A	15	<PQL
CCV2	CCV	1	18.8	3.73	15	PASS	20.61	1.49	15	PASS
CCB2	CCB	1	0.0046	532.41	15	<PQL	0.011	32.34	15	<PQL
LCS-75130	LCS	1	9.37	4.55	15	PASS	10.45	0.57	15	PASS
N037117-001D	SAMP	1	0.28	65.11	15	<PQL	0.011	34.85	15	<PQL
N037117-001D	SAMP	5	0.036	330.89	15	<PQL	<0.000	N/A	15	<PQL
N037117-001D	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-001D-PS	PS	1	10.28	9.29	15	PASS	10.98	1.2	15	PASS
N037117-001D-PS	PS	5	2.28	12.77	15	PASS	2.2	5.51	15	PASS
N037117-001D-MS	MS	1	10.41	9.92	15	PASS	11.15	1.18	15	PASS
N037117-001D-MS	MS	5	2.19	30.88	15	NR!	2.24	1.38	15	PASS
N037117-001D-MSD	MSD	1	9.92	5.04	15	PASS	11.11	0.82	15	PASS
N037117-001D-MSD	MSD	5	2.1	45.12	15	NR!	2.26	3.042	15	PASS
CCV3	CCV	1	20.12	3.95	15	PASS	20.72	0.77	15	PASS
CCB3	CCB	1	0.0074	952.78	15	<PQL	0.015	61.85	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.76	1.18	15	PASS	21.75	0.24	15	PASS
N037117-002D	SAMP	1	0.081	165.034	15	<PQL	0.0014	378.37	15	<PQL
N037117-002D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037117-003D	SAMP	1	0.21	33.31	15	<PQL	<0.000	N/A	15	<PQL
N037117-003D	SAMP	5	0.015	419.092	15	<PQL	0.0047	137.53	15	<PQL
N037117-004D	SAMP	1	<0.000	N/A	15	<PQL	0.033	45.39	15	<PQL
N037117-004D	SAMP	5	0.013	481.4	15	<PQL	0.014	58.027	15	<PQL
N037117-005D	SAMP	1	1.58	18.38	15	NR!	0.03	48.11	15	<PQL

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				9 Be [3]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	0.27	52.65	15	<PQL	0.0057	154.41	15	<PQL
N037117-008D	SAMP	1	0.2	49.59	15	<PQL	0.043	29.082	15	<PQL
N037117-008D	SAMP	5	0.03	284.14	15	<PQL	0.025	13.93	15	PASS
CCV4	CCV	1	18.35	6.79	15	PASS	21.19	0.37	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.015	22.4	15	<PQL
N037144-001D	SAMP	1	1.37	2.81	15	PASS	0.073	18.69	15	<PQL
N037144-001D	SAMP	5	0.2	21.27	15	<PQL	0.037	5.032	15	PASS
N037144-002D	SAMP	1	<0.000	0	15	PASS	0.12	23.34	15	<PQL
N037144-002D	SAMP	5	<0.000	0	15	PASS	0.065	13.52	15	PASS
N037144-003D	SAMP	1	0.044	113.71	15	<PQL	0.16	17.69	15	<PQL
N037144-003D	SAMP	5	<0.000	N/A	15	<PQL	0.072	27.53	15	<PQL
N037144-004D	SAMP	1	3.21	8.28	15	PASS	0.13	16.19	15	<PQL
N037144-004D	SAMP	5	0.77	22.54	15	NR!	0.053	15.77	15	<PQL
N037147-001D	SAMP	1	5.74	20.4	15	NR!	0.13	14.25	15	PASS
N037147-001D	SAMP	5	0.93	28.035	15	NR!	0.058	7.89	15	PASS
CCV5	CCV	1	19.18	3.45	15	PASS	21.48	0.46	15	PASS
CCB5	CCB	1	0.039	154.73	15	<PQL	0.035	11.36	15	PASS
N037147-002D	SAMP	1	0.99	35.011	15	NR!	0.056	32.77	15	<PQL
N037147-002D	SAMP	5	0.001	4741.54	15	<PQL	0.039	27.56	15	<PQL
N037117-002D	SAMP	5	<0.000	0	15	PASS	0.02	58.058	15	<PQL
N037117-003D	SAMP	5	0.032	130.67	15	<PQL	0.024	19.013	15	<PQL
N037117-008D	SAMP	5	<0.000	N/A	15	<PQL	0.017	29.58	15	<PQL
CCV6	CCV	1	19.74	3.03	15	PASS	21.49	1.055	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.025	54.62	15	<PQL
ICSA3	ICSA	1	0.0013	7552.45	15	<PQL	0.017	26.18	15	<PQL
ICSAB3	ICSAB	1	19.3	10.25	15	PASS	22.34	0.99	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.082	30.026	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.45	6.064	15	PASS
Std3-5/50 ppb	ICAL	1	4.76	0.98	15	PASS
Std4-10/100 ppb	ICAL	1	9.91	1.87	15	PASS
Std5-20/200 ppb	ICAL	1	19.51	1.35	15	PASS
Std6-40/400 ppb	ICAL	1	40.13	1.27	15	PASS
Std7-100/1000 ppb	ICAL	1	99.79	0.37	15	PASS
Std8-200/2000 ppb	ICAL	1	200.14	1.031	15	PASS
ICV	ICV	1	10.84	1.3	15	PASS
ICB	ICB	1	0.27	10.82	15	PASS
LLICV	CCV1	1	0.59	1.81	20	PASS
ICSA1	ICSA	1	0.058	17.047	15	<PQL
ICSAB1	ICSAB	1	21.93	1.66	15	PASS
LLICV	CCV1	1	0.69	3.54	20	PASS
CCV1	CCV	1	19.72	0.59	15	PASS
CCB1	CCB	1	0.088	11.51	15	PASS
MB-75130	MBLK	1	<0.000	N/A	15	<PQL
CCV2	CCV	1	19.62	0.65	15	PASS
CCB2	CCB	1	0.13	20.6	15	<PQL
LCS-75130	LCS	1	9.88	3.27	15	PASS
N037117-001D	SAMP	1	11.37	1.34	15	PASS
N037117-001D	SAMP	5	2.25	4.98	15	PASS
N037117-001D	SAMP	25	0.4	2.51	15	PASS
N037117-001D-PS	PS	1	21.92	1.44	15	PASS
N037117-001D-PS	PS	5	4.46	5.068	15	PASS
N037117-001D-MS	MS	1	21.14	1.024	15	PASS
N037117-001D-MS	MS	5	4.37	1.44	15	PASS
N037117-001D-MSD	MSD	1	21.23	1.076	15	PASS
N037117-001D-MSD	MSD	5	4.43	4.24	15	PASS
CCV3	CCV	1	19.9	0.3	15	PASS
CCB3	CCB	1	0.12	26.26	15	<PQL
ICSA2	ICSA	1	0.038	71.71	15	<PQL
ICSAB2	ICSAB	1	21.68	1.54	15	PASS
N037117-002D	SAMP	1	24.94	1.32	15	PASS
N037117-002D	SAMP	5	5.21	3.5	15	PASS
N037117-003D	SAMP	1	53.64	0.58	15	PASS
N037117-003D	SAMP	5	11.046	1.55	15	PASS
N037117-004D	SAMP	1	57.78	0.85	15	PASS
N037117-004D	SAMP	5	12.048	0.59	15	PASS
N037117-005D	SAMP	1	11.88	2.15	15	PASS

PERCENT RSD SUMMARY: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N037117-005D	SAMP	5	2.39	4.83	15	PASS
N037117-008D	SAMP	1	52.91	1.57	15	PASS
N037117-008D	SAMP	5	10.79	2.3	15	PASS
CCV4	CCV	1	20.23	1.96	15	PASS
CCB4	CCB	1	0.088	4.49	15	PASS
N037144-001D	SAMP	1	76.76	0.42	15	PASS
N037144-001D	SAMP	5	15.7	1.73	15	PASS
N037144-002D	SAMP	1	60.97	0.83	15	PASS
N037144-002D	SAMP	5	12.38	1.45	15	PASS
N037144-003D	SAMP	1	61.54	0.38	15	PASS
N037144-003D	SAMP	5	12.74	2.087	15	PASS
N037144-004D	SAMP	1	28.69	0.28	15	PASS
N037144-004D	SAMP	5	5.93	2.16	15	PASS
N037147-001D	SAMP	1	95.09	0.49	15	PASS
N037147-001D	SAMP	5	19.42	2.026	15	PASS
CCV5	CCV	1	20.42	0.77	15	PASS
CCB5	CCB	1	0.17	12.36	15	PASS
N037147-002D	SAMP	1	32.88	0.87	15	PASS
N037147-002D	SAMP	5	6.6	0.71	15	PASS
N037117-002D	SAMP	5	5.32	2.53	15	PASS
N037117-003D	SAMP	5	10.94	3.58	15	PASS
N037117-008D	SAMP	5	10.74	1.69	15	PASS
CCV6	CCV	1	20.4	0.99	15	PASS
CCB6	CCB	1	0.084	31.17	15	<PQL
ICSA3	ICSA	1	0.053	44.96	15	<PQL
ICSAB3	ICSAB	1	22.4	1.23	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190906B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0906001.D	RINSE	RINSE	1	09/06/19 8:34 PM
B0906002.D	Cal Blank	IBLK	1	09/06/19 8:39 PM
B0906003.D	Std1-0.1/1 ppb	ICAL	1	09/06/19 8:44 PM
B0906004.D	Std2-0.5/5 ppb	ICAL	1	09/06/19 8:49 PM
B0906005.D	Std3-5/50 ppb	ICAL	1	09/06/19 8:54 PM
B0906006.D	Std4-10/100 ppb	ICAL	1	09/06/19 8:59 PM
B0906007.D	Std5-20/200 ppb	ICAL	1	09/06/19 9:04 PM
B0906008.D	Std6-40/400 ppb	ICAL	1	09/06/19 9:09 PM
B0906009.D	Std7-100/1000 ppb	ICAL	1	09/06/19 9:14 PM
B0906010.D	Std8-200/2000 ppb	ICAL	1	09/06/19 9:19 PM
B0906011.D	ICV	ICV	1	09/06/19 9:24 PM
B0906012.D	ICB	ICB	1	09/06/19 9:29 PM
B0906013.D	LLICV	CCV1	1	09/06/19 9:33 PM
B0906014.D	ICSA1	ICSA	1	09/06/19 9:38 PM
B0906015.D	ICSAB1	ICSAB	1	09/06/19 9:43 PM
B0906016.D	LLICV	CCV1	1	09/06/19 9:47 PM
B0906017.D	MB-75129	MBLK	1	09/06/19 9:52 PM
B0906018.D	LCS75129	LCS	1	09/06/19 9:56 PM
B0906019.D	N037118-001B	SAMP	1	09/06/19 10:01 PM
B0906020.D	N037118-001B	SAMP	5	09/06/19 10:06 PM
B0906021.D	N037118-001B-PS	PS	1	09/06/19 10:11 PM
B0906022.D	N037118-001B-MS	MS	1	09/06/19 10:16 PM
B0906023.D	N037118-001B-MSD	MSD	1	09/06/19 10:21 PM
B0906024.D	N037118-002B	SAMP	1	09/06/19 10:26 PM
B0906025.D	N037118-003B	SAMP	1	09/06/19 10:31 PM
B0906026.D	N037118-004B	SAMP	1	09/06/19 10:37 PM
B0906027.D	CCV1	CCV	1	09/06/19 10:42 PM
B0906028.D	CCB1	CCB	1	09/06/19 10:47 PM
B0906029.D	N037118-005B	SAMP	1	09/06/19 10:51 PM
B0906030.D	N037118-006B	SAMP	1	09/06/19 10:56 PM
B0906031.D	N037118-007B	SAMP	1	09/06/19 11:02 PM
B0906032.D	N037118-008B	SAMP	1	09/06/19 11:07 PM
B0906033.D	N037118-009B	SAMP	1	09/06/19 11:12 PM
B0906034.D	N037118-010B	SAMP	1	09/06/19 11:17 PM
B0906035.D	N037118-011B	SAMP	1	09/06/19 11:22 PM
B0906036.D	N037118-012B	SAMP	1	09/06/19 11:27 PM
B0906037.D	N037118-013B	SAMP	1	09/06/19 11:32 PM
B0906038.D	MB-75130	MBLK	1	09/06/19 11:37 PM
B0906039.D	CCV2	CCV	1	09/06/19 11:42 PM
B0906040.D	CCB2	CCB	1	09/06/19 11:47 PM
B0906041.D	LCS-75130	LCS	1	09/06/19 11:51 PM
B0906042.D	N037117-001D	SAMP	1	09/06/19 11:56 PM

INJECTION LOG: 190906B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0906043.D	N037117-001D	SAMP	5	09/07/19 12:01 AM
B0906044.D	N037117-001D	SAMP	25	09/07/19 12:06 AM
B0906045.D	N037117-001D-PS	PS	1	09/07/19 12:10 AM
B0906046.D	N037117-001D-PS	PS	5	09/07/19 12:15 AM
B0906047.D	N037117-001D-MS	MS	1	09/07/19 12:21 AM
B0906048.D	N037117-001D-MS	MS	5	09/07/19 12:26 AM
B0906049.D	N037117-001D-MSD	MSD	1	09/07/19 12:31 AM
B0906050.D	N037117-001D-MSD	MSD	5	09/07/19 12:36 AM
B0906051.D	CCV3	CCV	1	09/07/19 12:41 AM
B0906052.D	CCB3	CCB	1	09/07/19 12:45 AM
B0906053.D	ICSA2	ICSA	1	09/07/19 12:50 AM
B0906054.D	ICSAB2	ICSAB	1	09/07/19 12:55 AM
B0906055.D	N037117-002D	SAMP	1	09/07/19 12:59 AM
B0906056.D	N037117-002D	SAMP	5	09/07/19 1:04 AM
B0906057.D	N037117-003D	SAMP	1	09/07/19 1:09 AM
B0906058.D	N037117-003D	SAMP	5	09/07/19 1:14 AM
B0906059.D	N037117-004D	SAMP	1	09/07/19 1:19 AM
B0906060.D	N037117-004D	SAMP	5	09/07/19 1:24 AM
B0906061.D	N037117-005D	SAMP	1	09/07/19 1:29 AM
B0906062.D	N037117-005D	SAMP	5	09/07/19 1:34 AM
B0906063.D	N037117-008D	SAMP	1	09/07/19 1:40 AM
B0906064.D	N037117-008D	SAMP	5	09/07/19 1:45 AM
B0906065.D	CCV4	CCV	1	09/07/19 1:50 AM
B0906066.D	CCB4	CCB	1	09/07/19 1:55 AM
B0906067.D	N037144-001D	SAMP	1	09/07/19 1:59 AM
B0906068.D	N037144-001D	SAMP	5	09/07/19 2:04 AM
B0906069.D	N037144-002D	SAMP	1	09/07/19 2:09 AM
B0906070.D	N037144-002D	SAMP	5	09/07/19 2:14 AM
B0906071.D	N037144-003D	SAMP	1	09/07/19 2:19 AM
B0906072.D	N037144-003D	SAMP	5	09/07/19 2:25 AM
B0906073.D	N037144-004D	SAMP	1	09/07/19 2:30 AM
B0906074.D	N037144-004D	SAMP	5	09/07/19 2:35 AM
B0906075.D	N037147-001D	SAMP	1	09/07/19 2:40 AM
B0906076.D	N037147-001D	SAMP	5	09/07/19 2:45 AM
B0906077.D	CCV5	CCV	1	09/07/19 2:50 AM
B0906078.D	CCB5	CCB	1	09/07/19 2:54 AM
B0906079.D	N037147-002D	SAMP	1	09/07/19 2:59 AM
B0906080.D	N037147-002D	SAMP	5	09/07/19 3:04 AM
B0906081.D	N037117-002D	SAMP	5	09/07/19 3:09 AM
B0906082.D	N037117-003D	SAMP	5	09/07/19 3:14 AM
B0906083.D	N037117-008D	SAMP	5	09/07/19 3:19 AM
B0906084.D	CCV6	CCV	1	09/07/19 3:24 AM

INJECTION LOG: 190906B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0906085.D	CCB6	CCB	1	09/07/19 3:29 AM
B0906086.D	ICSA3	ICSA	1	09/07/19 3:34 AM
B0906087.D	ICSAB3	ICSAB	1	09/07/19 3:38 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:25:03**
Prep End Date: **8/23/2019 4:00:00 P**
Prep Batch **75130** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 9/26/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.5**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75130	Aqueous		25	☐	25	1.000		
MB-75130	Aqueous		25	☐	25	1.000		
N037117-001D	Groundwater	<2	25	☐	25	1.000		
N037117-001D-MS	Groundwater	<2	25	☐	25	1.000		
N037117-001D-MS	Groundwater	<2	25	☐	25	1.000		
N037117-002D	Groundwater	<2	25	☐	25	1.000		
N037117-003D	Groundwater	<2	25	☐	25	1.000		
N037117-004D	Groundwater	<2	25	☐	25	1.000		
N037117-005D	Groundwater	<2	25	☐	25	1.000		
N037117-008D	Groundwater	<2	25	☐	25	1.000		
N037144-001D	Groundwater	<2	25	☐	25	1.000		
N037144-002D	Groundwater	<2	25	☐	25	1.000		
N037144-003D	Groundwater	<2	25	☐	25	1.000		
N037144-004D	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:25:03**
Prep End Date: **8/23/2019 4:00:00 P**

Reviewed/ Date: 9/26/2019 for

Initials/ Date: _____

Prep Batch **75130** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.5**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037147-001D	Groundwater	<2	25	☐	25	1.000		
N037147-002D	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 6 Sep 2019 11:01:18 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	125524.00	0.00	
24 Mg	901723.00	0.00	
25 Mg	111187.00	0.00	
26 Mg	121320.00	0.00	
59 Co	300666.00	0.00	
115 In	440345.00	0.00	
206 Pb	121628.00	0.00	
207 Pb	106047.00	0.00	
208 Pb	261619.00	0.00	

RSD (%)

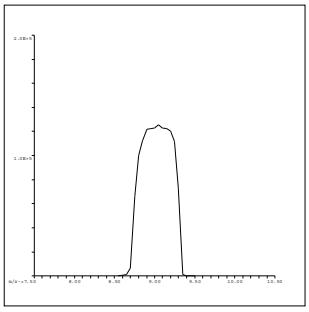
Element	Actual	Required	Flag
9 Be	1.10	5.00	
24 Mg	0.94	5.00	
25 Mg	1.43	5.00	
26 Mg	1.02	5.00	
59 Co	0.55	5.00	
115 In	1.03	5.00	
206 Pb	0.90	5.00	
207 Pb	0.52	5.00	
208 Pb	1.20	5.00	

Ion Ratio

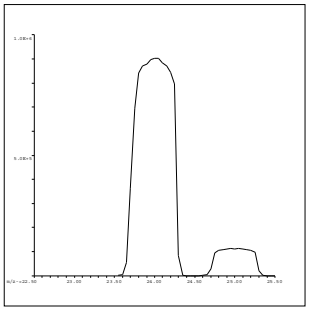
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

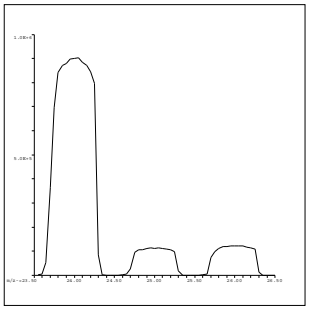
Element	Actual	Required	Flag



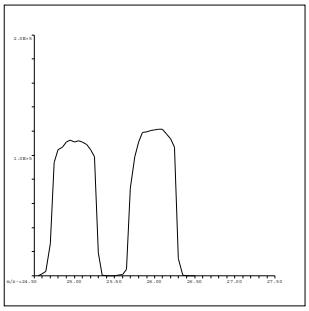
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



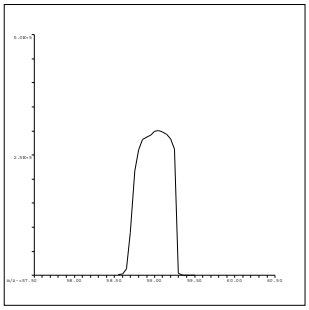
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



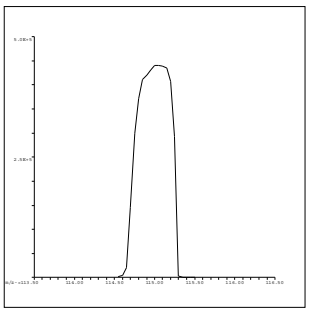
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



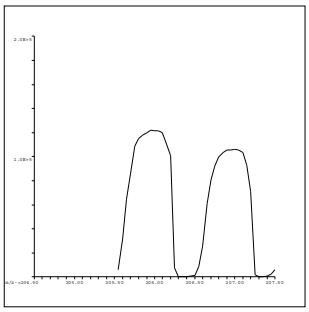
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



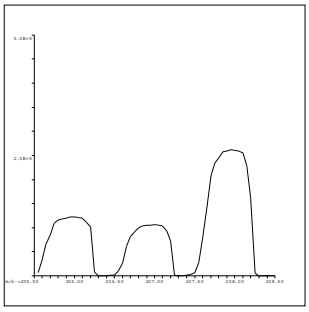
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



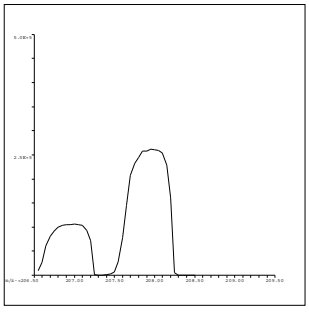
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190906B

Instrument ID: ICPMS-02

Analyte	Data File	B0906002.D	B0906003.D	B0906004.D	B0906005.D	B0906006.D	B0906007.D	B0906008.D	B0906009.D	B0906010.D	
	Acq. Date-Time	09/06/2019 08:39 PM	09/06/2019 08:44 PM	09/06/2019 08:49 PM	09/06/2019 08:54 PM	09/06/2019 08:59 PM	09/06/2019 09:04 PM	09/06/2019 09:09 PM	09/06/2019 09:14 PM	09/06/2019 09:19 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
6 Li (ISTD) [3]	CPS	763384.3		733862.3	717607.7	701191.8	696701.1	691456.1	676662.8	672911.3	
9 Be [3]	CPS	123.3		2799.2	26252.1	52151.4	104272.6	205767.7	505558.1	950111.5	0.9996
45 Sc (ISTD) [2]	CPS	50169.9		49281.7	48663.5	47580.4	46892.5	46490.5	46175.1	46128.4	
59 Co [2]	CPS	51.9		2870.1	27960	55724.9	109667.4	218318.8	536020.9	1061765.5	1.0000
55 Mn [2]	CPS	236.1		1082.1	8709	17045	33717.4	66315.4	162310.1	320495.1	1.0000
52 Cr [2]	CPS	197.2		1908.6	17148.9	33168.8	65237.8	129269.7	318814.9	627989.5	1.0000
51 V [2]	CPS	708.9		2191.4	14743.8	28403.1	55056.8	107353.8	263051.6	518265.6	1.0000
72 Ge (ISTD) [1]	CPS	22801.2		22634.4	22011.2	21535	21627.5	21358.1	21341.6	20556	
78 Se [1]	CPS	4.4		43.3	365.6	760.1	1535.7	3069.3	7746.6	14936.3	1.0000
72 Ge (ISTD) [2]	CPS	31473.6	31661.6	30891.4	29634.5	30722.1	29451.9	29445.4	29088.1	29159.2	
75 As [2]	CPS	33.3	89.3	271.1	2402.4	4681.2	9302.7	18473.7	46191.4	91227.2	1.0000
66 Zn [2]	CPS	78.4		427.5	3320.9	6620.5	13075.3	25756.9	63718.7	126181.4	1.0000
63 Cu [2]	CPS	130.6		2191.4	21357.4	42348.6	82168.4	163309	400574.7	787756.9	1.0000
60 Ni [2]	CPS	735.9		1319.5	8382.5	15455.2	29617.3	59250.2	143567.4	281582.9	1.0000
103 Rh (ISTD) [2]	CPS	772715.1		770861.8	759295.7	750781.7	738784.9	733655.9	728143.6	723086.6	
95 Mo [2]	CPS	84.4		952.3	9060.7	18550.4	35853.5	73157.7	180430.2	359334.1	1.0000
103 Rh (ISTD) [3]	CPS	1352184.4		1239157.8	1245947.2	1283770.7	1277521.6	1273387.1	1244454.9	1256660	
107 Ag [3]	CPS	322.8		5676.8	55738.4	111243.6	220781.1	439411.1	1088966.6	2137540	1.0000
115 In (ISTD) [3]	CPS	1429826.3		1270974	1336000.1	1331942.3	1351778.5	1320837.1	1303427.7	1258871.6	
121 Sb [3]	CPS	754.5		6077	54850.2	107644.4	212578.4	429356.7	1061054.2	2330804.3	1.0000
111 Cd [3]	CPS	11.1		1179	12679	24811.4	49324.4	98057.3	242075.1	486264	1.0000
159 Tb (ISTD) [3]	CPS	2313541.2		2308019.9	2321889.1	2292262.5	2271688.7	2303391.2	2264638	2285358.4	
137 Ba [3]	CPS	84.5		1905.8	17763.1	35619.7	70912.6	142078.5	352264.6	704864.7	1.0000
209 Bi (ISTD) [3]	CPS	1549061.7		1631782.4	1524368.5	1511008.8	1625090.8	1599821.1	1481563.6	1577457.9	
208 Pb [3]	CPS	132.5		16797.7	170827.3	341345.5	688343.6	1377433.2	3710144.6	7552169.4	0.9982
205 Tl [3]	CPS	283.4		11234.8	119748.7	239409.7	483929.5	977258	2682230.1	5339599.2	0.9978

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **ICV** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/6/2019** SeqNo: **3506250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.324	0.10	10.00	0	103	90	110				
Manganese	104.446	0.50	100.0	0	104	90	110				
Molybdenum	10.835	0.50	10.00	0	108	90	110				
Selenium	10.177	0.50	10.00	0	102	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **ZZZZZZ** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/6/2019** SeqNo: **3506252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.110	0.10	0.1000	0	110	80	120				
Manganese	0.513	0.50	0.5000	0	103	80	120				
Molybdenum	0.590	0.50	0.5000	0	118	80	120				
Selenium	0.526	0.50	0.5000	0	105	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **CCV** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/6/2019** SeqNo: **3506266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.541	0.10	20.00	0	103	90	110				
Manganese	20.446	0.50	20.00	0	102	90	110				
Molybdenum	19.716	0.50	20.00	0	98.6	90	110				
Selenium	19.076	0.50	20.00	0	95.4	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **CCV** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/6/2019** SeqNo: **3506278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.159	0.10	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCV**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.394	0.50	20.00	0	102	90	110				
Molybdenum	19.618	0.50	20.00	0	98.1	90	110				
Selenium	18.799	0.50	20.00	0	94.0	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCV**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.652	0.10	20.00	0	98.3	90	110				
Manganese	20.856	0.50	20.00	0	104	90	110				
Molybdenum	19.899	0.50	20.00	0	99.5	90	110				
Selenium	20.118	0.50	20.00	0	101	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCV**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.912	0.10	20.00	0	99.6	90	110				
Manganese	20.273	0.50	20.00	0	101	90	110				
Molybdenum	20.227	0.50	20.00	0	101	90	110				
Selenium	18.346	0.50	20.00	0	91.7	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCV**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.868	0.10	20.00	0	99.3	90	110				
Manganese	20.233	0.50	20.00	0	101	90	110				
Molybdenum	20.417	0.50	20.00	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCV**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.183	0.50	20.00	0	95.9	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCV**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.390	0.10	20.00	0	102	90	110				
Manganese	20.405	0.50	20.00	0	102	90	110				
Molybdenum	20.398	0.50	20.00	0	102	90	110				
Selenium	19.744	0.50	20.00	0	98.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **ICV**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506327**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.318	1.0	10.00	0	103	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **ZZZZZZ**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.061	1.0	1.000	0	106	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCV**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.084	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCV**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.109	1.0	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCV**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.507	1.0	20.00	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCV**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.928	1.0	20.00	0	99.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCV**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.796	1.0	20.00	0	99.0	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCV**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.699	1.0	20.00	0	98.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **ICB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.268	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Mo is >1/2 RL in ICB however, samples for this analyte are >5x the ICB detection.

9/26/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136352**
Client ID: **CCB**	Batch ID: **R136352**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **ICB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/6/2019**	SeqNo: **3506356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **CCB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **ICSA** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/6/2019** SeqNo: **3506253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **ICSAB** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/6/2019** SeqNo: **3506254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.769	0.10	20.00	0	104	80	120				
Manganese	20.331	0.50	20.00	0	102	80	120				
Molybdenum	21.926	0.50	20.00	0	110	80	120				
Selenium	20.502	0.50	20.00	0	103	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **ICSA** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/7/2019** SeqNo: **3506292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136352**
Client ID: **ICSAB** Batch ID: **R136352** TestNo: **EPA 6020** Analysis Date: **9/7/2019** SeqNo: **3506293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.112	0.10	20.00	0	106	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ICSAB	Batch ID:	R136352	TestNo:	EPA 6020			Analysis Date:	9/7/2019	SeqNo:	3506293

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.006	0.50	20.00	0	100	80	120				
Molybdenum	21.681	0.50	20.00	0	108	80	120				
Selenium	19.759	0.50	20.00	0	98.8	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ICSA	Batch ID:	R136352	TestNo:	EPA 6020			Analysis Date:	9/7/2019	SeqNo:	3506325

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	ICSAB3	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ICSAB	Batch ID:	R136352	TestNo:	EPA 6020			Analysis Date:	9/7/2019	SeqNo:	3506326

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.781	0.10	20.00	0	104	80	120				
Manganese	19.384	0.50	20.00	0	96.9	80	120				
Molybdenum	22.404	0.50	20.00	0	112	80	120				
Selenium	19.303	0.50	20.00	0	96.5	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	ICSA1	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136363
Client ID:	ICSA	Batch ID:	R136363	TestNo:	EPA 6020			Analysis Date:	9/6/2019	SeqNo:	3506330

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136363
Client ID:	ICSAB	Batch ID:	R136363	TestNo:	EPA 6020			Analysis Date:	9/6/2019	SeqNo:	3506331

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.546	1.0	20.00	0	103	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136363
Client ID:	ICSA	Batch ID:	R136363	TestNo:	EPA 6020			Analysis Date:	9/7/2019	SeqNo:	3506369

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136363
Client ID:	ICSAB	Batch ID:	R136363	TestNo:	EPA 6020			Analysis Date:	9/7/2019	SeqNo:	3506370

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.903	1.0	20.00	0	99.5	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136363
Client ID:	ICSA	Batch ID:	R136363	TestNo:	EPA 6020			Analysis Date:	9/7/2019	SeqNo:	3506402

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID: **ICSAB**	Batch ID: **R136363**	TestNo: **EPA 6020**		Analysis Date: **9/7/2019**	SeqNo: **3506403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.778	1.0	20.00	0	98.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [3]					115 In (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	1352184.4	1352184.4	100	PASS	70-125	1429826.3	1429826.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	1372284	1352184.4	101.49	PASS	70-125	1464764.8	1429826.3	102.44	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	1239157.8	1352184.4	91.64	PASS	70-125	1270974	1429826.3	88.89	PASS	70-125
Std3-5/50 ppb	ICAL	1	1245947.2	1352184.4	92.14	PASS	70-125	1336000.1	1429826.3	93.44	PASS	70-125
Std4-10/100 ppb	ICAL	1	1283770.7	1352184.4	94.94	PASS	70-125	1331942.3	1429826.3	93.15	PASS	70-125
Std5-20/200 ppb	ICAL	1	1277521.6	1352184.4	94.48	PASS	70-125	1351778.5	1429826.3	94.54	PASS	70-125
Std6-40/400 ppb	ICAL	1	1273387.1	1352184.4	94.17	PASS	70-125	1320837.1	1429826.3	92.38	PASS	70-125
Std7-100/1000 ppb	ICAL	1	1244454.9	1352184.4	92.033	PASS	70-125	1303427.7	1429826.3	91.16	PASS	70-125
Std8-200/2000 ppb	ICAL	1	1256660	1352184.4	92.94	PASS	70-125	1258871.6	1429826.3	88.044	PASS	70-125
ICV	ICV	1	1240475	1352184.4	91.74	PASS	70-125	1285861.1	1429826.3	89.93	PASS	70-125
ICB	ICB	1	1232568.5	1352184.4	91.15	PASS	70-125	1268690.2	1429826.3	88.73	PASS	70-125
LLICV	CCV1	1	1225097.6	1352184.4	90.6	PASS	70-125	1262307.3	1429826.3	88.28	PASS	70-125
ICSA1	ICSA	1	1194590.1	1352184.4	88.35	PASS	70-125	1251328	1429826.3	87.52	PASS	70-125
ICSAB1	ICSAB	1	1209925.1	1352184.4	89.48	PASS	70-125	1275466.5	1429826.3	89.2	PASS	70-125
LLICV	CCV1	1	1285728.8	1352184.4	95.085	PASS	70-125	1310631.9	1429826.3	91.66	PASS	70-125
CCV1	CCV	1	1284930.1	1352184.4	95.026	PASS	70-125	1316454.8	1429826.3	92.071	PASS	70-125
CCB1	CCB	1	1243003.8	1352184.4	91.93	PASS	70-125	1277582.6	1429826.3	89.35	PASS	70-125
MB-75130	MBLK	1	1255028	1352184.4	92.81	PASS	70-125	1287752	1429826.3	90.064	PASS	70-125
CCV2	CCV	1	1263830.2	1352184.4	93.47	PASS	70-125	1250538.9	1429826.3	87.46	PASS	70-125
CCB2	CCB	1	1227312.1	1352184.4	90.77	PASS	70-125	1257122.1	1429826.3	87.92	PASS	70-125
LCS-75130	LCS	1	1186802.3	1352184.4	87.77	PASS	70-125	1223041.5	1429826.3	85.54	PASS	70-125
N037117-001D	SAMP	1	1150329.4	1352184.4	85.072	PASS	70-125	1241175.6	1429826.3	86.81	PASS	70-125
N037117-001D	SAMP	5	1157717.1	1352184.4	85.62	PASS	70-125	1246333	1429826.3	87.17	PASS	70-125
N037117-001D	SAMP	25	1202820	1352184.4	88.95	PASS	70-125	1260269.7	1429826.3	88.14	PASS	70-125
N037117-001D-PS	PS	1	1174065.1	1352184.4	86.83	PASS	70-125	1263648.6	1429826.3	88.38	PASS	70-125
N037117-001D-PS	PS	5	1162585.4	1352184.4	85.98	PASS	70-125	1256431.8	1429826.3	87.87	PASS	70-125
N037117-001D-MS	MS	1	1176203.3	1352184.4	86.99	PASS	70-125	1290870.4	1429826.3	90.28	PASS	70-125
N037117-001D-MS	MS	5	1168380.4	1352184.4	86.41	PASS	70-125	1261319.6	1429826.3	88.21	PASS	70-125
N037117-001D-MSD	MSD	1	1194280.7	1352184.4	88.32	PASS	70-125	1289881.9	1429826.3	90.21	PASS	70-125
N037117-001D-MSD	MSD	5	1166147	1352184.4	86.24	PASS	70-125	1257348	1429826.3	87.94	PASS	70-125
CCV3	CCV	1	1217885.3	1352184.4	90.068	PASS	70-125	1269437	1429826.3	88.78	PASS	70-125
CCB3	CCB	1	1186331	1352184.4	87.73	PASS	70-125	1223435.2	1429826.3	85.57	PASS	70-125
ICSA2	ICSA	1	1159365.9	1352184.4	85.74	PASS	70-125	1222987.6	1429826.3	85.53	PASS	70-125
ICSAB2	ICSAB	1	1188216.2	1352184.4	87.87	PASS	70-125	1248365	1429826.3	87.31	PASS	70-125
N037117-002D	SAMP	1	1112134.4	1352184.4	82.25	PASS	70-125	1198290.7	1429826.3	83.81	PASS	70-125
N037117-002D	SAMP	5	1169316.7	1352184.4	86.48	PASS	70-125	1248167.7	1429826.3	87.3	PASS	70-125
N037117-003D	SAMP	1	1043575	1352184.4	77.18	PASS	70-125	1113183.1	1429826.3	77.85	PASS	70-125
N037117-003D	SAMP	5	1173012.9	1352184.4	86.75	PASS	70-125	1244483.8	1429826.3	87.037	PASS	70-125
N037117-004D	SAMP	1	1067825.4	1352184.4	78.97	PASS	70-125	1130405.2	1429826.3	79.059	PASS	70-125
N037117-004D	SAMP	5	1197975	1352184.4	88.6	PASS	70-125	1266440.6	1429826.3	88.57	PASS	70-125
N037117-005D	SAMP	1	1101153.3	1352184.4	81.44	PASS	70-125	1179330.8	1429826.3	82.48	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [3]					115 In (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037117-005D	SAMP	5	1166611.4	1352184.4	86.28	PASS	70-125	1245356.4	1429826.3	87.098	PASS	70-125
N037117-008D	SAMP	1	1024477.1	1352184.4	75.76	PASS	70-125	1090216.2	1429826.3	76.25	PASS	70-125
N037117-008D	SAMP	5	1159845.5	1352184.4	85.78	PASS	70-125	1230273.9	1429826.3	86.044	PASS	70-125
CCV4	CCV	1	1325938.1	1352184.4	98.059	PASS	70-125	1335902.8	1429826.3	93.43	PASS	70-125
CCB4	CCB	1	1264056.3	1352184.4	93.48	PASS	70-125	1296335.1	1429826.3	90.66	PASS	70-125
N037144-001D	SAMP	1	978841.3	1352184.4	72.39	PASS	70-125	1051431.4	1429826.3	73.54	PASS	70-125
N037144-001D	SAMP	5	1135383	1352184.4	83.97	PASS	70-125	1205143.7	1429826.3	84.29	PASS	70-125
N037144-002D	SAMP	1	979282.6	1352184.4	72.42	PASS	70-125	1050470.2	1429826.3	73.47	PASS	70-125
N037144-002D	SAMP	5	1149352.6	1352184.4	85	PASS	70-125	1219630.9	1429826.3	85.3	PASS	70-125
N037144-003D	SAMP	1	1006242.2	1352184.4	74.42	PASS	70-125	1082023.4	1429826.3	75.68	PASS	70-125
N037144-003D	SAMP	5	1151192	1352184.4	85.14	PASS	70-125	1221143.4	1429826.3	85.41	PASS	70-125
N037144-004D	SAMP	1	1035182.7	1352184.4	76.56	PASS	70-125	1108326	1429826.3	77.51	PASS	70-125
N037144-004D	SAMP	5	1167875.5	1352184.4	86.37	PASS	70-125	1244978.9	1429826.3	87.072	PASS	70-125
N037147-001D	SAMP	1	1004005.8	1352184.4	74.25	PASS	70-125	1088008.1	1429826.3	76.094	PASS	70-125
N037147-001D	SAMP	5	1146147.1	1352184.4	84.76	PASS	70-125	1218697	1429826.3	85.23	PASS	70-125
CCV5	CCV	1	1279455.3	1352184.4	94.62	PASS	70-125	1301506.8	1429826.3	91.026	PASS	70-125
CCB5	CCB	1	1272855.4	1352184.4	94.13	PASS	70-125	1313398.3	1429826.3	91.86	PASS	70-125
N037147-002D	SAMP	1	1038665.6	1352184.4	76.81	PASS	70-125	1122870.9	1429826.3	78.53	PASS	70-125
N037147-002D	SAMP	5	1159127.1	1352184.4	85.72	PASS	70-125	1236006.3	1429826.3	86.44	PASS	70-125
N037117-002D	SAMP	5	1167258.1	1352184.4	86.32	PASS	70-125	1257836.5	1429826.3	87.97	PASS	70-125
N037117-003D	SAMP	5	1132637.1	1352184.4	83.76	PASS	70-125	1212087.6	1429826.3	84.77	PASS	70-125
N037117-008D	SAMP	5	1146588.3	1352184.4	84.8	PASS	70-125	1223089	1429826.3	85.54	PASS	70-125
CCV6	CCV	1	1294705.9	1352184.4	95.75	PASS	70-125	1306952.4	1429826.3	91.41	PASS	70-125
CCB6	CCB	1	1269811.4	1352184.4	93.91	PASS	70-125	1308327.6	1429826.3	91.5	PASS	70-125
ICSA3	ICSA	1	1191666.9	1352184.4	88.13	PASS	70-125	1262701.9	1429826.3	88.31	PASS	70-125
ICSAB3	ICSAB	1	1198162.8	1352184.4	88.61	PASS	70-125	1266843.5	1429826.3	88.6	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					209 Bi (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	2313541.2	2313541.2	100	PASS	70-125	1549061.7	1549061.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	2349130.1	2313541.2	101.54	PASS	70-125	1651085.1	1549061.7	106.59	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	2308019.9	2313541.2	99.76	PASS	70-125	1631782.4	1549061.7	105.34	PASS	70-125
Std3-5/50 ppb	ICAL	1	2321889.1	2313541.2	100.36	PASS	70-125	1524368.5	1549061.7	98.41	PASS	70-125
Std4-10/100 ppb	ICAL	1	2292262.5	2313541.2	99.08	PASS	70-125	1511008.8	1549061.7	97.54	PASS	70-125
Std5-20/200 ppb	ICAL	1	2271688.7	2313541.2	98.19	PASS	70-125	1625090.8	1549061.7	104.91	PASS	70-125
Std6-40/400 ppb	ICAL	1	2303391.2	2313541.2	99.56	PASS	70-125	1599821.1	1549061.7	103.28	PASS	70-125
Std7-100/1000 ppb	ICAL	1	2264638	2313541.2	97.89	PASS	70-125	1481563.6	1549061.7	95.64	PASS	70-125
Std8-200/2000 ppb	ICAL	1	2285358.4	2313541.2	98.78	PASS	70-125	1577457.9	1549061.7	101.83	PASS	70-125
ICV	ICV	1	2268477.5	2313541.2	98.052	PASS	70-125	1429047.5	1549061.7	92.25	PASS	70-125
ICB	ICB	1	2233931	2313541.2	96.56	PASS	70-125	1486218.4	1549061.7	95.94	PASS	70-125
LLICV	CCV1	1	2236353.5	2313541.2	96.66	PASS	70-125	1390994.3	1549061.7	89.8	PASS	70-125
ICSA1	ICSA	1	2217879.4	2313541.2	95.87	PASS	70-125	1272050.2	1549061.7	82.12	PASS	70-125
ICSAB1	ICSAB	1	2249056.1	2313541.2	97.21	PASS	70-125	1290632.8	1549061.7	83.32	PASS	70-125
LLICV	CCV1	1	2278746.1	2313541.2	98.5	PASS	70-125	1561470.3	1549061.7	100.8	PASS	70-125
CCV1	CCV	1	2282195.7	2313541.2	98.65	PASS	70-125	1581553.5	1549061.7	102.1	PASS	70-125
CCB1	CCB	1	2236034	2313541.2	96.65	PASS	70-125	1375862.7	1549061.7	88.82	PASS	70-125
MB-75130	MBLK	1	2249421.5	2313541.2	97.23	PASS	70-125	1382573.4	1549061.7	89.25	PASS	70-125
CCV2	CCV	1	2236780.7	2313541.2	96.68	PASS	70-125	1496258.7	1549061.7	96.59	PASS	70-125
CCB2	CCB	1	2217805.8	2313541.2	95.86	PASS	70-125	1366182.4	1549061.7	88.19	PASS	70-125
LCS-75130	LCS	1	2166010.6	2313541.2	93.62	PASS	70-125	1326674.4	1549061.7	85.64	PASS	70-125
N037117-001D	SAMP	1	2209881.6	2313541.2	95.52	PASS	70-125	1313493.9	1549061.7	84.79	PASS	70-125
N037117-001D	SAMP	5	2197367.3	2313541.2	94.98	PASS	70-125	1329552.2	1549061.7	85.83	PASS	70-125
N037117-001D	SAMP	25	2215009.6	2313541.2	95.74	PASS	70-125	1382509.7	1549061.7	89.25	PASS	70-125
N037117-001D-PS	PS	1	2248186.4	2313541.2	97.18	PASS	70-125	1351151.1	1549061.7	87.22	PASS	70-125
N037117-001D-PS	PS	5	2209732.2	2313541.2	95.51	PASS	70-125	1338213.5	1549061.7	86.39	PASS	70-125
N037117-001D-MS	MS	1	2262526.8	2313541.2	97.79	PASS	70-125	1362113.7	1549061.7	87.93	PASS	70-125
N037117-001D-MS	MS	5	2217359	2313541.2	95.84	PASS	70-125	1354375.5	1549061.7	87.43	PASS	70-125
N037117-001D-MSD	MSD	1	2273657.3	2313541.2	98.28	PASS	70-125	1367546	1549061.7	88.28	PASS	70-125
N037117-001D-MSD	MSD	5	2213789.7	2313541.2	95.69	PASS	70-125	1344524.6	1549061.7	86.8	PASS	70-125
CCV3	CCV	1	2190594.2	2313541.2	94.69	PASS	70-125	1453338.3	1549061.7	93.82	PASS	70-125
CCB3	CCB	1	2163158.9	2313541.2	93.5	PASS	70-125	1338351.8	1549061.7	86.4	PASS	70-125
ICSA2	ICSA	1	2182351.3	2313541.2	94.33	PASS	70-125	1231147.8	1549061.7	79.48	PASS	70-125
ICSAB2	ICSAB	1	2186382.4	2313541.2	94.5	PASS	70-125	1247808.8	1549061.7	80.55	PASS	70-125
N037117-002D	SAMP	1	2092619.7	2313541.2	90.45	PASS	70-125	1178586.4	1549061.7	76.084	PASS	70-125
N037117-002D	SAMP	5	2190377.3	2313541.2	94.68	PASS	70-125	1266147.4	1549061.7	81.74	PASS	70-125
N037117-003D	SAMP	1	1926206	2313541.2	83.26	PASS	70-125	1055922.5	1549061.7	68.17	NR!	70-125
N037117-003D	SAMP	5	2137625.4	2313541.2	92.4	PASS	70-125	1208177.2	1549061.7	77.99	PASS	70-125
N037117-004D	SAMP	1	1967970.6	2313541.2	85.063	PASS	70-125	1050367.4	1549061.7	67.81	NR!	70-125
N037117-004D	SAMP	5	2143115.2	2313541.2	92.63	PASS	70-125	1204558.2	1549061.7	77.76	PASS	70-125
N037117-005D	SAMP	1	2057373.5	2313541.2	88.93	PASS	70-125	1135071.2	1549061.7	73.27	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					209 Bi (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037117-005D	SAMP	5	2128988	2313541.2	92.023	PASS	70-125	1217922.5	1549061.7	78.62	PASS	70-125
N037117-008D	SAMP	1	1894352.7	2313541.2	81.88	PASS	70-125	1025842.6	1549061.7	66.22	NR!	70-125
N037117-008D	SAMP	5	2097383.6	2313541.2	90.66	PASS	70-125	1185167.3	1549061.7	76.51	PASS	70-125
CCV4	CCV	1	2218012.4	2313541.2	95.87	PASS	70-125	1295629.2	1549061.7	83.64	PASS	70-125
CCB4	CCB	1	2175262.4	2313541.2	94.023	PASS	70-125	1300772.6	1549061.7	83.97	PASS	70-125
N037144-001D	SAMP	1	1839629.3	2313541.2	79.52	PASS	70-125	985268.5	1549061.7	63.6	NR!	70-125
N037144-001D	SAMP	5	2066691.9	2313541.2	89.33	PASS	70-125	1148592.4	1549061.7	74.15	PASS	70-125
N037144-002D	SAMP	1	1836187.8	2313541.2	79.37	PASS	70-125	984575.3	1549061.7	63.56	NR!	70-125
N037144-002D	SAMP	5	2085075.3	2313541.2	90.12	PASS	70-125	1160382.9	1549061.7	74.91	PASS	70-125
N037144-003D	SAMP	1	1872052.2	2313541.2	80.92	PASS	70-125	1008431	1549061.7	65.099	NR!	70-125
N037144-003D	SAMP	5	2059207.4	2313541.2	89.007	PASS	70-125	1156252.3	1549061.7	74.64	PASS	70-125
N037144-004D	SAMP	1	1933387.7	2313541.2	83.57	PASS	70-125	1038442.3	1549061.7	67.037	NR!	70-125
N037144-004D	SAMP	5	2134607	2313541.2	92.27	PASS	70-125	1187582.4	1549061.7	76.66	PASS	70-125
N037147-001D	SAMP	1	1873417.9	2313541.2	80.98	PASS	70-125	1014366.5	1549061.7	65.48	NR!	70-125
N037147-001D	SAMP	5	2074588.9	2313541.2	89.67	PASS	70-125	1163938.7	1549061.7	75.14	PASS	70-125
CCV5	CCV	1	2191361.6	2313541.2	94.72	PASS	70-125	1313718.6	1549061.7	84.81	PASS	70-125
CCB5	CCB	1	2203109.8	2313541.2	95.23	PASS	70-125	1299069.4	1549061.7	83.86	PASS	70-125
N037147-002D	SAMP	1	1932833.5	2313541.2	83.54	PASS	70-125	1055550.3	1549061.7	68.14	NR!	70-125
N037147-002D	SAMP	5	2108957.6	2313541.2	91.16	PASS	70-125	1188302.2	1549061.7	76.71	PASS	70-125
N037117-002D	SAMP	5	2155380.3	2313541.2	93.16	PASS	70-125	1227225.5	1549061.7	79.22	PASS	70-125
N037117-003D	SAMP	5	2062659.5	2313541.2	89.16	PASS	70-125	1167481.2	1549061.7	75.37	PASS	70-125
N037117-008D	SAMP	5	2094147.8	2313541.2	90.52	PASS	70-125	1177896.2	1549061.7	76.039	PASS	70-125
CCV6	CCV	1	2240322.5	2313541.2	96.84	PASS	70-125	1385043.1	1549061.7	89.41	PASS	70-125
CCB6	CCB	1	2217141.2	2313541.2	95.83	PASS	70-125	1300501.6	1549061.7	83.95	PASS	70-125
ICSA3	ICSA	1	2177891.9	2313541.2	94.14	PASS	70-125	1186102.1	1549061.7	76.57	PASS	70-125
ICSAB3	ICSAB	1	2161953.8	2313541.2	93.45	PASS	70-125	1197063	1549061.7	77.28	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	50169.9	50169.9	100	PASS	70-125	31473.6	31473.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	50846.4	50169.9	101.35	PASS	70-125	31661.6	31473.6	100.6	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	49281.7	50169.9	98.23	PASS	70-125	30891.4	31473.6	98.15	PASS	70-125
Std3-5/50 ppb	ICAL	1	48663.5	50169.9	97	PASS	70-125	29634.5	31473.6	94.16	PASS	70-125
Std4-10/100 ppb	ICAL	1	47580.4	50169.9	94.84	PASS	70-125	30722.1	31473.6	97.61	PASS	70-125
Std5-20/200 ppb	ICAL	1	46892.5	50169.9	93.47	PASS	70-125	29451.9	31473.6	93.58	PASS	70-125
Std6-40/400 ppb	ICAL	1	46490.5	50169.9	92.67	PASS	70-125	29445.4	31473.6	93.56	PASS	70-125
Std7-100/1000 ppb	ICAL	1	46175.1	50169.9	92.037	PASS	70-125	29088.1	31473.6	92.42	PASS	70-125
Std8-200/2000 ppb	ICAL	1	46128.4	50169.9	91.94	PASS	70-125	29159.2	31473.6	92.65	PASS	70-125
ICV	ICV	1	44965.3	50169.9	89.63	PASS	70-125	28568.2	31473.6	90.77	PASS	70-125
ICB	ICB	1	44218.7	50169.9	88.14	PASS	70-125	28171.9	31473.6	89.51	PASS	70-125
LLICV	CCV1	1	44215.3	50169.9	88.13	PASS	70-125	27961.6	31473.6	88.84	PASS	70-125
ICSA1	ICSA	1	45810.8	50169.9	91.31	PASS	70-125	28597.2	31473.6	90.86	PASS	70-125
ICSAB1	ICSAB	1	46884.8	50169.9	93.45	PASS	70-125	29222.7	31473.6	92.85	PASS	70-125
LLICV	CCV1	1	47460.8	50169.9	94.6	PASS	70-125	30353.7	31473.6	96.44	PASS	70-125
CCV1	CCV	1	48385.8	50169.9	96.44	PASS	70-125	29738	31473.6	94.49	PASS	70-125
CCB1	CCB	1	46177.4	50169.9	92.042	PASS	70-125	28974.5	31473.6	92.06	PASS	70-125
MB-75130	MBLK	1	46482.5	50169.9	92.65	PASS	70-125	29428.6	31473.6	93.5	PASS	70-125
CCV2	CCV	1	46386.9	50169.9	92.46	PASS	70-125	28840.9	31473.6	91.64	PASS	70-125
CCB2	CCB	1	44286.8	50169.9	88.27	PASS	70-125	28015.1	31473.6	89.011	PASS	70-125
LCS-75130	LCS	1	43654.1	50169.9	87.013	PASS	70-125	27546.5	31473.6	87.52	PASS	70-125
N037117-001D	SAMP	1	43443.2	50169.9	86.59	PASS	70-125	27968.2	31473.6	88.86	PASS	70-125
N037117-001D	SAMP	5	43793.2	50169.9	87.29	PASS	70-125	28054.1	31473.6	89.14	PASS	70-125
N037117-001D	SAMP	25	43520.3	50169.9	86.75	PASS	70-125	27589.9	31473.6	87.66	PASS	70-125
N037117-001D-PS	PS	1	44410.4	50169.9	88.52	PASS	70-125	28098.6	31473.6	89.28	PASS	70-125
N037117-001D-PS	PS	5	43225	50169.9	86.16	PASS	70-125	27506.5	31473.6	87.4	PASS	70-125
N037117-001D-MS	MS	1	45415.4	50169.9	90.52	PASS	70-125	28938.9	31473.6	91.95	PASS	70-125
N037117-001D-MS	MS	5	44283.5	50169.9	88.27	PASS	70-125	28607.2	31473.6	90.89	PASS	70-125
N037117-001D-MSD	MSD	1	45309.5	50169.9	90.31	PASS	70-125	29078	31473.6	92.39	PASS	70-125
N037117-001D-MSD	MSD	5	44333.5	50169.9	88.37	PASS	70-125	28071.9	31473.6	89.19	PASS	70-125
CCV3	CCV	1	43310.8	50169.9	86.33	PASS	70-125	27814.6	31473.6	88.37	PASS	70-125
CCB3	CCB	1	42027.5	50169.9	83.77	PASS	70-125	27221.4	31473.6	86.49	PASS	70-125
ICSA2	ICSA	1	43696.3	50169.9	87.097	PASS	70-125	27558.6	31473.6	87.56	PASS	70-125
ICSAB2	ICSAB	1	46518.3	50169.9	92.72	PASS	70-125	28587.1	31473.6	90.83	PASS	70-125
N037117-002D	SAMP	1	43450.1	50169.9	86.61	PASS	70-125	27273.7	31473.6	86.66	PASS	70-125
N037117-002D	SAMP	5	46758.9	50169.9	93.2	PASS	70-125	28983.6	31473.6	92.089	PASS	70-125
N037117-003D	SAMP	1	43388.6	50169.9	86.48	PASS	70-125	27063.4	31473.6	85.99	PASS	70-125
N037117-003D	SAMP	5	48755.8	50169.9	97.18	PASS	70-125	29982.9	31473.6	95.26	PASS	70-125
N037117-004D	SAMP	1	44928.5	50169.9	89.55	PASS	70-125	27079	31473.6	86.037	PASS	70-125
N037117-004D	SAMP	5	49670.7	50169.9	99.005	PASS	70-125	30917	31473.6	98.23	PASS	70-125
N037117-005D	SAMP	1	46718.9	50169.9	93.12	PASS	70-125	28630.6	31473.6	90.97	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037117-005D	SAMP	5	47943.3	50169.9	95.56	PASS	70-125	29586.8	31473.6	94.005	PASS	70-125
N037117-008D	SAMP	1	42898.6	50169.9	85.51	PASS	70-125	25674.5	31473.6	81.57	PASS	70-125
N037117-008D	SAMP	5	48146.3	50169.9	95.97	PASS	70-125	29420.9	31473.6	93.48	PASS	70-125
CCV4	CCV	1	50578.1	50169.9	100.81	PASS	70-125	31105	31473.6	98.83	PASS	70-125
CCB4	CCB	1	49181.6	50169.9	98.03	PASS	70-125	29865	31473.6	94.89	PASS	70-125
N037144-001D	SAMP	1	41996.4	50169.9	83.71	PASS	70-125	25110.3	31473.6	79.78	PASS	70-125
N037144-001D	SAMP	5	47130	50169.9	93.94	PASS	70-125	28721.9	31473.6	91.26	PASS	70-125
N037144-002D	SAMP	1	43170.2	50169.9	86.048	PASS	70-125	25959.3	31473.6	82.48	PASS	70-125
N037144-002D	SAMP	5	47279.4	50169.9	94.24	PASS	70-125	29620.1	31473.6	94.11	PASS	70-125
N037144-003D	SAMP	1	43885.6	50169.9	87.47	PASS	70-125	25869.2	31473.6	82.19	PASS	70-125
N037144-003D	SAMP	5	47953.5	50169.9	95.58	PASS	70-125	28994.5	31473.6	92.12	PASS	70-125
N037144-004D	SAMP	1	44896.4	50169.9	89.49	PASS	70-125	26967.6	31473.6	85.68	PASS	70-125
N037144-004D	SAMP	5	48927.4	50169.9	97.52	PASS	70-125	29475.5	31473.6	93.65	PASS	70-125
N037147-001D	SAMP	1	44047.1	50169.9	87.8	PASS	70-125	26591.5	31473.6	84.49	PASS	70-125
N037147-001D	SAMP	5	48088.3	50169.9	95.85	PASS	70-125	29561.1	31473.6	93.92	PASS	70-125
CCV5	CCV	1	49289.6	50169.9	98.25	PASS	70-125	30416	31473.6	96.64	PASS	70-125
CCB5	CCB	1	48985.6	50169.9	97.64	PASS	70-125	30733.3	31473.6	97.65	PASS	70-125
N037147-002D	SAMP	1	44216.5	50169.9	88.13	PASS	70-125	26616	31473.6	84.57	PASS	70-125
N037147-002D	SAMP	5	47897.9	50169.9	95.47	PASS	70-125	29111.4	31473.6	92.49	PASS	70-125
N037117-002D	SAMP	5	47365.3	50169.9	94.41	PASS	70-125	29565.5	31473.6	93.94	PASS	70-125
N037117-003D	SAMP	5	46995.3	50169.9	93.67	PASS	70-125	28661.6	31473.6	91.066	PASS	70-125
N037117-008D	SAMP	5	46928.4	50169.9	93.54	PASS	70-125	28884.3	31473.6	91.77	PASS	70-125
CCV6	CCV	1	49359.6	50169.9	98.38	PASS	70-125	30610.8	31473.6	97.26	PASS	70-125
CCB6	CCB	1	48907.6	50169.9	97.48	PASS	70-125	30504.1	31473.6	96.92	PASS	70-125
ICSA3	ICSA	1	48460.5	50169.9	96.59	PASS	70-125	29901.8	31473.6	95.006	PASS	70-125
ICSAB3	ICSAB	1	49868	50169.9	99.4	PASS	70-125	30214.6	31473.6	96	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					6 Li (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	22801.2	22801.2	100	PASS	70-125	763384.3	763384.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	22720.1	22801.2	99.64	PASS	70-125	748668	763384.3	98.072	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	22634.4	22801.2	99.27	PASS	70-125	733862.3	763384.3	96.13	PASS	70-125
Std3-5/50 ppb	ICAL	1	22011.2	22801.2	96.54	PASS	70-125	717607.7	763384.3	94.004	PASS	70-125
Std4-10/100 ppb	ICAL	1	21535	22801.2	94.45	PASS	70-125	701191.8	763384.3	91.85	PASS	70-125
Std5-20/200 ppb	ICAL	1	21627.5	22801.2	94.85	PASS	70-125	696701.1	763384.3	91.26	PASS	70-125
Std6-40/400 ppb	ICAL	1	21358.1	22801.2	93.67	PASS	70-125	691456.1	763384.3	90.58	PASS	70-125
Std7-100/1000 ppb	ICAL	1	21341.6	22801.2	93.6	PASS	70-125	676662.8	763384.3	88.64	PASS	70-125
Std8-200/2000 ppb	ICAL	1	20556	22801.2	90.15	PASS	70-125	672911.3	763384.3	88.15	PASS	70-125
ICV	ICV	1	20609.3	22801.2	90.39	PASS	70-125	674677	763384.3	88.38	PASS	70-125
ICB	ICB	1	20122	22801.2	88.25	PASS	70-125	666082	763384.3	87.25	PASS	70-125
LLICV	CCV1	1	20054.2	22801.2	87.95	PASS	70-125	671250.9	763384.3	87.93	PASS	70-125
ICSA1	ICSA	1	20147.7	22801.2	88.36	PASS	70-125	675137.7	763384.3	88.44	PASS	70-125
ICSAB1	ICSAB	1	20789.5	22801.2	91.18	PASS	70-125	679360.4	763384.3	88.99	PASS	70-125
LLICV	CCV1	1	21447.2	22801.2	94.062	PASS	70-125	711073.3	763384.3	93.15	PASS	70-125
CCV1	CCV	1	22134.7	22801.2	97.077	PASS	70-125	713782.6	763384.3	93.5	PASS	70-125
CCB1	CCB	1	20614.9	22801.2	90.41	PASS	70-125	686763.8	763384.3	89.96	PASS	70-125
MB-75130	MBLK	1	21669.6	22801.2	95.037	PASS	70-125	700111.8	763384.3	91.71	PASS	70-125
CCV2	CCV	1	21120	22801.2	92.63	PASS	70-125	689038.7	763384.3	90.26	PASS	70-125
CCB2	CCB	1	20942	22801.2	91.85	PASS	70-125	665402.2	763384.3	87.16	PASS	70-125
LCS-75130	LCS	1	20390.3	22801.2	89.43	PASS	70-125	643206	763384.3	84.26	PASS	70-125
N037117-001D	SAMP	1	20926.4	22801.2	91.78	PASS	70-125	615256	763384.3	80.6	PASS	70-125
N037117-001D	SAMP	5	20632.7	22801.2	90.49	PASS	70-125	624949.4	763384.3	81.87	PASS	70-125
N037117-001D	SAMP	25	20912	22801.2	91.71	PASS	70-125	640782.2	763384.3	83.94	PASS	70-125
N037117-001D-PS	PS	1	20802.9	22801.2	91.24	PASS	70-125	616024	763384.3	80.7	PASS	70-125
N037117-001D-PS	PS	5	20687.2	22801.2	90.73	PASS	70-125	626824.7	763384.3	82.11	PASS	70-125
N037117-001D-MS	MS	1	21555.1	22801.2	94.53	PASS	70-125	624202.5	763384.3	81.77	PASS	70-125
N037117-001D-MS	MS	5	21076.7	22801.2	92.44	PASS	70-125	624977.4	763384.3	81.87	PASS	70-125
N037117-001D-MSD	MSD	1	21418.2	22801.2	93.93	PASS	70-125	620633.3	763384.3	81.3	PASS	70-125
N037117-001D-MSD	MSD	5	21240.2	22801.2	93.15	PASS	70-125	620762.4	763384.3	81.32	PASS	70-125
CCV3	CCV	1	20542.6	22801.2	90.094	PASS	70-125	640270.5	763384.3	83.87	PASS	70-125
CCB3	CCB	1	19891.8	22801.2	87.24	PASS	70-125	626280.6	763384.3	82.04	PASS	70-125
ICSA2	ICSA	1	20169.9	22801.2	88.46	PASS	70-125	630161.2	763384.3	82.55	PASS	70-125
ICSAB2	ICSAB	1	21522.8	22801.2	94.39	PASS	70-125	641850.3	763384.3	84.08	PASS	70-125
N037117-002D	SAMP	1	20582.7	22801.2	90.27	PASS	70-125	549258	763384.3	71.95	PASS	70-125
N037117-002D	SAMP	5	21858.9	22801.2	95.87	PASS	70-125	615381.1	763384.3	80.61	PASS	70-125
N037117-003D	SAMP	1	19829.4	22801.2	86.97	PASS	70-125	481332.8	763384.3	63.052	NR!	70-125
N037117-003D	SAMP	5	22202.5	22801.2	97.37	PASS	70-125	599319.2	763384.3	78.51	PASS	70-125
N037117-004D	SAMP	1	19923	22801.2	87.38	PASS	70-125	486291.1	763384.3	63.7	NR!	70-125
N037117-004D	SAMP	5	22932.7	22801.2	100.58	PASS	70-125	605420.9	763384.3	79.31	PASS	70-125
N037117-005D	SAMP	1	20768.4	22801.2	91.085	PASS	70-125	524363	763384.3	68.69	NR!	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					6 Li (ISTD) [3]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037117-005D	SAMP	5	22685.5	22801.2	99.49	PASS	70-125	611281.2	763384.3	80.075	PASS	70-125
N037117-008D	SAMP	1	19061.9	22801.2	83.6	PASS	70-125	428315	763384.3	56.11	NR!	70-125
N037117-008D	SAMP	5	22149.1	22801.2	97.14	PASS	70-125	583951	763384.3	76.5	PASS	70-125
CCV4	CCV	1	24054.1	22801.2	105.49	PASS	70-125	690119.6	763384.3	90.4	PASS	70-125
CCB4	CCB	1	22894.7	22801.2	100.41	PASS	70-125	683500.6	763384.3	89.54	PASS	70-125
N037144-001D	SAMP	1	18467.9	22801.2	81	PASS	70-125	307865.7	763384.3	40.33	NR!	70-125
N037144-001D	SAMP	5	21471.5	22801.2	94.17	PASS	70-125	539996.1	763384.3	70.74	PASS	70-125
N037144-002D	SAMP	1	18948.4	22801.2	83.1	PASS	70-125	341569.4	763384.3	44.74	NR!	70-125
N037144-002D	SAMP	5	22570.9	22801.2	98.99	PASS	70-125	559517.1	763384.3	73.29	PASS	70-125
N037144-003D	SAMP	1	18912.8	22801.2	82.95	PASS	70-125	364771	763384.3	47.78	NR!	70-125
N037144-003D	SAMP	5	22307.1	22801.2	97.83	PASS	70-125	548342.8	763384.3	71.83	PASS	70-125
N037144-004D	SAMP	1	20279	22801.2	88.94	PASS	70-125	413895.9	763384.3	54.22	NR!	70-125
N037144-004D	SAMP	5	22715.5	22801.2	99.62	PASS	70-125	560243	763384.3	73.39	PASS	70-125
N037147-001D	SAMP	1	19350	22801.2	84.86	PASS	70-125	368822.1	763384.3	48.31	NR!	70-125
N037147-001D	SAMP	5	22810.1	22801.2	100.04	PASS	70-125	544426	763384.3	71.32	PASS	70-125
CCV5	CCV	1	23870.6	22801.2	104.69	PASS	70-125	662173.8	763384.3	86.74	PASS	70-125
CCB5	CCB	1	23188.4	22801.2	101.7	PASS	70-125	663557.4	763384.3	86.92	PASS	70-125
N037147-002D	SAMP	1	19225.5	22801.2	84.32	PASS	70-125	401764.6	763384.3	52.63	NR!	70-125
N037147-002D	SAMP	5	22513	22801.2	98.74	PASS	70-125	548528.3	763384.3	71.85	PASS	70-125
N037117-002D	SAMP	5	22871.4	22801.2	100.31	PASS	70-125	587326.2	763384.3	76.94	PASS	70-125
N037117-003D	SAMP	5	21402.6	22801.2	93.87	PASS	70-125	540698.5	763384.3	70.83	PASS	70-125
N037117-008D	SAMP	5	21857.6	22801.2	95.86	PASS	70-125	542781	763384.3	71.1	PASS	70-125
CCV6	CCV	1	23215.1	22801.2	101.82	PASS	70-125	645252.8	763384.3	84.53	PASS	70-125
CCB6	CCB	1	22962.5	22801.2	100.71	PASS	70-125	645110.8	763384.3	84.51	PASS	70-125
ICSA3	ICSA	1	22292.7	22801.2	97.77	PASS	70-125	606423.2	763384.3	79.44	PASS	70-125
ICSAB3	ICSAB	1	22673.4	22801.2	99.44	PASS	70-125	612029.7	763384.3	80.17	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	772715.1	772715.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	785421.4	772715.1	101.64	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	770861.8	772715.1	99.76	PASS	70-125
Std3-5/50 ppb	ICAL	1	759295.7	772715.1	98.26	PASS	70-125
Std4-10/100 ppb	ICAL	1	750781.7	772715.1	97.16	PASS	70-125
Std5-20/200 ppb	ICAL	1	738784.9	772715.1	95.61	PASS	70-125
Std6-40/400 ppb	ICAL	1	733655.9	772715.1	94.95	PASS	70-125
Std7-100/1000 ppb	ICAL	1	728143.6	772715.1	94.23	PASS	70-125
Std8-200/2000 ppb	ICAL	1	723086.6	772715.1	93.58	PASS	70-125
ICV	ICV	1	724037.3	772715.1	93.7	PASS	70-125
ICB	ICB	1	718779.1	772715.1	93.02	PASS	70-125
LLICV	CCV1	1	709799.6	772715.1	91.86	PASS	70-125
ICSA1	ICSA	1	679040.4	772715.1	87.88	PASS	70-125
ICSAB1	ICSAB	1	687951.3	772715.1	89.03	PASS	70-125
LLICV	CCV1	1	753599.9	772715.1	97.53	PASS	70-125
CCV1	CCV	1	747596.2	772715.1	96.75	PASS	70-125
CCB1	CCB	1	725506.2	772715.1	93.89	PASS	70-125
MB-75130	MBLK	1	724086.8	772715.1	93.71	PASS	70-125
CCV2	CCV	1	724628.2	772715.1	93.78	PASS	70-125
CCB2	CCB	1	704155.6	772715.1	91.13	PASS	70-125
LCS-75130	LCS	1	696084.8	772715.1	90.083	PASS	70-125
N037117-001D	SAMP	1	650495.3	772715.1	84.18	PASS	70-125
N037117-001D	SAMP	5	663843.7	772715.1	85.91	PASS	70-125
N037117-001D	SAMP	25	683826.1	772715.1	88.5	PASS	70-125
N037117-001D-PS	PS	1	659845.9	772715.1	85.39	PASS	70-125
N037117-001D-PS	PS	5	664899.8	772715.1	86.047	PASS	70-125
N037117-001D-MS	MS	1	675406.5	772715.1	87.41	PASS	70-125
N037117-001D-MS	MS	5	675718.5	772715.1	87.45	PASS	70-125
N037117-001D-MSD	MSD	1	671215.3	772715.1	86.86	PASS	70-125
N037117-001D-MSD	MSD	5	666747.4	772715.1	86.29	PASS	70-125
CCV3	CCV	1	689001	772715.1	89.17	PASS	70-125
CCB3	CCB	1	681425.6	772715.1	88.19	PASS	70-125
ICSA2	ICSA	1	647362	772715.1	83.78	PASS	70-125
ICSAB2	ICSAB	1	667430	772715.1	86.37	PASS	70-125
N037117-002D	SAMP	1	621976.4	772715.1	80.49	PASS	70-125
N037117-002D	SAMP	5	669560.8	772715.1	86.65	PASS	70-125
N037117-003D	SAMP	1	592755.5	772715.1	76.71	PASS	70-125
N037117-003D	SAMP	5	677081.7	772715.1	87.62	PASS	70-125
N037117-004D	SAMP	1	601908.7	772715.1	77.9	PASS	70-125
N037117-004D	SAMP	5	687894.8	772715.1	89.023	PASS	70-125
N037117-005D	SAMP	1	634558	772715.1	82.12	PASS	70-125

INTERNAL STANDARD: 190906B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N037117-005D	SAMP	5	680041	772715.1	88.007	PASS	70-125
N037117-008D	SAMP	1	576910.7	772715.1	74.66	PASS	70-125
N037117-008D	SAMP	5	667455.3	772715.1	86.38	PASS	70-125
CCV4	CCV	1	752280.2	772715.1	97.36	PASS	70-125
CCB4	CCB	1	730825.5	772715.1	94.58	PASS	70-125
N037144-001D	SAMP	1	556597.6	772715.1	72.031	PASS	70-125
N037144-001D	SAMP	5	646234.3	772715.1	83.63	PASS	70-125
N037144-002D	SAMP	1	562687.8	772715.1	72.82	PASS	70-125
N037144-002D	SAMP	5	653736.3	772715.1	84.6	PASS	70-125
N037144-003D	SAMP	1	575172.1	772715.1	74.44	PASS	70-125
N037144-003D	SAMP	5	654649.5	772715.1	84.72	PASS	70-125
N037144-004D	SAMP	1	592002.3	772715.1	76.61	PASS	70-125
N037144-004D	SAMP	5	664579.4	772715.1	86.006	PASS	70-125
N037147-001D	SAMP	1	577773.9	772715.1	74.77	PASS	70-125
N037147-001D	SAMP	5	660956.7	772715.1	85.54	PASS	70-125
CCV5	CCV	1	724296.3	772715.1	93.73	PASS	70-125
CCB5	CCB	1	730627.2	772715.1	94.55	PASS	70-125
N037147-002D	SAMP	1	588919.7	772715.1	76.21	PASS	70-125
N037147-002D	SAMP	5	659901.1	772715.1	85.4	PASS	70-125
N037117-002D	SAMP	5	671883.5	772715.1	86.95	PASS	70-125
N037117-003D	SAMP	5	653130.4	772715.1	84.52	PASS	70-125
N037117-008D	SAMP	5	651320.8	772715.1	84.29	PASS	70-125
CCV6	CCV	1	735944.9	772715.1	95.24	PASS	70-125
CCB6	CCB	1	727324.3	772715.1	94.13	PASS	70-125
ICSA3	ICSA	1	677549.6	772715.1	87.68	PASS	70-125
ICSAB3	ICSAB	1	685907.1	772715.1	88.77	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037144
Test Method: EPA 6020
Analysis Date: 9/6/2019

Matrix: Groundwater
Batch No.: 75130

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr, Mo, Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037117-001D DT 5x	Chromium	Cr	µg/L	0	NA	0.4589559	100.00%	10
N037117-001D DT 5x	Arsenic	As	µg/L	3.966347	PASS	3.91489	1.31%	10
N037117-001D DT 5x	Molybdenum	Mo	µg/L	11.229	NA	11.3665	1.21%	10
N037117-001D DT 5x	Selenium	Se	µg/L	0	NA	0		10
N037117-001D DT 25x	Manganese	Mn	µg/L	484.0473	PASS	465.6117	3.96%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037117-001D-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506284

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.068	0.10	10.00	3.915	102	80	120				
Molybdenum	21.920	0.50	10.00	11.37	106	80	120				
Selenium	10.282	0.50	10.00	0	103	80	120				

Sample ID	N037117-001D-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136352
Client ID:	ZZZZZZ	Batch ID:	75130	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/7/2019	SeqNo:	3506285

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	580.732	2.5	100.0	465.6	115	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037144
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037117-001D-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136363**
Client ID:	**ZZZZZZ**	Batch ID: **75130**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/7/2019**	SeqNo: **3506361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.957	1.0	10.00	0.4590	95.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

September 13, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037145

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC sample N037187-001A-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Chromium in QC sample N037187-001A-MS since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N037145
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037145-001A	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-001B	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-001C	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-001D	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-002A	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019
N037145-002B	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019
N037145-002C	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019
N037145-002D	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037144-004BDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11200.000	0.10						11170	0.268	2	

Sample ID	**N037148-007DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	878.000	0.10						877.0	0.114	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-002

Client Sample ID: TW-03D-0819
Collection Date: 8/22/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037145-001CDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **136022**
Client ID: **ZZZZZZ**	Batch ID: **R136022**	TestNo: **SM4500-H+B**		Analysis Date: **8/23/2019**	SeqNo: **3489280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.470	0.10						7.450	0.268	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID **N037148-012DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **136022**
Client ID: **ZZZZZZ**	Batch ID: **R136022**	TestNo: **SM4500-H+B**		Analysis Date: **8/23/2019**	SeqNo: **3489294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.730	0.10						7.710	0.259	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190826E**	QC Batch: **75154**			PrepDate:	**8/26/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1500	17	17		mg/L	1	8/26/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190826E**	QC Batch: **75154**			PrepDate:	**8/26/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	8/26/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-75154**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **8/26/2019**	RunNo: **136130**
Client ID: **LCSW**	Batch ID: **75154**	TestNo: **SM2540C**		Analysis Date: **8/26/2019**	SeqNo: **3493872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	972.000	10	1000	0	97.2	80	120				

Sample ID **MB-75154**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **8/26/2019**	RunNo: **136130**
Client ID: **PBW**	Batch ID: **75154**	TestNo: **SM2540C**		Analysis Date: **8/26/2019**	SeqNo: **3493873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N037107-008ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **8/26/2019**	RunNo: **136130**
Client ID: **ZZZZZZ**	Batch ID: **75154**	TestNo: **SM2540C**		Analysis Date: **8/26/2019**	SeqNo: **3493882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	7350.000	100						7680	4.39	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190827F**	QC Batch: **75156**				PrepDate:	**8/26/2019**	Analyst: **CEI**
Calcium	110000	85	500		µg/L	1	8/27/2019 04:20 PM
Iron	47	18	20		µg/L	1	8/27/2019 04:20 PM
Magnesium	30000	48	100		µg/L	1	8/27/2019 04:20 PM
Sodium	290000	2400	12000		µg/L	25	9/10/2019 03:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-002

Client Sample ID: TW-03D-0819
Collection Date: 8/22/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190827F**	QC Batch: **75156**				PrepDate:	**8/26/2019**	Analyst: **CEI**
Calcium	190000	85	500		µg/L	1	8/27/2019 04:26 PM
Iron	ND	18	20		µg/L	1	8/27/2019 04:26 PM
Magnesium	26000	48	100		µg/L	1	8/27/2019 04:26 PM
Sodium	1400000	4800	25000		µg/L	50	9/10/2019 04:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-75156**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136174**
Client ID: **PBW**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS1-75156**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136174**
Client ID: **LCSW**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9991.025	500	10000	0	99.9	85	115				
Iron	105.817	20	100.0	0	106	85	115				
Magnesium	9957.849	100	10000	0	99.6	85	115				

Sample ID **N037187-001A-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136174**
Client ID: **ZZZZZZ**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	94068.380	500	10000	83300	108	75	125				
Iron	298.457	20	100.0	212.4	86.1	75	125				
Magnesium	18238.802	100	10000	8939	93.0	75	125				

Sample ID **N037187-001A-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136174**
Client ID: **ZZZZZZ**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	94077.011	500	10000	83300	108	75	125	94070	0.00918	20	
Iron	286.713	20	100.0	212.4	74.3	75	125	298.5	4.01	20	S
Magnesium	18274.617	100	10000	8939	93.4	75	125	18240	0.196	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-75156	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	PBW	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508780

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID	LCS2-75156	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	LCSW	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508781

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19504.883	500	20000	0	97.5	85	115				

Sample ID	N037145-001B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508787

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	309064.452	12000	20000	288600	102	75	125				

Sample ID	N037145-001B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508788

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	309714.014	12000	20000	288600	106	75	125	309100	0.210	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037187-001A-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136174**
Client ID: **ZZZZZZ**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	94095.011	500	10000	83300	108	80	120				
Iron	272.525	20	100.0	212.4	60.1	80	120				S
Magnesium	18294.695	100	10000	8939	93.6	80	120				

Sample ID **N037145-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ZZZZZZ**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	309089.822	12000	20000	288600	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190826D**	QC Batch: **75157**			PrepDate:	**8/26/2019**		Analyst: **CEI**
Manganese	390	1.3	2.5		µg/L	5	8/26/2019 09:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190826D**	QC Batch: **75157**			PrepDate:	**8/26/2019**		Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	8/26/2019 09:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-75157**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **PBW**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **LCS-75157**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **LCSW**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	102.742	0.50	100.0	0	103	85	115				

Sample ID **N037187-001A-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **ZZZZZZ**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	167.734	0.50	100.0	69.97	97.8	75	125				

Sample ID **N037187-001A-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **ZZZZZZ**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	168.209	0.50	100.0	69.97	98.2	75	125	167.7	0.282	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A**	QC Batch: **R136209**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/30/2019 03:25 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190826D**	QC Batch: **75157**			PrepDate:	**8/26/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	8/26/2019 09:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	410	1.7	10		µg/L	50	9/3/2019 12:43 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190826D**	QC Batch: **75157**			PrepDate:	**8/26/2019**		Analyst: **CEI**
Chromium	430	0.65	5.0		µg/L	5	8/26/2019 09:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-75157	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	PBW	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494270

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75157	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	LCSW	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494271

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.122	1.0	10.00	0	101	85	115				

Sample ID	N037187-001A-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	ZZZZZZ	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494277

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	118.822	1.0	10.00	111.3	74.9	75	125				S

Sample ID	N037187-001A-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	ZZZZZZ	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494279

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	119.249	1.0	10.00	111.3	79.2	75	125	118.8	0.359	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136209	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	PBW	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497258

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136209	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	LCSW	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497259

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.793	0.20	5.000	0	95.9	90	110				

Sample ID	N037240-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497260

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.209	0.20	1.000	0.2223	98.7	90	110				

Sample ID	N037142-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497261

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID	N037240-001BMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497263

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.190	0.20	1.000	0.2223	96.8	90	110	1.209	1.59	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037142-002ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N037145-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Sample ID **N037143-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	64.770	1.0	25.00	39.93	99.4	90	110				

Sample ID **N037144-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.080	1.0	5.000	0	102	90	110				

Sample ID **N037144-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.018	1.0	5.000	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037144-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	45.064	1.0	25.00	20.41	98.6	90	110				

Sample ID **N037144-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	142.663	2.0	50.00	92.79	99.8	90	110				

Sample ID **N037140-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID **N037143-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Sample ID **N037178-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037180-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499019

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.043	0.20	1.000	0	104	90	110				

Sample ID	N037181-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3499021

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.225	0.20	1.000	0.2093	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136330	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	PBW	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504709

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136330	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	LCSW	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504710

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.873	0.20	5.000	0	97.5	90	110				

Sample ID	N037176-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504711

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.978	0.20	1.000	0	97.8	90	110				

Sample ID	N037176-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504712

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.003	0.20	1.000	0	100	90	110				

Sample ID	N037176-005AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504717

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.001	0.20	1.000	0	100	90	110	0.9784	2.25	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037176-005ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID	N037145-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504721

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	660.540	10	250.0	414.5	98.4	90	110				

Sample ID	N037148-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504722

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0	108	90	110				

Sample ID	N037148-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0.09720	98.2	90	110				

Sample ID	N037148-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504727

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.054	0.20	1.000	0	105	90	110				

Sample ID	N037148-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Sample ID	N037148-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504729

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.052	0.20	1.000	0	105	90	110				

Sample ID	N037148-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504730

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.039	0.20	1.000	0.04020	99.8	90	110				

Sample ID	N037148-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504731

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.047	0.20	1.000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504732

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.065	0.20	1.000	0	107	90	110				

Sample ID	N037147-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504733

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.961	0.20	1.000	0	96.1	90	110				

Sample ID	N037181-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504734

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2518.560	40	1000	1526	99.2	90	110				

Sample ID	N037148-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID	N037148-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504751

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504753

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.953	0.20	1.000	0	95.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **N037187-001A-PS**	SampType: **PS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:				RunNo: **136139**	
Client ID: **ZZZZZZ**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**				SeqNo: **3494275**	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	116.085	1.0	10.00	111.3	47.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190828E**	QC Batch: **R136163**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	8/28/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190828E**	QC Batch: **R136163**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	8/28/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R136163**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **LCSW**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496400**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	96.983	5.0	100.0	0	97.0	85	115				

Sample ID **MB-R136163**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **PBW**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496401**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N037117-001ADUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **ZZZZZZ**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496403**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	251.078	5.0						250.0	0.430	30	

Sample ID **N037117-003AMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **ZZZZZZ**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496406**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	157.328	5.0	100.0	56.03	101	75	125				

Sample ID **N037117-003AMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **ZZZZZZ**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496407**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	157.328	5.0	100.0	56.03	101	75	125	157.3	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A** QC Batch: **R136368**				PrepDate:			Analyst: **HG**
Chloride	510	3.5	50		mg/L	100	9/9/2019 10:46 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A** QC Batch: **R136368**				PrepDate:			Analyst: **HG**
Sulfate	260	2.0	25		mg/L	50	9/9/2019 10:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A**	QC Batch: **R136368**			PrepDate:			Analyst: **HG**
Chloride	2000	17	250		mg/L	500	9/9/2019 11:20 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A**	QC Batch: **R136368**			PrepDate:			Analyst: **HG**
Sulfate	480	2.0	25		mg/L	50	9/9/2019 11:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R136368_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	PBW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507656

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.105	0.50									

Sample ID	LCS-R136368_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	LCSW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507657

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.011	0.50	2.000	0	101	90	110				

Sample ID	N037107-007AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507661

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3577.600	250	1000	2619	95.9	80	120				

Sample ID	N037147-001ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507667

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3487.300	500						3445	1.23	20	

Sample ID	N037147-002AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507668

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5372.800	500	2000	3414	98.0	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	N037147-002AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507669

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5382.300	500	2000	3414	98.4	80	120	5373	0.177	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136368_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	PBW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507713

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R136368_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	LCSW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507714

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.038	0.50	4.000	0	101	90	110				

Sample ID	N037147-001ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507721

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	998.020	50						994.3	0.377	20	

Sample ID	N037147-002AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507722

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	700.635	25	200.0	501.1	99.8	80	120				

Sample ID	N037147-002AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	695.865	25	200.0	501.1	97.4	80	120	700.6	0.683	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136435	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	PBW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510868

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136435	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	LCSW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	N037097-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510871

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.226	0.050						0.2364	4.37	20	

Sample ID	N037107-005BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	14.132	0.50	5.000	7.904	125	75	125				

Sample ID	N037107-005BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510874

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.750	0.50	5.000	7.904	96.9	75	125	14.13	10.3	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Others ✓ (Specify: RWQCB)
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RWQCB ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 4
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Riggie Tap		Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech	Phone: 916-786-3302 Fax:		Global ID:
Signature: Date: 8/22/19	Sampled By: Andrew Thom		Specify State:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		6. Method of Cooling: ICE; Sample Temp: 3.9
Project Name: PG&E Topock - PMP	Signature: Date: 08/22/19		Courier: Tracking No.:
Project Number: RC000753.801D			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite as Nitogen (SM4500NO3); H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037145-01 •	PE-01-0819	8/22/2019	~~11:00~~ 1210	(1)	X	X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02 •	TW-03D-0819	8/22/2019	12:25		X	X	X			X	X	X	X	X		X	E	4	P	BN	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
R. Riggie Tap	8/22/19 1600	Jose DAN	8/22/19 1600
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages. 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/22/2019	Workorder:	N037145
Rep sample Temp (Deg C):	3.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 8/28/2019

Reviewed By: LG 090519

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037145

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037145-001A	PE-01-0819	8/22/2019 12:10:00 PM	9/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037145-001B			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037145-001C			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/6/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037145-001D			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037145-002A	TW-03D-0819	8/22/2019 12:25:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037145-002B			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037145-002C			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037145

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037145-002C	TW-03D-0819	8/22/2019 12:25:00 PM	9/6/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/6/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037145-002D			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037145-003A	FOLDER	9/6/2019	9/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N037145

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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September 13, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037145

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N037145

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC sample N037187-001A-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) is outside recovery criteria for Chromium in QC sample N037187-001A-MS since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *13-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N037145
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037145-001A	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-001B	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-001C	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-001D	PE-01-0819	Groundwater	8/22/2019 12:10:00 PM	8/22/2019	9/13/2019
N037145-002A	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019
N037145-002B	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019
N037145-002C	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019
N037145-002D	TW-03D-0819	Groundwater	8/22/2019 12:25:00 PM	8/22/2019	9/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037144-004BDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11200.000	0.10						11170	0.268	2	

Sample ID	**N037148-007DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	878.000	0.10						877.0	0.114	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037145-001CDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **136022**
Client ID: **ZZZZZZ**	Batch ID: **R136022**	TestNo: **SM4500-H+B**		Analysis Date: **8/23/2019**	SeqNo: **3489280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.470	0.10						7.450	0.268	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID **N037148-012DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **136022**
Client ID: **ZZZZZZ**	Batch ID: **R136022**	TestNo: **SM4500-H+B**		Analysis Date: **8/23/2019**	SeqNo: **3489294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.730	0.10						7.710	0.259	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190826E**	QC Batch: **75154**			PrepDate:	**8/26/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1500	17	17		mg/L	1	8/26/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190826E**	QC Batch: **75154**			PrepDate:	**8/26/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	8/26/2019 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	LCS-75154	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136130
Client ID:	LCSW	Batch ID:	75154	TestNo:	SM2540C			Analysis Date:	8/26/2019	SeqNo:	3493872

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	972.000	10	1000	0	97.2	80	120				

Sample ID	MB-75154	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136130
Client ID:	PBW	Batch ID:	75154	TestNo:	SM2540C			Analysis Date:	8/26/2019	SeqNo:	3493873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID	N037107-008ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136130
Client ID:	ZZZZZZ	Batch ID:	75154	TestNo:	SM2540C			Analysis Date:	8/26/2019	SeqNo:	3493882

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	7350.000	100						7680	4.39	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190827F**	QC Batch: **75156**				PrepDate:	**8/26/2019**	Analyst: **CEI**
Calcium	110000	85	500		µg/L	1	8/27/2019 04:20 PM
Iron	47	18	20		µg/L	1	8/27/2019 04:20 PM
Magnesium	30000	48	100		µg/L	1	8/27/2019 04:20 PM
Sodium	290000	2400	12000		µg/L	25	9/10/2019 03:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-002

Client Sample ID: TW-03D-0819
Collection Date: 8/22/2019 12:25:00 PM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP

EPA 200.7

RunID: **NV00922-ICP2_190827F** QC Batch: **75156** PrepDate: **8/26/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Calcium	190000	85	500		µg/L	1	8/27/2019 04:26 PM
Iron	ND	18	20		µg/L	1	8/27/2019 04:26 PM
Magnesium	26000	48	100		µg/L	1	8/27/2019 04:26 PM
Sodium	1400000	4800	25000		µg/L	50	9/10/2019 04:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-75156** SampType: **MBLK** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/26/2019** RunNo: **136174**
Client ID: **PBW** Batch ID: **75156** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS1-75156** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/26/2019** RunNo: **136174**
Client ID: **LCSW** Batch ID: **75156** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9991.025	500	10000	0	99.9	85	115				
Iron	105.817	20	100.0	0	106	85	115				
Magnesium	9957.849	100	10000	0	99.6	85	115				

Sample ID **N037187-001A-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/26/2019** RunNo: **136174**
Client ID: **ZZZZZZ** Batch ID: **75156** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	94068.380	500	10000	83300	108	75	125				
Iron	298.457	20	100.0	212.4	86.1	75	125				
Magnesium	18238.802	100	10000	8939	93.0	75	125				

Sample ID **N037187-001A-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/26/2019** RunNo: **136174**
Client ID: **ZZZZZZ** Batch ID: **75156** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	94077.011	500	10000	83300	108	75	125	94070	0.00918	20	
Iron	286.713	20	100.0	212.4	74.3	75	125	298.5	4.01	20	S
Magnesium	18274.617	100	10000	8939	93.4	75	125	18240	0.196	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-75156	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	PBW	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508780

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID	LCS2-75156	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	LCSW	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508781

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19504.883	500	20000	0	97.5	85	115				

Sample ID	N037145-001B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508787

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	309064.452	12000	20000	288600	102	75	125				

Sample ID	N037145-001B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75156	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508788

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	309714.014	12000	20000	288600	106	75	125	309100	0.210	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037187-001A-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136174**
Client ID: **ZZZZZZ**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	94095.011	500	10000	83300	108	80	120				
Iron	272.525	20	100.0	212.4	60.1	80	120				S
Magnesium	18294.695	100	10000	8939	93.6	80	120				

Sample ID **N037145-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ZZZZZZ**	Batch ID: **75156**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	309089.822	12000	20000	288600	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190826D** QC Batch: **75157** PrepDate: **8/26/2019** Analyst: **CEI**							
Manganese	390	1.3	2.5		µg/L	5	8/26/2019 09:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190826D**	QC Batch: **75157**			PrepDate:	**8/26/2019**		Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	8/26/2019 09:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-75157**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **PBW**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **LCS-75157**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **LCSW**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	102.742	0.50	100.0	0	103	85	115				

Sample ID **N037187-001A-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **ZZZZZZ**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	167.734	0.50	100.0	69.97	97.8	75	125				

Sample ID **N037187-001A-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/26/2019**	RunNo: **136139**
Client ID: **ZZZZZZ**	Batch ID: **75157**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	168.209	0.50	100.0	69.97	98.2	75	125	167.7	0.282	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190830A** QC Batch: **R136209**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/30/2019 03:25 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190826D** QC Batch: **75157**				PrepDate:	**8/26/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	8/26/2019 09:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-002

Client Sample ID: TW-03D-0819
Collection Date: 8/22/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	410	1.7	10		µg/L	50	9/3/2019 12:43 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190826D** QC Batch: **75157**				PrepDate:	**8/26/2019**		Analyst: **CEI**
Chromium	430	0.65	5.0		µg/L	5	8/26/2019 09:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-75157	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	PBW	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494270

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75157	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	LCSW	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494271

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.122	1.0	10.00	0	101	85	115				

Sample ID	N037187-001A-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	ZZZZZZ	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494277

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	118.822	1.0	10.00	111.3	74.9	75	125				S

Sample ID	N037187-001A-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/26/2019	RunNo:	136139
Client ID:	ZZZZZZ	Batch ID:	75157	TestNo:	EPA 200.8			Analysis Date:	8/26/2019	SeqNo:	3494279

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	119.249	1.0	10.00	111.3	79.2	75	125	118.8	0.359	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136209	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	PBW	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497258

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136209	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	LCSW	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497259

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.793	0.20	5.000	0	95.9	90	110				

Sample ID	N037240-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497260

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.209	0.20	1.000	0.2223	98.7	90	110				

Sample ID	N037142-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497261

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID	N037240-001BMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136209
Client ID:	ZZZZZZ	Batch ID:	R136209	TestNo:	EPA 218.6			Analysis Date:	8/30/2019	SeqNo:	3497263

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.190	0.20	1.000	0.2223	96.8	90	110	1.209	1.59	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037142-002ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N037145-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Sample ID **N037143-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	64.770	1.0	25.00	39.93	99.4	90	110				

Sample ID **N037144-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.080	1.0	5.000	0	102	90	110				

Sample ID **N037144-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.018	1.0	5.000	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037144-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	45.064	1.0	25.00	20.41	98.6	90	110				

Sample ID **N037144-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	142.663	2.0	50.00	92.79	99.8	90	110				

Sample ID **N037140-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID **N037143-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Sample ID **N037178-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **ZZZZZZ** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037180-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499019**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.043	0.20	1.000	0	104	90	110				

Sample ID **N037181-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.225	0.20	1.000	0.2093	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136330	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330		
Client ID:	PBW	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504709		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		ND	0.20										

Sample ID	LCS-R136330	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330		
Client ID:	LCSW	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504710		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		4.873	0.20	5.000	0	97.5	90	110					

Sample ID	N037176-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330		
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504711		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		0.978	0.20	1.000	0	97.8	90	110					

Sample ID	N037176-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330		
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504712		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		1.003	0.20	1.000	0	100	90	110					

Sample ID	N037176-005AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330		
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504717		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		1.001	0.20	1.000	0	100	90	110	0.9784	2.25	20		

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037176-005ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID	N037145-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504721

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	660.540	10	250.0	414.5	98.4	90	110				

Sample ID	N037148-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504722

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0	108	90	110				

Sample ID	N037148-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0.09720	98.2	90	110				

Sample ID	N037148-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504727

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.054	0.20	1.000	0	105	90	110				

Sample ID	N037148-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Sample ID	N037148-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504729

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.052	0.20	1.000	0	105	90	110				

Sample ID	N037148-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504730

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.039	0.20	1.000	0.04020	99.8	90	110				

Sample ID	N037148-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504731

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.047	0.20	1.000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:				RunNo:	136330	
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019			SeqNo:	3504732	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Hexavalent Chromium	1.065	0.20	1.000	0	107	90	110							

Sample ID	N037147-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:				RunNo:	136330	
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019			SeqNo:	3504733	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Hexavalent Chromium	0.961	0.20	1.000	0	96.1	90	110							

Sample ID	N037181-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:				RunNo:	136330	
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019			SeqNo:	3504734	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Hexavalent Chromium	2518.560	40	1000	1526	99.2	90	110							

Sample ID	N037148-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:				RunNo:	136330	
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019			SeqNo:	3504750	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110							

Sample ID	N037148-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:				RunNo:	136330	
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019			SeqNo:	3504751	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110							

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504753

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.953	0.20	1.000	0	95.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **N037187-001A-PS** SampType: **PS** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **ZZZZZZ** Batch ID: **75157** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	116.085	1.0	10.00	111.3	47.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190828E**	QC Batch: **R136163**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	8/28/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190828E**	QC Batch: **R136163**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	8/28/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R136163**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **LCSW**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496400**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	96.983	5.0	100.0	0	97.0	85	115				

Sample ID **MB-R136163**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **PBW**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496401**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N037117-001ADUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **ZZZZZZ**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496403**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	251.078	5.0						250.0	0.430	30	

Sample ID **N037117-003AMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **ZZZZZZ**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496406**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	157.328	5.0	100.0	56.03	101	75	125				

Sample ID **N037117-003AMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136163**			
Client ID: **ZZZZZZ**	Batch ID: **R136163**	TestNo: **SM 2320 B**		Analysis Date: **8/28/2019**			SeqNo: **3496407**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	157.328	5.0	100.0	56.03	101	75	125	157.3	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037145
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037145-001

Client Sample ID: PE-01-0819
Collection Date: 8/22/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A** QC Batch: **R136368**				PrepDate:			Analyst: **HG**
Chloride	510	3.5	50		mg/L	100	9/9/2019 10:46 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A** QC Batch: **R136368**				PrepDate:			Analyst: **HG**
Sulfate	260	2.0	25		mg/L	50	9/9/2019 10:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A** QC Batch: **R136368**				PrepDate:			Analyst: **HG**
Chloride	2000	17	250		mg/L	500	9/9/2019 11:20 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190909A** QC Batch: **R136368**				PrepDate:			Analyst: **HG**
Sulfate	480	2.0	25		mg/L	50	9/9/2019 11:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R136368_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	PBW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507656

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.105	0.50									

Sample ID	LCS-R136368_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	LCSW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507657

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.011	0.50	2.000	0	101	90	110				

Sample ID	N037107-007AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507661

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3577.600	250	1000	2619	95.9	80	120				

Sample ID	N037147-001ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507667

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3487.300	500						3445	1.23	20	

Sample ID	N037147-002AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507668

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5372.800	500	2000	3414	98.0	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	N037147-002AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507669

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5382.300	500	2000	3414	98.4	80	120	5373	0.177	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136368_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	PBW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507713

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R136368_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	LCSW	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507714

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.038	0.50	4.000	0	101	90	110				

Sample ID	N037147-001ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507721

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	998.020	50						994.3	0.377	20	

Sample ID	N037147-002AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507722

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	700.635	25	200.0	501.1	99.8	80	120				

Sample ID	N037147-002AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136368
Client ID:	ZZZZZZ	Batch ID:	R136368	TestNo:	EPA 300.0			Analysis Date:	9/9/2019	SeqNo:	3507723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	695.865	25	200.0	501.1	97.4	80	120	700.6	0.683	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:10:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0819
Lab Order:	N037145	**Collection Date:**	8/22/2019 12:25:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037145-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136435	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	PBW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510868

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136435	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	LCSW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	N037097-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510871

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.226	0.050						0.2364	4.37	20	

Sample ID	N037107-005BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	14.132	0.50	5.000	7.904	125	75	125				

Sample ID	N037107-005BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510874

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.750	0.50	5.000	7.904	96.9	75	125	14.13	10.3	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y / N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Riggie Tap		P.O.# SWA-ASSET-C9817-051	Others ✓	LEVEL III	3. Container Intact
Title: Field Tech	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date: 8/22/19	Sampled By: Andrew Pham		Global ID:	Regulatory	5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.			Specify State:	6. Method of Cooling: ICE
Project Name: PG&E Topock - PMP	Signature:	Date: 08/22/19			Sample Temp: 3.9
Project Number: RC000753.801D					Courier: Tracking No.:

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite as Nitogen (SM4500NO3); H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037145-01 •	PE-01-0819	8/22/2019	~~11:00~~ 1210	(1)	X	X	X			X	X	X	X	X		X	E	4	P	BN
2	-02 •	TW-03D-0819	8/22/2019	12:25		X	X	X			X	X	X	X	X		X	E	4	P	BN
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
R. Riggie Tap	8/22/19 1600	Jose DAN	8/22/19 1600
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages. 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/22/2019	Workorder:	N037145
Rep sample Temp (Deg C):	3.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 8/28/2019

Reviewed By: LG 090519

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037145

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037145-001A	PE-01-0819	8/22/2019 12:10:00 PM	9/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037145-001B			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037145-001C			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/6/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037145-001D			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037145-002A	TW-03D-0819	8/22/2019 12:25:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037145-002B			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/6/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037145-002C			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037145

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 8/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037145-002C	TW-03D-0819	8/22/2019 12:25:00 PM	9/6/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/6/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/6/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037145-002D			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037145-003A	FOLDER	9/6/2019	9/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037145

NAME	TEST METHOD
Claire Ignacio	EPA 200.7_Dissolved, EPA 200.8_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B
Hanah Glodoviza	EPA 300.0
Heather Hammond	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136023 **Analyst:** LSR

ASSET #: N037145 **Date Analyzed:** 23-Aug

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/30/2019

2nd Level Reviewer: 9/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 8/23/19 1055

Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 mS/cm	CINV-190516A	10.06 @22.4°C	% Rec: (90-110%)
1410	190724D	1408 @22.3°C	
9985	190724F	9940 @22.3°C	
99999	190613A	100900 @22.2°C	

	Sample ID	Matrix	Reading	Comments
1	NB7144-1B	H_2O	15290 @23.1°C	
2	2B		13700 @22.9°C	
3	3B		12810 @22.8°C	
4	4B		11170 @22.8°C	
5	4BDUP		11200 @23.0°C	
6	NB7145-1C		2370* @24.0°C	
7	2C		6930 @23.7°C	
8	NB7148-1D		869 @23.3°C	
9	2D		860 @22.9°C	
10	3D		859 @22.8°C	
Dup	4D		865 @22.8°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 8/30/2019

Date:

Analyst: CONT'D

Standard	Std ID	Reading	Comments
1413 mS/cm	CINV-190313A	1425 @25.5°C	% Rec: (90-110%)
10000	B	9940 @25.4°C	
99999	CINV-190524A	98000 @25.6°C	

	Sample ID	Matrix	Reading	Comments
1	NB7148-5D	H_2O	874 @23.4°C	
2	6D		873 @23.3°C	
3	7D		877 @23.1°C	
4	7DDUP		878 @23.1°C	
5	8D		871 @23.5°C	
6	9D		875 @23.3°C	
7	10D		881 @23.4°C	
8	11D		879 @23.6°C	
9	12D		896 @23.6°C	
10	1413 mS/cm	CINV-190313A	1424 @25.7°C	
Dup	10000	B	9950 @26.8°C	RPD Criteria: 2%
	Std Chk 99999	CINV-190524A	98000 @26.9°C	% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136022 **Instrument ID:** pH meter

ASSET #: N037145 **Analyst:** LSR

Date Analyzed: 23-Aug

Method: EPA 150.1

pH Meter Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?	X					
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 8/29/2019

2nd Level Reviewer NS 9/6/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 8/27/19 1000
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CNW-190724H	7.03 @25°C	
Buffer 4	190724J	4.03 @25°C	
Buffer 10	190801A	10.02 @25°C	
Slope		98.5%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB57145-1C	H2O	7.45 @25°C	
2	1CDUP		7.47 @25°C	
3	2C		7.15 @25°C	
4	NB57148-1D		8.00 @25°C	
5	2D		7.98 @25°C	
6	3D		8.06 @25°C	
7	4D		7.99 @25°C	
8	5D		7.99 @25°C	
9	6D		7.98 @25°C	
10	7D		7.98 @25°C	
~~Dup~~	8D		7.91 @25°C	Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CNW-190422C	6.96 @25°C	Accept: +/-0.05 pH units from expected value

Silvia Ramit 8/29/2019

Date:
Analyst: CONT'D

Standard	Std ID	pH	Comments
Buffer 7			
Buffer 4			
Buffer 10			
Slope			Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB57148-9D	H2O	7.93 @25°C	
2	10D		7.96 @25°C	
3	11D		8.03 @25°C	
4	12D		7.71 @25°C	
5	12DDUP		7.73 @25°C	
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CNW-190422C	6.97 @25°C	Accept: +/-0.05 pH units from expected value

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SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75154 **Analyst:** LSR

ASSET #: N037145 **Date Analyzed:** 26-Aug

Method: EPA 160.1 / SM 2540C

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/3/2019

2nd Level Reviewer: 9/13/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N037145-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(48.1937-48.1032)*1000000}{60}$$
$$= 1508.3333 \text{ mg/L}$$

Reporting result in two significant figures,

TDS=1500 mg/L

Sirisha Ramisetty 9/3/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 1:15:55 P**
Prep End Date: **8/27/2019 1:05:00 P**

Reviewed/ Date: 9/13/2019

Initials/ Date: Lilia Ramit 9/3/2019

Prep Batch **75154** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75154	Water		100	☐	100	1.000		
MB-75154	Water		100	☐	100	1.000		
N037107-001A	Groundwater		75	☐	100	1.333		
N037107-002A	Groundwater		20	☐	100	5.000		
N037107-003A	Groundwater		20	☐	100	5.000		
N037107-004A	Groundwater		10	☐	100	10.000		
N037107-005A	Groundwater		75	☐	100	1.333		
N037107-006A	Groundwater		30	☐	100	3.333		
N037107-007A	Groundwater		20	☐	100	5.000		
N037107-008A	Groundwater		10	☐	100	10.000		
N037107-008A-DU	Groundwater		10	☐	100	10.000		
N037145-001C	Groundwater		60	☐	100	1.667		
N037145-002C	Groundwater		20	☐	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10417	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190819A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 1:15:55 P**
Prep End Date:

Reviewed/ Date: _____

Initials/ Date: Lilia Ramit 9/3/2019

Prep Batch **75154** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Sample ID	Matrix	~~pH~~ Cond	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75154	Water	lwst190219A	100	☐	100	1.000		
MB-75154	Water		100	☐	100	1.000		
N037107-001A	Groundwater	1882	100	175 ☐	100	1.000		
N037107-002A	Groundwater	6080	100	20 ☐	100	1.000		
N037107-003A	Groundwater	~~7640~~ 9870	100	20 ☐	100	1.000		
N037107-004A	Groundwater	~~7640~~ dil 20	100	10 ☐	100	1.000		
N037107-005A	Groundwater	1720	100	175 ☐	100	1.000		
N037107-006A	Groundwater	4880	100	30 ☐	100	1.000		
N037107-007A	Groundwater	7860	100	20 ☐	100	1.000		
N037107-008A	Groundwater	11900	100	10 ☐	100	1.000		
N037107-008A-DU	Groundwater	1	100	10 ☐	100	1.000		
N037145-001C	Groundwater	2370	100	60 ☐	100	1.000		
N037145-002C	Groundwater	6930	100	20 ☐	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10417

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19 1315 KK	MB 75154	100	70.0812 70.0814	70.0816 70.0815	Un
1A	Lcs 75154	100	76.4126 76.4129	76.5105 76.5101	
a	NO3 7107-1A	75	69.7355 69.7358	69.8278 69.8276	
V	2A	20	48.8499 48.8502	48.9488 48.9488	
K	3A	20	60.5776 60.5779	60.6872 60.6869	1
K1	4A	10	47.9756 47.9758	48.0466 48.0463	
EE	5A	75	63.8369 63.8372	63.9200 63.9187	
T	6 8A	30	46.0201 46.0205	46.1340 46.1344	
F	7A	20	60.7303 60.7307	60.8412 60.8410	
W	8A	10	49.8393 49.8395	49.9165 49.9163	

Julia Ramit 9/9/2019

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SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19 U	N037107-8A DUP	10	48.0208 48.0210	48.0944 48.0945	WR
R	N037145-1C	60	48.1030 48.1032	48.1935 48.1937	|
X	| 2C	20	50.9865 50.9868	51.0727 51.0728	| -
					1
	Julia Ramit		9/3/2019		

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TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
8/27/2019									
MB-75154	100	70.0814	70.0815	1	1	1			MBLK
LCS-75154	100	76.4129	76.5101	972	1	972			LCS
N037107-001A	75	69.7358	69.8276	918	1.33333333	1224	1882	0.650	SAMP
N037107-002A	20	48.8502	48.9488	986	5	4930	6080	0.811	SAMP
N037107-003A	20	60.5779	60.6869	1090	5	5450	7640	0.713	SAMP
N037107-004A	10	47.9758	48.0463	705	10	7050	9870	0.714	SAMP
N037107-005A	75	63.8372	63.9197	825	1.33333333	1100	1720	0.640	SAMP
N037107-006A	30	46.0205	46.1344	1139	3.33333333	3796.66667	4880	0.778	SAMP
N037107-007A	20	60.7307	60.841	1103	5	5515	7860	0.702	SAMP
N037107-008A	10	49.8395	49.9163	768	10	7680	11900	0.645	SAMP
N037107-008ADUP	10	48.021	48.0945	735	10	7350	11900	0.618	DUP
N037145-001C	60	48.1032	48.1937	905	1.66666667	1508.33333	2370	0.636	SAMP
N037145-002C	20	50.9868	51.0728	860	5	4300	6930	0.620	SAMP

Silvia Ramit 9/9/2019

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75156
ASSET #: N037145
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/27/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Fe in N037187-001A-PS/MSD failed, low bias. However, LCS passed criteria.
Dilution test for Mg failed. However, PS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 8/31/2019

2nd Level Reviewer NS 8/31/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75156
ASSET #: N037145
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/10/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N037145-001B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.04725 * 1 *(25/25) * 1000

Iron , ug/L = 47.25

Reporting results in two significant figures,

Iron , ug/L = 47

NS 9/26/2019

% RSD SUMMARY

RSD SUMMARY: 190827A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Ca	0	7.81	15	PASS
Standard1	ICAL	1	Ca	0.2	16.68	15	<PQL
Standard2	ICAL	1	Ca	1	4.15	15	PASS
Standard3	ICAL	1	Ca	2	1.74	15	PASS
Standard4	ICAL	1	Ca	5	0.5	15	PASS
Standard5	ICAL	1	Ca	7.5	0.71	15	PASS
Standard6	ICAL	1	Ca	10	0.7	15	PASS
Standard7	ICAL	1	Ca	20	0.32	15	PASS
ICV	ICV	1	Ca	9.82	0.39	15	PASS
ICB	ICB	1	Ca	0.0099	65.91	15	<PQL
ICB	ICB	1	Ca	-0.0039	763.91	15	<PQL
LLICV	CCV1	1	Ca	0.2	3.53	20	PASS
ICSA1	ICSA	1	Ca	448.99	0.052	15	PASS
ICSA1	ICSA	1	Ca	421.97	0.051	15	PASS
ICSAB1	ICSAB	1	Ca	542.56	0.11	15	PASS
MB-75156	MBLK	1	Ca	0.018	138.43	15	<PQL
LCS-75156	LCS	1	Ca	9.99	0.15	15	PASS
N037187-001A	SAMP	1	Ca	83.31	0.085	15	PASS
N037187-001A	SAMP	5	Ca	18.28	0.23	15	PASS
N037187-001A-PS	PS	1	Ca	94.095	0.11	15	PASS
N037187-001A-MS1	MS	1	Ca	94.068	0.039	15	PASS
N037187-001A-MSD1	MSD	1	Ca	94.077	0.052	15	PASS
N037145-001B	SAMP	1	Ca	114.71	0.12	15	PASS
N037145-002B	SAMP	1	Ca	187.07	0.13	15	PASS
CCV1	CCV	1	Ca	9.86	0.6	15	PASS
CCB1	CCB	1	Ca	-0.0073	226.62	15	<PQL
ICSA2	ICSA	1	Ca	421.07	0.097	15	PASS
ICSA2	ICSA	1	Ca	421.42	0.14	15	PASS
ICSAB2	ICSAB	1	Ca	541.9	0.12	15	PASS
CalBlk	IBLK	1	Fe	0	129.88	15	<PQL
Standard1	ICAL	1	Fe	0.02	12.0098	15	PASS
Standard2	ICAL	1	Fe	0.05	2.44	15	PASS
Standard3	ICAL	1	Fe	2	0.71	15	PASS
Standard4	ICAL	1	Fe	5	0.074	15	PASS
Standard5	ICAL	1	Fe	7.5	0.082	15	PASS
Standard6	ICAL	1	Fe	10	0.077	15	PASS
Standard7	ICAL	1	Fe	20	0.1	15	PASS
ICV	ICV	1	Fe	9.95	0.045	15	PASS
ICB	ICB	1	Fe	0.00033	131.05	15	<PQL
ICB	ICB	1	Fe	-0.00063	110.038	15	<PQL
LLICV	CCV1	1	Fe	0.019	1.11	20	PASS
ICSA1	ICSA	1	Fe	212.84	0.32	15	PASS

RSD SUMMARY: 190827A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA1	ICSA	1	Fe	182.02	0.51	15	PASS
ICSAB1	ICSAB	1	Fe	186.68	0.49	15	PASS
MB-75156	MBLK	1	Fe	0.0061	18.15	15	<PQL
LCS-75156	LCS	1	Fe	0.11	2.22	15	PASS
N037187-001A	SAMP	1	Fe	0.21	0.34	15	PASS
N037187-001A	SAMP	5	Fe	0.05	1.78	15	PASS
N037187-001A-PS	PS	1	Fe	0.27	0.73	15	PASS
N037187-001A-MS1	MS	1	Fe	0.3	0.15	15	PASS
N037187-001A-MSD1	MSD	1	Fe	0.29	0.56	15	PASS
N037145-001B	SAMP	1	Fe	0.047	1.97	15	PASS
N037145-002B	SAMP	1	Fe	0.0034	33.18	15	<PQL
CCV1	CCV	1	Fe	10.028	0.032	15	PASS
CCB1	CCB	1	Fe	-0.0018	27.72	15	<PQL
ICSA2	ICSA	1	Fe	182.16	0.23	15	PASS
ICSA2	ICSA	1	Fe	181.47	0.33	15	PASS
ICSAB2	ICSAB	1	Fe	186.47	0.097	15	PASS
CalBlk	IBLK	1	Mg	0	17.3	15	<PQL
Standard1	ICAL	1	Mg	0.1	11.89	15	PASS
Standard2	ICAL	1	Mg	1	1.16	15	PASS
Standard3	ICAL	1	Mg	2	0.62	15	PASS
Standard4	ICAL	1	Mg	5	0.13	15	PASS
Standard5	ICAL	1	Mg	7.5	0.19	15	PASS
Standard6	ICAL	1	Mg	10	0.16	15	PASS
Standard7	ICAL	1	Mg	20	0.2	15	PASS
ICV	ICV	1	Mg	9.92	0.073	15	PASS
ICB	ICB	1	Mg	-0.0066	2.98	15	PASS
ICB	ICB	1	Mg	-0.0069	18.33	15	<PQL
LLICV	CCV1	1	Mg	0.092	0.61	20	PASS
ICSA1	ICSA	1	Mg	470.69	0.35	15	PASS
ICSA1	ICSA	1	Mg	426.06	0.52	15	PASS
ICSAB1	ICSAB	1	Mg	512.14	0.53	15	PASS
MB-75156	MBLK	1	Mg	0.0055	41.51	15	<PQL
LCS-75156	LCS	1	Mg	9.96	0.19	15	PASS
N037187-001A	SAMP	1	Mg	8.94	0.11	15	PASS
N037187-001A	SAMP	5	Mg	1.97	0.14	15	PASS
N037187-001A-PS	PS	1	Mg	18.3	0.078	15	PASS
N037187-001A-MS1	MS	1	Mg	18.24	0.041	15	PASS
N037187-001A-MSD1	MSD	1	Mg	18.27	0.067	15	PASS
N037145-001B	SAMP	1	Mg	30.41	0.05	15	PASS
N037145-002B	SAMP	1	Mg	26.075	0.048	15	PASS
CCV1	CCV	1	Mg	9.99	0.057	15	PASS
CCB1	CCB	1	Mg	-0.01	0.9	15	PASS

RSD SUMMARY: 190827A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA2	ICSA	1	Mg	426.64	0.17	15	PASS
ICSA2	ICSA	1	Mg	424.93	0.34	15	PASS
ICSAB2	ICSAB	1	Mg	511.88	0.15	15	PASS

RSD SUMMARY: 190910A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Na	0	1.41	15	PASS
Standard1	ICAL	1	Na	0.1	0.78	15	PASS
Standard2	ICAL	1	Na	1	0.36	15	PASS
Standard3	ICAL	1	Na	5	0.13	15	PASS
Standard4	ICAL	1	Na	10	0.096	15	PASS
Standard5	ICAL	1	Na	20	0.17	15	PASS
Standard6	ICAL	1	Na	40	0.2	15	PASS
ICV	ICV	1	Na	10.16	0.037	15	PASS
ICB	ICB	1	Na	0.019	8.3	15	PASS
LLICV	CCV	1	Na	0.12	5.46	20	PASS
LLICV	CCV	1	Na	0.12	1.5	20	PASS
ICSA1	ICSA	1	Na	-0.021	12.41	15	PASS
ICSAB1	ICSAB	1	Na	9.85	0.027	15	PASS
MB-75156	MBLK	1	Na	-0.025	13.083	15	PASS
LCS2-75156	LCS	1	Na	19.5	0.079	15	PASS
N074145-001B	SAMP	5	Na	53.76	0.23	15	PASS
N074145-002B	SAMP	5	Na	271.52	0.51	15	PASS
N074145-001B	SAMP	25	Na	11.54	0.12	15	PASS
N074145-001B	SAMP	125	Na	2.32	0.21	15	PASS
N074145-001B-PS	PS	25	Na	12.36	0.054	15	PASS
N074145-001B-MS2	MS	25	Na	12.36	0.08	15	PASS
N074145-001B-MSD2	MSD	25	Na	12.39	0.1	15	PASS
N074145-002B	SAMP	50	Na	28.15	0.1	15	PASS
CCV1	CCV	1	Na	9.98	0.085	15	PASS
CCB1	CCB	1	Na	-0.01	14.85	15	PASS
CCV2	CCV	1	Na	10.047	0.079	15	PASS
CCB2	CCB	1	Na	-0.021	17.98	15	<PQL
CCV3	CCV	1	Na	10.3	0.52	15	PASS
CCB3	CCB	1	Na	0.17	5.0033	15	PASS
CCV4	CCV	1	Na	10.064	0.12	15	PASS
CCB4	CCB	1	Na	0.12	1.58	15	PASS
ICSA2	ICSA	1	Na	0.067	7.71	15	PASS
ICSAB2	ICSAB	1	Na	9.77	0.14	15	PASS
CCV5	CCV	1	Na	10.11	0.13	15	PASS
CCB5	CCB	1	Na	0.1	2	15	PASS
CCV6	CCV	1	Na	9.96	0.064	15	PASS
CCB6	CCB	1	Na	0.063	7.72	15	PASS
ICSA3	ICSA	1	Na	0.0054	25.1	15	<PQL
ICSAB3	ICSAB	1	Na	9.76	0.17	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190827A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820D,0.5<50mL
Standard2	MWST-190820I
Standard3	MWST-190820N,5<50mL
Standard4	MWST-190820N,12.5<50mL
Standard5	MWST-190820N,15<40mL
Standard6	MWST-190820N,25<50mL
Standard7	MWST-190820N
ICV	MWST-190820S
CCV	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190820T/U
Int. Std. (Y)	MSST-190708A
PS Spike	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/27/2019	01:05:25 PM
2	Standard1	ICAL	1	08/27/2019	01:10:40 PM
3	Standard2	ICAL	1	08/27/2019	01:15:54 PM
4	Standard3	ICAL	1	08/27/2019	01:21:09 PM
5	Standard4	ICAL	1	08/27/2019	01:26:25 PM
6	Standard5	ICAL	1	08/27/2019	01:32:43 PM
7	Standard6	ICAL	1	08/27/2019	01:39:01 PM
8	Standard7	ICAL	1	08/27/2019	01:45:20 PM
250	ICV	ICV	1	08/27/2019	01:56:41 PM
1	ICB	ICB	1	08/27/2019	02:03:03 PM
1	ICB	ICB	1	08/27/2019	02:30:27 PM
2	LLICV	CCV1	1	08/27/2019	02:35:40 PM
9	ICSA1	ICSA	1	08/27/2019	02:40:53 PM
9	ICSA1	ICSA	1	08/27/2019	03:10:40 PM
10	ICSAB1	ICSAB	1	08/27/2019	03:17:39 PM
149	MB-75156	MBLK	1	08/27/2019	03:37:27 PM
150	LCS-75156	LCS	1	08/27/2019	03:42:43 PM
151	N037187-001A	SAMP	1	08/27/2019	03:49:00 PM
152	N037187-001A	SAMP	5	08/27/2019	03:55:17 PM
153	N037187-001A-PS	PS	1	08/27/2019	04:01:35 PM
154	N037187-001A-MS1	MS	1	08/27/2019	04:07:53 PM
155	N037187-001A-MSD1	MSD	1	08/27/2019	04:14:10 PM
156	N037145-001B	SAMP	1	08/27/2019	04:20:27 PM
157	N037145-002B	SAMP	1	08/27/2019	04:26:43 PM
7	CCV1	CCV	1	08/27/2019	04:33:01 PM
1	CCB1	CCB	1	08/27/2019	04:43:27 PM
9	ICSA2	ICSA	1	08/27/2019	04:48:40 PM
9	ICSA2	ICSA	1	08/27/2019	05:16:31 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB2	ICSAB	1	08/27/2019	05:23:32 PM

INJECTION LOG: 190910A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820V,0.025<50mL
Standard2	MWST-190820V,0.25<50mL
Standard3	MWST-190820V,1.25<50mL
Standard4	MWST-190820V,2.5<50mL
Standard5	MWST-190820V,5<50mL
Standard6	MWST-190820V,10<50mL
ICV	MWST-190820W
CCV	MWST-190820V,2.5<50mL
ICSA/ICSAB	MWST-190820T/MWST-190820X
Int. Std. (Sc):	MSST-190708B
PS Spike	MSST-140120B/ -180608B/A

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/10/2019	02:42:24 PM
11	Standard1	ICAL	1	09/10/2019	02:45:35 PM
12	Standard2	ICAL	1	09/10/2019	02:48:47 PM
13	Standard3	ICAL	1	09/10/2019	02:52:29 PM
14	Standard4	ICAL	1	09/10/2019	02:56:13 PM
15	Standard5	ICAL	1	09/10/2019	03:00:00 PM
16	Standard6	ICAL	1	09/10/2019	03:03:57 PM
17	ICV	ICV	1	09/10/2019	03:06:31 PM
1	ICB	ICB	1	09/10/2019	03:10:30 PM
11	LLICV	CCV	1	09/10/2019	03:15:50 PM
11	LLICV	CCV	1	09/10/2019	03:19:55 PM
18	ICSA1	ICSA	1	09/10/2019	03:23:07 PM
19	ICSAB1	ICSAB	1	09/10/2019	03:26:20 PM
23	MB-75156	MBLK	1	09/10/2019	03:30:57 PM
24	LCS2-75156	LCS	1	09/10/2019	03:34:07 PM
25	N074145-001B	SAMP	5	09/10/2019	03:38:04 PM
26	N074145-002B	SAMP	5	09/10/2019	03:41:47 PM
27	N074145-001B	SAMP	25	09/10/2019	03:46:33 PM
28	N074145-001B	SAMP	125	09/10/2019	03:49:45 PM
29	N074145-001B-PS	PS	25	09/10/2019	03:52:58 PM
30	N074145-001B-MS2	MS	25	09/10/2019	03:56:54 PM
31	N074145-001B-MSD2	MSD	25	09/10/2019	04:00:37 PM
32	N074145-002B	SAMP	50	09/10/2019	04:04:20 PM
14	CCV1	CCV	1	09/10/2019	04:07:34 PM
1	CCB1	CCB	1	09/10/2019	04:11:19 PM
33	MB-75259	MBLK	1	09/10/2019	04:14:29 PM
34	LCS2-75259	LCS	1	09/10/2019	04:17:43 PM
35	N037249-002A	SAMP	5	09/10/2019	04:21:41 PM
36	N037169-001B	SAMP	1	09/10/2019	04:24:53 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
37	N037170-001B	SAMP	10	09/10/2019	04:28:03 PM
38	N037171-001B	SAMP	10	09/10/2019	04:31:14 PM
39	N037172-001B	SAMP	10	09/10/2019	04:34:25 PM
40	N037173-001B	SAMP	10	09/10/2019	04:37:35 PM
41	N037174-001B	SAMP	100	09/10/2019	04:40:48 PM
42	N037249-002A	SAMP	25	09/10/2019	04:45:36 PM
14	CCV2	CCV	1	09/10/2019	04:48:48 PM
1	CCB2	CCB	1	09/10/2019	04:52:35 PM
43	N037249-002A-PS	PS	5	09/10/2019	04:55:47 PM
44	N037249-002A-MS2	MS	5	09/10/2019	04:59:34 PM
45	N037249-002A-MSD2	MSD	5	09/10/2019	05:03:21 PM
46	N037174-001B	SAMP	2500	09/10/2019	05:07:08 PM
47	MB-75187	MBLK	1	09/10/2019	05:10:22 PM
48	LCS2-75187	LCS	1	09/10/2019	05:13:32 PM
49	N037176-001D	SAMP	5	09/10/2019	05:17:29 PM
50	N037176-002D	SAMP	5	09/10/2019	05:22:19 PM
51	N037176-003D	SAMP	5	09/10/2019	05:27:10 PM
52	N037176-004D	SAMP	5	09/10/2019	05:32:02 PM
14	CCV3	CCV	1	09/10/2019	05:36:53 PM
1	CCB3	CCB	1	09/10/2019	05:40:40 PM
53	N037181-001E	SAMP	5	09/10/2019	05:44:00 PM
54	N037225-001E	SAMP	5	09/10/2019	05:48:50 PM
55	N037176-001D	SAMP	25	09/10/2019	05:52:35 PM
56	N037176-001D-PS	PS	5	09/10/2019	05:57:20 PM
57	N037176-001D-MS2	MS	5	09/10/2019	06:02:12 PM
58	N037176-001D-MSD2	MSD	5	09/10/2019	06:07:04 PM
59	N037176-001D	SAMP	250	09/10/2019	06:11:58 PM
60	N037176-001D	SAMP	1250	09/10/2019	06:15:08 PM
61	N037176-001D-PS	PS	250	09/10/2019	06:18:21 PM
62	N037176-001D-MS2	MS	250	09/10/2019	06:21:32 PM
14	CCV4	CCV	1	09/10/2019	06:24:44 PM
1	CCB4	CCB	1	09/10/2019	06:28:32 PM
18	ICSA2	ICSA	1	09/10/2019	06:31:41 PM
19	ICSAB2	ICSAB	1	09/10/2019	06:34:54 PM
63	N037176-001D-MSD2	MSD	250	09/10/2019	06:38:43 PM
64	N037176-002D	SAMP	250	09/10/2019	06:41:54 PM
65	N037176-003D	SAMP	250	09/10/2019	06:45:05 PM
66	N037176-004D	SAMP	250	09/10/2019	06:48:17 PM
67	N037181-001E	SAMP	250	09/10/2019	06:51:30 PM
68	N037225-001E	SAMP	25	09/10/2019	06:54:42 PM
71	MB-75296	MBLK	1	09/10/2019	06:57:54 PM
72	LCS2-75296	LCS	1	09/10/2019	07:01:07 PM
73	N037314-001B	SAMP	5	09/10/2019	07:05:03 PM
74	N037314-002B	SAMP	5	09/10/2019	07:08:47 PM
14	CCV5	CCV	1	09/10/2019	07:13:33 PM
1	CCB5	CCB	1	09/10/2019	07:17:22 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
75	N037314-001B	SAMP	25	09/10/2019	07:20:34 PM
76	N037314-001B	SAMP	125	09/10/2019	07:23:46 PM
77	N037314-001B-PS	PS	25	09/10/2019	07:27:49 PM
78	N037314-001B-MS2	MS	25	09/10/2019	07:31:32 PM
79	N037314-001B-MSD2	MSD	25	09/10/2019	07:35:15 PM
80	N037314-002B	SAMP	50	09/10/2019	07:38:59 PM
14	CCV6	CCV	1	09/10/2019	07:42:12 PM
1	CCB6	CCB	1	09/10/2019	07:46:00 PM
18	ICSA3	ICSA	1	09/10/2019	07:49:13 PM
19	ICSAB3	ICSAB	1	09/10/2019	07:52:27 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 3:38:44 P**
Prep End Date: **8/26/2019 8:00:00 P**
Prep Batch **75156** Prep Code: **200.7_PR**

Reviewed/ Date: NS 9/26/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.5**	**02-19**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-75156	Aqueous		25	☐	25	1.000		
LCS2-75156	Aqueous	<2	25	☐	25	1.000		
MB-75156	Aqueous		25	☐	25	1.000		
N037145-001B	Groundwater	<2	25	☐	25	1.000		
N037145-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037145-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037145-002B	Groundwater	<2	25	☐	25	1.000		
N037187-001A	Water	<2	25	☐	25	1.000		
N037187-001A-MS	Water	<2	25	☐	25	1.000		
N037187-001A-MS	Water	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11306	NITRIC ACID
11329	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190827A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	08/27/2019	01:05:25 PM	Mg	279.077	974	0.00	mg/L	
Standard1	08/27/2019	01:10:40 PM	Mg	279.077	1496	0.1000	mg/L	
Standard2	08/27/2019	01:15:54 PM	Mg	279.077	15440	1.000	mg/L	
Standard3	08/27/2019	01:21:09 PM	Mg	279.077	30946	2.000	mg/L	
Standard4	08/27/2019	01:26:25 PM	Mg	279.077	74126	5.000	mg/L	
Standard5	08/27/2019	01:32:43 PM	Mg	279.077	111383	7.500	mg/L	
Standard6	08/27/2019	01:39:01 PM	Mg	279.077	148802	10.000	mg/L	
Standard7	08/27/2019	01:45:20 PM	Mg	279.077	298790	20.000	mg/L	1.0000
Calcium								
CalBlk	08/27/2019	01:05:25 PM	Ca	227.546	65	0.00	mg/L	
Standard1	08/27/2019	01:10:40 PM	Ca	227.546	93	0.2000	mg/L	
Standard2	08/27/2019	01:15:54 PM	Ca	227.546	427	1.000	mg/L	
Standard3	08/27/2019	01:21:09 PM	Ca	227.546	848	2.000	mg/L	
Standard4	08/27/2019	01:26:25 PM	Ca	227.546	2069	5.000	mg/L	
Standard5	08/27/2019	01:32:43 PM	Ca	227.546	3125	7.500	mg/L	
Standard6	08/27/2019	01:39:01 PM	Ca	227.546	4074	10.000	mg/L	
Standard7	08/27/2019	01:45:20 PM	Ca	227.546	8345	20.000	mg/L	1.0000
Iron								
CalBlk	08/27/2019	01:05:25 PM	Fe	273.952	60	0.00	mg/L	
Standard1	08/27/2019	01:10:40 PM	Fe	273.952	639	0.0200	mg/L	
Standard2	08/27/2019	01:15:54 PM	Fe	273.952	2814	0.050	mg/L	
Standard3	08/27/2019	01:21:09 PM	Fe	273.952	63147	2.000	mg/L	
Standard4	08/27/2019	01:26:25 PM	Fe	273.952	151188	5.000	mg/L	
Standard5	08/27/2019	01:32:43 PM	Fe	273.952	227321	7.500	mg/L	
Standard6	08/27/2019	01:39:01 PM	Fe	273.952	304119	10.000	mg/L	
Standard7	08/27/2019	01:45:20 PM	Fe	273.952	608726	20.000	mg/L	1.0000

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190910A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	09/10/2019	02:42:24 PM	Na	589.62	2660	0.00	mg/L	
Standard1	09/10/2019	02:45:35 PM	Na	589.62	1746	0.1000	mg/L	
Standard2	09/10/2019	02:48:47 PM	Na	589.62	10605	1.000	mg/L	
Standard3	09/10/2019	02:52:29 PM	Na	589.62	51603	5.000	mg/L	
Standard4	09/10/2019	02:56:13 PM	Na	589.62	101633	10.000	mg/L	
Standard5	09/10/2019	03:00:00 PM	Na	589.62	201155	20.000	mg/L	
Standard6	09/10/2019	03:03:57 PM	Na	589.62	400768	40.000	mg/L	1.0000

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ICV** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9815.597	500	10000	0	98.2	90	110				
Iron	9954.258	20	10000	0	99.5	90	110				
Magnesium	9921.809	100	10000	0	99.2	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ZZZZZZ** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	203.587	500	200.0	0	102	80	120				
Iron	18.994	20	20.00	0	95.0	80	120				
Magnesium	92.418	100	100.0	0	92.4	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **CCV** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9856.122	500	10000	0	98.6	90	110				
Iron	10027.719	20	10000	0	100	90	110				
Magnesium	9987.004	100	10000	0	99.9	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10159.959	500	10000	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	116.420	500	100.0	0	116	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9978.991	500	10000	0	99.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10046.872	500	10000	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10296.792	500	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10063.906	500	10000	0	101	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10107.538	500	10000	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9963.792	500	10000	0	99.6	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136174**
Client ID: **ICB**	Batch ID: **R136174**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495395**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-3.937597	500									
Iron	-0.625484	20									
Magnesium	-6.911757	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136174**
Client ID: **CCB**	Batch ID: **R136174**	TestNo: **EPA 200.7**		Analysis Date: **8/27/2019**	SeqNo: **3495410**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-7.325533	500									
Iron	-1.781418	20									
Magnesium	-10.270004	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19.084	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-9.971838	500									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-21.41342	500									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	170.941	500									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	123.181	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	101.754	500									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	62.701	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ICSA** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	422392.962	50	500000	0	84.5	80	120				
Calcium	421968.513	500	500000	0	84.4	80	120				
Iron	182023.561	20	200000	0	91.0	80	120				
Magnesium	426059.837	100	500000	0	85.2	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ICSAB** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495399**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	554280.393	50	500000	0	111	80	120				
Calcium	542561.751	500	500000	0	109	80	120				
Iron	186676.733	20	200000	0	93.3	80	120				
Magnesium	512141.442	100	500000	0	102	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ICSA** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495412**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	424009.608	50	500000	0	84.8	80	120				
Calcium	421422.835	500	500000	0	84.3	80	120				
Iron	181470.294	20	200000	0	90.7	80	120				
Magnesium	424926.690	100	500000	0	85.0	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ICSAB** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495413**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	556912.397	50	500000	0	111	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ICSAB** Batch ID: **R136174** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495413**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	541901.261	500	500000	0	108	80	120				
Iron	186468.059	20	200000	0	93.2	80	120				
Magnesium	511881.968	100	500000	0	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSA**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-21.061627	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSAB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9845.698	500	10000	0	98.5	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSA**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	67.322	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSAB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9770.807	500	10000	0	97.7	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSA**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	5.368	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSAB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9764.033	500	10000	0	97.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190827A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0072	100.72	65-125	PASS
Standard2	ICAL	1	1.016	101.64	65-125	PASS
Standard3	ICAL	1	1.06	106.02	65-125	PASS
Standard4	ICAL	1	0.99	98.92	65-125	PASS
Standard5	ICAL	1	0.99	98.7	65-125	PASS
Standard6	ICAL	1	0.99	98.83	65-125	PASS
Standard7	ICAL	1	0.95	95.2	65-125	PASS
ICV	ICV	1	0.99	99	65-125	PASS
ICB	ICB	1	1.0062	100.62	65-125	PASS
ICB	ICB	1	1.0025	100.25	65-125	PASS
LLICV	CCV1	1	1.011	101.14	65-125	PASS
ICSA1	ICSA	1	1.17	116.97	65-125	PASS
ICSA1	ICSA	1	1.18	118.16	65-125	PASS
ICSAB1	ICSAB	1	0.83	83.46	65-125	PASS
MB-75156	MBLK	1	1.011	101.06	65-125	PASS
LCS-75156	LCS	1	0.93	93.37	65-125	PASS
N037187-001A	SAMP	1	1	99.69	65-125	PASS
N037187-001A	SAMP	5	0.99	98.92	65-125	PASS
N037187-001A-PS	PS	1	1.0018	100.18	65-125	PASS
N037187-001A-MS1	MS	1	1.0088	100.88	65-125	PASS
N037187-001A-MSD1	MSD	1	1.012	101.22	65-125	PASS
N037145-001B	SAMP	1	1.022	102.19	65-125	PASS
N037145-002B	SAMP	1	0.97	97.36	65-125	PASS
CCV1	CCV	1	1.019	101.89	65-125	PASS
CCB1	CCB	1	1.033	103.26	65-125	PASS
ICSA2	ICSA	1	1.21	121.13	65-125	PASS
ICSA2	ICSA	1	1.22	121.98	65-125	PASS
ICSAB2	ICSAB	1	0.86	86.45	65-125	PASS

INTERNAL STANDARD: 190910A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	0.99	98.63	65-125	PASS
Standard2	ICAL	1	0.99	99.36	65-125	PASS
Standard3	ICAL	1	1	99.92	65-125	PASS
Standard4	ICAL	1	0.98	98.15	65-125	PASS
Standard5	ICAL	1	0.98	98.49	65-125	PASS
Standard6	ICAL	1	0.97	97.24	65-125	PASS
ICV	ICV	1	0.98	98.27	65-125	PASS
ICB	ICB	1	1	99.98	65-125	PASS
LLICV	CCV	1	0.99	98.91	65-125	PASS
LLICV	CCV	1	0.98	98.19	65-125	PASS
ICSA1	ICSA	1	1.008	100.8	65-125	PASS
ICSAB1	ICSAB	1	0.98	98.5	65-125	PASS
MB-75156	MBLK	1	1.0032	100.32	65-125	PASS
LCS2-75156	LCS	1	1.087	108.67	65-125	PASS
N074145-001B	SAMP	5	1.0057	100.57	65-125	PASS
N074145-002B	SAMP	5	0.99	98.72	65-125	PASS
N074145-001B	SAMP	25	1	99.78	65-125	PASS
N074145-001B	SAMP	125	0.99	98.69	65-125	PASS
N074145-001B-PS	PS	25	1	99.66	65-125	PASS
N074145-001B-MS2	MS	25	0.99	99.46	65-125	PASS
N074145-001B-MSD2	MSD	25	1	99.53	65-125	PASS
N074145-002B	SAMP	50	0.99	98.94	65-125	PASS
CCV1	CCV	1	0.98	98.45	65-125	PASS
CCB1	CCB	1	1	99.63	65-125	PASS
CCV2	CCV	1	1.016	101.63	65-125	PASS
CCB2	CCB	1	1.043	104.31	65-125	PASS
CCV3	CCV	1	1.065	106.5	65-125	PASS
CCB3	CCB	1	1.085	108.54	65-125	PASS
CCV4	CCV	1	1.032	103.23	65-125	PASS
CCB4	CCB	1	1.051	105.11	65-125	PASS
ICSA2	ICSA	1	1.047	104.7	65-125	PASS
ICSAB2	ICSAB	1	1.021	102.14	65-125	PASS
CCV5	CCV	1	1.025	102.5	65-125	PASS
CCB5	CCB	1	1.039	103.91	65-125	PASS
CCV6	CCV	1	1.02	102.01	65-125	PASS
CCB6	CCB	1	1.014	101.44	65-125	PASS
ICSA3	ICSA	1	1.026	102.57	65-125	PASS
ICSAB3	ICSAB	1	1.0097	100.97	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037145
Test Method: EPA 200.7
Analysis Date: 08-27,09-10/2019

Matrix: Groundwater
Batch No.: 75156

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Mg failed. However, PS passed criteria.
Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037187-001A DT 5x	Calcium	Ca	µg/L	91410.09	PASS	83304.98	9.73%	10
N037187-001A DT 5x	Iron	Fe	µg/L	247.6757	NA	212.3815	16.62%	10
N037187-001A DT 5x	Magnesium	Mg	µg/L	9859.623	FAIL	8939.47	10.29%	10
N037145-001B DT 125x	Sodium	Na	µg/L	290539.2	PASS	288601.4	0.67%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037187-001A-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136174**
Client ID: **ZZZZZZ** Batch ID: **75156** TestNo: **EPA 200.7** Analysis Date: **8/27/2019** SeqNo: **3495404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	94095.011	500	10000	83300	108	80	120				
Iron	272.525	20	100.0	212.4	60.1	80	120				S
Magnesium	18294.695	100	10000	8939	93.6	80	120				

Sample ID **N037145-001B-PS** SampType: **PS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136398**
Client ID: **ZZZZZZ** Batch ID: **75156** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3508786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	309089.822	12000	20000	288600	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

Method Detection Limit

Analytical Method: EPA 6010B / 200.7
Digestion Method: EPA 200.7
Date of Analysis: 4/26/2018,4/27/18, 4/28/18
Instrument Name: ICP2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: mg/L

Analyte	1	2	3	4	5	6	7	SD	Ave	AMT SPIKED	MDL	PQL
Potassium	0.52047	0.51468	0.50982	0.46507	0.46016	0.45873	0.49093	0.02710	0.48855	0.5000	0.08509	0.5
Sodium	0.55314	0.5464	0.5354	0.4861	0.49466	0.48423	0.49053	0.03061	0.51292	0.5000	0.09611	0.5
Strontium	0.0543	0.05418	0.05429	0.05295	0.05353	0.05251	0.05341	0.00070	0.05360	0.0250	0.00220	0.05

MBLK

Analyte	1	2	3	4	5	6	7	SD	Ave	MDL
Potassium	0.046	0.02365	0.01213	-0.00541	-0.0022	-0.00535	0.03047	0.02002	0.01418	0.0771
Sodium	0.04731	0.03661	0.02294	-0.0006	-0.00135	-0.00646	-0.00911	0.02270	0.01276	0.0841
Strontium	0.00006	-0.0006	-0.0002	0.00003	-0.00002	0.00001	0.00035	0.00029	-0.00005	0.0009

Note: MDL spike is used since its value is greater than the MDL blank.

LOD & PQL VERIFICATION

Analytical Method: EPA 6010B / 200.7
Date of Analysis: 4/30/2018
Instrument Name: ICP2
Analyst: MI

Matrix: Water
Units: mg/L

Compound	MDL	LOD		PQL		
		Spike	Recovered	Spike	Recovered	% Recovery
Potassium	0.08509	0.250	0.304	0.500	0.544	108.9
Sodium	0.09611	0.250	0.274	0.500	0.521	104.1
Strontium	0.00220	0.025	0.027	0.050	0.054	108.0

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75157
ASSET #: N037145

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 8/26/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Cr in N037187-001A-PS/MS failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 8/31/2019

2nd Level Reviewer NS 8/31/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037145-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 77.2372 * 5 *(25 / 25)

Manganese , ug/L = 386.186

Reporting results in two significant figures,

Manganese , ug/L = 390

NS 9/26/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190826B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.088	20.27	15	<PQL	<0.000	N/A	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	4.28	15	PASS	0.3	9.4	15	PASS
Std3-5/50 ppb	ICAL	1	4.8	2.075	15	PASS	4.74	2.81	15	PASS
Std4-10/100 ppb	ICAL	1	10.053	1.88	15	PASS	9.82	1.92	15	PASS
Std5-20/200 ppb	ICAL	1	19.94	1.12	15	PASS	19.89	1.47	15	PASS
Std6-40/400 ppb	ICAL	1	40.072	1.99	15	PASS	39.83	1.52	15	PASS
Std7-100/1000 ppb	ICAL	1	99.76	0.22	15	PASS	99.38	0.49	15	PASS
Std8-200/2000 ppb	ICAL	1	200.11	0.79	15	PASS	200.37	0.62	15	PASS
ICV	ICV	1	10.53	0.65	15	PASS	102.8	1.47	15	PASS
ICB	ICB	1	0.012	75.29	15	<PQL	0.11	14.61	15	PASS
LLICV	CCV1	1	1.047	8.44	20	PASS	0.43	0.96	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.35	1.56	15	PASS	20.2	2.35	15	PASS
LLICV	CCV1	1	1.055	0.78	20	PASS	0.33	21.84	20	<PQL
CCV1	CCV	1	20.029	0.97	15	PASS	20.067	1.81	15	PASS
CCB1	CCB	1	0.012	80.14	15	<PQL	<0.000	N/A	15	<PQL
MB-75157	MBLK	1	0.019	50.93	15	<PQL	<0.000	N/A	15	<PQL
LCS-75157	LCS	1	10.12	2.26	15	PASS	102.74	0.4	15	PASS
N037187-001A	SAMP	1	111.33	0.41	15	PASS	69.97	0.59	15	PASS
N037187-001A	SAMP	5	23.65	2.057	15	PASS	14.96	1.97	15	PASS
N037187-001A	SAMP	25	5.072	1.65	15	PASS	3.1	2.68	15	PASS
N037187-001A-PS	PS	1	116.085	0.52	15	PASS	165.74	0.38	15	PASS
N037187-001A-PS	PS	5	25.061	1.02	15	PASS	35.7	1.65	15	PASS
N037187-001A-MS	MS	1	118.82	1.03	15	PASS	167.73	0.98	15	PASS
N037187-001A-MS	MS	5	25.64	0.92	15	PASS	36.15	1.032	15	PASS
N037187-001A-MSD	MSD	1	119.25	1.84	15	PASS	168.21	1.19	15	PASS
CCV2	CCV	1	20.03	0.84	15	PASS	20.17	1.22	15	PASS
CCB2	CCB	1	0.019	110.6	15	<PQL	0.055	102.88	15	<PQL
N037187-001A-MSD	MSD	5	25.89	1.7	15	PASS	35.92	0.31	15	PASS
N037145-001B	SAMP	1	0.64	3.64	15	PASS	368.38	1.29	15	PASS
N037145-001B	SAMP	5	0.13	31.78	15	<PQL	77.24	0.48	15	PASS
N037145-002B	SAMP	1	450.31	2.54	15	PASS	<0.000	N/A	15	<PQL
N037145-002B	SAMP	5	86.61	0.63	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	19.8	1.43	15	PASS	19.54	1.36	15	PASS
CCB3	CCB	1	0.036	30.1	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.11	0.93	15	PASS	19.99	3.067	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190826B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0826001.D	RINSE	RINSE	1	08/26/19 5:11 PM
B0826002.D	Cal Blank	IBLK	1	08/26/19 5:17 PM
B0826003.D	Std1-0.1/1 ppb	ICAL	1	08/26/19 5:22 PM
B0826004.D	Std2-0.5/5 ppb	ICAL	1	08/26/19 5:27 PM
B0826005.D	Std3-5/50 ppb	ICAL	1	08/26/19 5:36 PM
B0826006.D	Std4-10/100 ppb	ICAL	1	08/26/19 5:41 PM
B0826007.D	Std5-20/200 ppb	ICAL	1	08/26/19 5:46 PM
B0826008.D	Std6-40/400 ppb	ICAL	1	08/26/19 5:52 PM
B0826009.D	Std7-100/1000 ppb	ICAL	1	08/26/19 5:57 PM
B0826010.D	Std8-200/2000 ppb	ICAL	1	08/26/19 6:02 PM
B0826011.D	ICV	ICV	1	08/26/19 6:38 PM
B0826012.D	ICB	ICB	1	08/26/19 6:43 PM
B0826013.D	LLICV	CCV1	1	08/26/19 6:48 PM
B0826014.D	ICSA1	ICSA	1	08/26/19 6:53 PM
B0826015.D	ICSAB1	ICSAB	1	08/26/19 6:59 PM
B0826016.D	LLICV	CCV1	1	08/26/19 7:07 PM
B0826017.D	N036678-005E	SAMP	1	08/26/19 7:15 PM
B0826018.D	N036678-005A	SAMP	1	08/26/19 7:20 PM
B0826019.D	N036678-006E	SAMP	1	08/26/19 7:25 PM
B0826020.D	N036678-006A	SAMP	1	08/26/19 7:30 PM
B0826021.D	N036832-009B	SAMP	1	08/26/19 7:37 PM
B0826022.D	N036832-009A	SAMP	1	08/26/19 7:42 PM
B0826023.D	N036850-001B	SAMP	1	08/26/19 7:48 PM
B0826024.D	N036850-001A	SAMP	1	08/26/19 7:52 PM
B0826025.D	N036851-001B	SAMP	1	08/26/19 7:58 PM
B0826026.D	N036851-001A	SAMP	1	08/26/19 8:03 PM
B0826027.D	CCV1	CCV	1	08/26/19 8:08 PM
B0826028.D	CCB1	CCB	1	08/26/19 8:14 PM
B0826029.D	MB-75157	MBLK	1	08/26/19 8:19 PM
B0826030.D	LCS-75157	LCS	1	08/26/19 8:23 PM
B0826031.D	N037187-001A	SAMP	1	08/26/19 8:28 PM
B0826032.D	N037187-001A	SAMP	5	08/26/19 8:33 PM
B0826033.D	N037187-001A	SAMP	25	08/26/19 8:38 PM
B0826034.D	N037187-001A-PS	PS	1	08/26/19 8:43 PM
B0826035.D	N037187-001A-PS	PS	5	08/26/19 8:48 PM
B0826036.D	N037187-001A-MS	MS	1	08/26/19 8:53 PM
B0826037.D	N037187-001A-MS	MS	5	08/26/19 8:58 PM
B0826038.D	N037187-001A-MSD	MSD	1	08/26/19 9:03 PM
B0826039.D	CCV2	CCV	1	08/26/19 9:08 PM
B0826040.D	CCB2	CCB	1	08/26/19 9:13 PM
B0826041.D	N037187-001A-MSD	MSD	5	08/26/19 9:18 PM
B0826042.D	N037145-001B	SAMP	1	08/26/19 9:23 PM

INJECTION LOG: 190826B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0826043.D	N037145-001B	SAMP	5	08/26/19 9:28 PM
B0826044.D	N037145-002B	SAMP	1	08/26/19 9:33 PM
B0826045.D	N037145-002B	SAMP	5	08/26/19 9:38 PM
B0826046.D	CCV3	CCV	1	08/26/19 9:43 PM
B0826047.D	CCB3	CCB	1	08/26/19 9:48 PM
B0826048.D	ICSA2	ICSA	1	08/26/19 9:53 PM
B0826049.D	ICSAB2	ICSAB	1	08/26/19 9:58 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 3:42:10 P**
Prep End Date: **8/26/2019 8:00:00 P**
Prep Batch **75157** Prep Code: **200.8_PR**

Reviewed/ Date: NS 9/26/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.6**	**02-16**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75157	Aqueous		25	☐	25	1.000		
MB-75157	Aqueous		25	☐	25	1.000		
N037145-001B	Groundwater	<2	25	☐	25	1.000		
N037145-002B	Groundwater	<2	25	☐	25	1.000		
N037187-001A	Water	<2	25	☐	25	1.000		
N037187-001A-MS	Water	<2	25	☐	25	1.000		
N037187-001A-MS	Water	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 26 Aug 2019 11:39:36 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	98689.70	0.00	
24	Mg	676896.00	0.00	
25	Mg	85482.00	0.00	
26	Mg	95293.70	0.00	
59	Co	383831.00	0.00	
115	In	602517.00	0.00	
206	Pb	161791.00	0.00	
207	Pb	140444.00	0.00	
208	Pb	343075.00	0.00	

RSD (%)

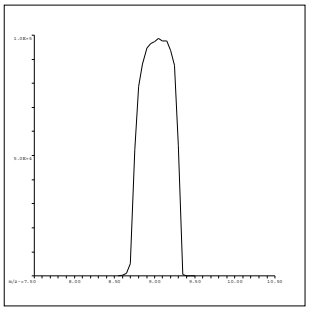
Element		Actual	Required	Flag
9	Be	0.79	5.00	
24	Mg	0.88	5.00	
25	Mg	1.06	5.00	
26	Mg	0.85	5.00	
59	Co	0.93	5.00	
115	In	0.56	5.00	
206	Pb	1.03	5.00	
207	Pb	1.95	5.00	
208	Pb	1.43	5.00	

Ion Ratio

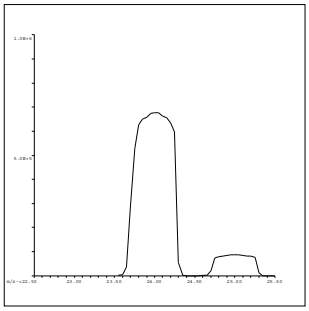
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

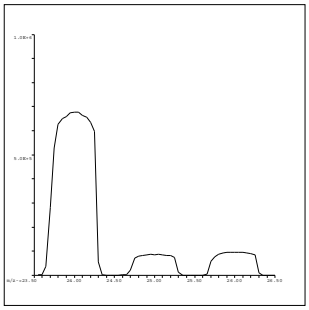
Element		Actual	Required	Flag



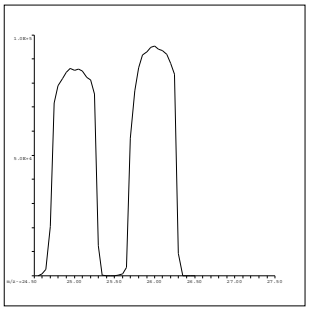
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



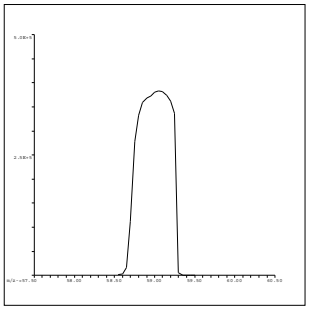
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



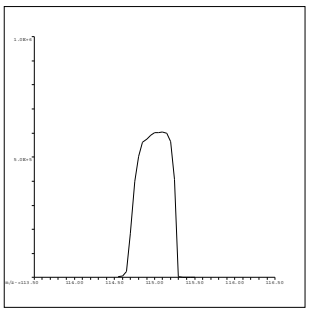
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



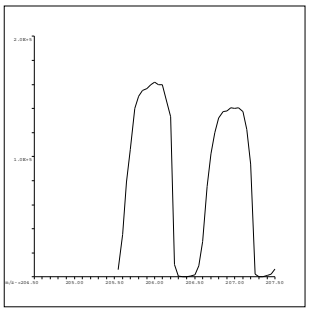
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



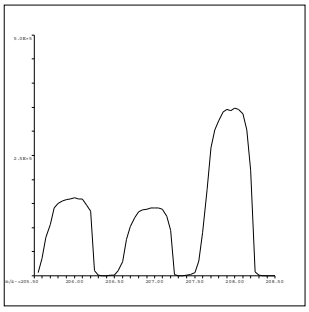
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



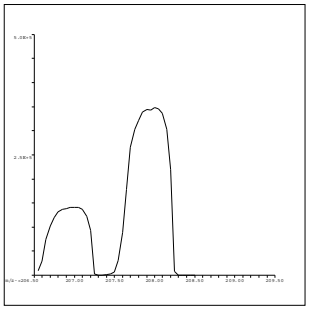
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190826B

Instrument ID: ICPMS-02

Analyte	Data File	B0826002.D	B0826004.D	B0826005.D	B0826006.D	B0826007.D	B0826008.D	B0826009.D	B0826010.D	
	Acq. Date-Time	08/26/2019 05:17 PM	08/26/2019 05:27 PM	08/26/2019 05:36 PM	08/26/2019 05:41 PM	08/26/2019 05:46 PM	08/26/2019 05:52 PM	08/26/2019 05:57 PM	08/26/2019 06:02 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	66590.9	70904.6	75794.1	70043.6	69062.8	69344.9	67970.6	66398.7	
55 Mn [2]	CPS	1272.5	2123.7	14247.2	25825.6	50202.3	99610.2	241744.4	474823.9	1.0000
52 Cr [2]	CPS	449.1	2897.8	25394.2	48605.8	94574.5	190363.1	463954.2	908615.7	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV** SampType: **ICV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **ICV** Batch ID: **R136139** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	102.800	0.50	100.0	0	103	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **ZZZZZZ** Batch ID: **R136139** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.433	0.50	0.5000	0	86.5	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **CCV** Batch ID: **R136139** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.067	0.50	20.00	0	100	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **CCV** Batch ID: **R136139** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.166	0.50	20.00	0	101	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **CCV** Batch ID: **R136139** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.537	0.50	20.00	0	97.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICV**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.526	1.0	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ZZZZZZ**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.047	1.0	1.000	0	105	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCV**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.029	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCV**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.030	1.0	20.00	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCV**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.797	1.0	20.00	0	99.0	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494269**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **CCB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSA**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSAB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.198	0.50	20.00	0	101	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSA**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSAB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.986	0.50	20.00	0	99.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSA**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSAB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.351	1.0	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSA**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136139**
Client ID: **ICSAB**	Batch ID: **R136139**	TestNo: **EPA 200.8**		Analysis Date: **8/26/2019**	SeqNo: **3494290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.111	1.0	20.00	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190826B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	66590.9	66590.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	72133.3	66590.9	108.32	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	70904.6	66590.9	106.48	PASS	70-125
Std3-5/50 ppb	ICAL	1	75794.1	66590.9	113.82	PASS	70-125
Std4-10/100 ppb	ICAL	1	70043.6	66590.9	105.18	PASS	70-125
Std5-20/200 ppb	ICAL	1	69062.8	66590.9	103.71	PASS	70-125
Std6-40/400 ppb	ICAL	1	69344.9	66590.9	104.14	PASS	70-125
Std7-100/1000 ppb	ICAL	1	67970.6	66590.9	102.07	PASS	70-125
Std8-200/2000 ppb	ICAL	1	66398.7	66590.9	99.71	PASS	70-125
ICV	ICV	1	62559.6	66590.9	93.95	PASS	70-125
ICB	ICB	1	60652.5	66590.9	91.082	PASS	70-125
LLICV	CCV1	1	67726.3	66590.9	101.71	PASS	70-125
ICSA1	ICSA	1	64244.5	66590.9	96.48	PASS	70-125
ICSAB1	ICSAB	1	66307.2	66590.9	99.57	PASS	70-125
LLICV	CCV1	1	74552.8	66590.9	111.96	PASS	70-125
CCV1	CCV	1	65465	66590.9	98.31	PASS	70-125
CCB1	CCB	1	52678.9	66590.9	79.11	PASS	70-125
MB-75157	MBLK	1	56224.8	66590.9	84.43	PASS	70-125
LCS-75157	LCS	1	59255.4	66590.9	88.98	PASS	70-125
N037187-001A	SAMP	1	56284.9	66590.9	84.52	PASS	70-125
N037187-001A	SAMP	5	60862.1	66590.9	91.4	PASS	70-125
N037187-001A	SAMP	25	59481.7	66590.9	89.32	PASS	70-125
N037187-001A-PS	PS	1	57823.5	66590.9	86.83	PASS	70-125
N037187-001A-PS	PS	5	58784.8	66590.9	88.28	PASS	70-125
N037187-001A-MS	MS	1	57437.7	66590.9	86.25	PASS	70-125
N037187-001A-MS	MS	5	59533.9	66590.9	89.4	PASS	70-125
N037187-001A-MSD	MSD	1	57901.7	66590.9	86.95	PASS	70-125
CCV2	CCV	1	64375.2	66590.9	96.67	PASS	70-125
CCB2	CCB	1	58126.8	66590.9	87.29	PASS	70-125
N037187-001A-MSD	MSD	5	53089	66590.9	79.72	PASS	70-125
N037145-001B	SAMP	1	55852.4	66590.9	83.87	PASS	70-125
N037145-001B	SAMP	5	57996.3	66590.9	87.093	PASS	70-125
N037145-002B	SAMP	1	55625	66590.9	83.53	PASS	70-125
N037145-002B	SAMP	5	58453.4	66590.9	87.78	PASS	70-125
CCV3	CCV	1	65088.3	66590.9	97.74	PASS	70-125
CCB3	CCB	1	59463.5	66590.9	89.3	PASS	70-125
ICSA2	ICSA	1	64895.1	66590.9	97.45	PASS	70-125
ICSAB2	ICSAB	1	63427.3	66590.9	95.25	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037145
Test Method: EPA 200.8
Analysis Date: 8/26/2019

Matrix: Groundwater
Batch No.: 75157

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037187-001A DT 5x	Chromium	Cr	µg/L	118.2673	PASS	111.33	6.23%	10
N037187-001A DT 5x	Manganese	Mn	µg/L	74.79749	PASS	69.97263	6.90%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N037187-001A-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **ZZZZZZ** Batch ID: **75157** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	165.739	0.50	100.0	69.97	95.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **N037187-001A-PS** SampType: **PS** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **136139**
Client ID: **ZZZZZZ** Batch ID: **75157** TestNo: **EPA 200.8** Analysis Date: **8/26/2019** SeqNo: **3494275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	116.085	1.0	10.00	111.3	47.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136330
ASSET #: N037145

Instrument ID: IC-07
Analyst: HH
Date Analyzed: 9/3/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X					X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: HSG Date: 9/5/2019

2nd Level Reviewer: NS 9/5/2019 Date: _____

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136209
ASSET #: N037145

Instrument ID: IC-07
Analyst: HH
Date Analyzed: 8/30/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037145-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 8.2904 * 50$$

$$Cr^{+6}, \mu g/L = 414.5200$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 410}$$

NS 9/26/2019

ANALYSIS RUN LOG

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/30/19 9:56 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	08/30/19 10:07 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/30/19 10:17 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	08/30/19 10:26 AM	Reported
13	MB-R136209	MBLK	1	Hexavalent Chromium	08/30/19 10:36 AM	Reported
14	LCS-R136209	LCS	1	Hexavalent Chromium	08/30/19 10:45 AM	Reported
15	N037240-001BMS	MS	1	Hexavalent Chromium	08/30/19 11:00 AM	Reported
16	N037142-002AMS	MS	1	Hexavalent Chromium	08/30/19 11:11 AM	Reported
17	N037143-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:21 AM	Not Reported
18	N037144-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:30 AM	Not Reported
19	N037240-001B	SAMP	1	Hexavalent Chromium	08/30/19 11:40 AM	Reported
20	N037240-001BMSD	MSD	1	Hexavalent Chromium	08/30/19 11:49 AM	Reported
21	N037142-002A	SAMP	1	Hexavalent Chromium	08/30/19 11:59 AM	Reported
22	N037142-002ADUP	DUP	1	Hexavalent Chromium	08/30/19 12:08 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	08/30/19 12:18 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	08/30/19 12:27 PM	Reported
25	N037144-002AMS	MS	1	Hexavalent Chromium	08/30/19 12:37 PM	Not Reported
26	N037144-003AMS	MS	1	Hexavalent Chromium	08/30/19 12:46 PM	Not Reported
27	N037144-004AMS	MS	1	Hexavalent Chromium	08/30/19 12:56 PM	Not Reported
28	N037145-001AMS	MS	1	Hexavalent Chromium	08/30/19 1:05 PM	Reported
29	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:14 PM	Not Reported
30	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:24 PM	Not Reported
31	N037143-001A	SAMP	5	Hexavalent Chromium	08/30/19 1:58 PM	Reported
32	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:09 PM	Reported
33	N037144-001A	SAMP	5	Hexavalent Chromium	08/30/19 2:19 PM	Not Reported
34	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:28 PM	Not Reported
35	CCV-3	CCV	1	Hexavalent Chromium	08/30/19 2:38 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	08/30/19 2:47 PM	Reported
37	N037144-002AMS	MS	5	Hexavalent Chromium	08/30/19 2:57 PM	Reported
38	N037144-003AMS	MS	5	Hexavalent Chromium	08/30/19 3:06 PM	Reported
39	N037144-004AMS	MS	5	Hexavalent Chromium	08/30/19 3:15 PM	Reported
40	N037145-001A	SAMP	1	Hexavalent Chromium	08/30/19 3:25 PM	Reported
41	N037144-001A	SAMP	10	Hexavalent Chromium	08/30/19 3:34 PM	Reported
42	N037144-001AMS	MS	10	Hexavalent Chromium	08/30/19 3:44 PM	Reported

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037144-002A	SAMP	5	Hexavalent Chromium	08/30/19 3:53 PM	Reported
44	N037144-003A	SAMP	5	Hexavalent Chromium	08/30/19 4:03 PM	Reported
45	N037144-004A	SAMP	5	Hexavalent Chromium	08/30/19 4:12 PM	Reported
46	N037140-002A	SAMP	1	Hexavalent Chromium	08/30/19 4:26 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	08/30/19 4:38 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	08/30/19 4:47 PM	Reported
49	N037140-002AMS	MS	1	Hexavalent Chromium	08/30/19 4:57 PM	Reported
50	N037143-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:06 PM	Reported
51	N037143-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:16 PM	Reported
52	N037178-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:25 PM	Reported
53	N037178-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:35 PM	Reported
54	N037180-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:44 PM	Reported
55	N037180-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:54 PM	Reported
56	N037181-002A	SAMP	1	Hexavalent Chromium	08/30/19 6:03 PM	Reported
57	N037181-002AMS	MS	1	Hexavalent Chromium	08/30/19 6:12 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	08/30/19 6:22 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	08/30/19 6:31 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190830A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**30/Aug/19 19:02:14**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

No.		Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1		BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2		iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3		STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4		STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5		STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6		STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7		STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8		STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9		BLANK	1	1000	Unknown		08/30/2019 09:56	Finished	BLANK
10	CCV-1	CCV,CCV,1,	2	1000	Unknown		08/30/2019 10:07	Finished	CCV @5ppb, IWST-190702A
11		PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/30/2019 10:17	Finished	PQL @ 0.2ppb
12	CCB-1	CCB,CCB,1,	4	1000	Unknown		08/30/2019 10:26	Finished	CCB R190701
13		MB-H2O,MBLK,1,	5	1000	Unknown		08/30/2019 10:36	Finished	MB R190701
14		LCS-H2O,LCS,1,	6	1000	Unknown		08/30/2019 10:45	Finished	LCS @5ppb, IWST-190702B
15		N037240-001BMS,MS	8	1000	Unknown		08/30/2019 11:00	Finished	MS (1ppb), IWST-190702B,10
16		N037142-002AMS,MS	9	1000	Unknown		08/30/2019 11:11	Finished	MS (1ppb), IWST-190702B,10
17		N037143-001AMS,MS	10	1000	Unknown		08/30/2019 11:21	Finished	MS (1ppb), IWST-190702B,10
18		N037144-001AMS,MS	11	1000	Unknown		08/30/2019 11:30	Finished	MS (1ppb), IWST-190702B,10
19		N037240-001B,SAMP	12	1000	Unknown		08/30/2019 11:40	Finished	SAMP,10mL
20		N037240-001BMSD,M	13	1000	Unknown		08/30/2019 11:49	Finished	MSD (1ppb), IWST-190702B,10
21		N037142-002A,SAMP	14	1000	Unknown		08/30/2019 11:59	Finished	SAMP,10mL
22		N037142-002ADUP,D	15	1000	Unknown		08/30/2019 12:08	Finished	DUP,10mL
23	2	CCV-1,CCV1,1,	16	1000	Unknown		08/30/2019 12:18	Finished	CCV @10ppb, IWST-190702A
24	2	CCB-1,CCB,1,	17	1000	Unknown		08/30/2019 12:27	Finished	CCB R190617C
25		N037144-002AMS,MS	18	1000	Unknown		08/30/2019 12:37	Finished	MS (1ppb), IWST-190702B,10
26		N037144-003AMS,MS	19	1000	Unknown		08/30/2019 12:46	Finished	MS (1ppb), IWST-190702B,10
27		N037144-004AMS,MS	20	1000	Unknown		08/30/2019 12:56	Finished	MS (1ppb), IWST-190702B,10
28		N037145-001AMS,MS	21	1000	Unknown		08/30/2019 13:05	Finished	MS (1ppb), IWST-190702B,10
29		N037143-001AMS,MS	22	1000	Unknown		08/30/2019 13:14	Finished	MS (1ppb), IWST-190702B,2>1
30		N037144-001AMS,MS	23	1000	Unknown		08/30/2019 13:24	Finished	MS (1ppb), IWST-190702B,2>1
31		N037143-001A,SAMP	1	1000	Unknown		08/30/2019 13:58	Finished	SAMP,2>10mL
32		N037143-001AMS,MS	2	1000	Unknown		08/30/2019 14:09	Finished	MS (5ppb), IWST-190702B,2>1
33		N037144-001A,SAMP	3	1000	Unknown		08/30/2019 14:19	Finished	SAMP,2>10mL
34		N037144-001AMS,MS	4	1000	Unknown		08/30/2019 14:28	Finished	MS (5ppb), IWST-190702B,2>1
35	3	CCV-2,CCV,1,	5	1000	Unknown		08/30/2019 14:38	Finished	CCV @5ppb, IWST-190702A
36	3	CCB-2,CCB,1,	6	1000	Unknown		08/30/2019 14:47	Finished	CCB R190617C
37		N037144-002AMS,MS	7	1000	Unknown		08/30/2019 14:57	Finished	MS (1ppb), IWST-190702B,2>1
38		N037144-003AMS,MS	8	1000	Unknown		08/30/2019 15:06	Finished	MS (1ppb), IWST-190702B,2>1
39		N037144-004AMS,MS	9	1000	Unknown		08/30/2019 15:15	Finished	SAMP,10mL
40		N037145-001A,SAMP	10	1000	Unknown		08/30/2019 15:25	Finished	SAMP,10mL
41		N037144-001A,SAMP	11	1000	Unknown		08/30/2019 15:34	Finished	SAMP,10mL
42		N037144-001AMS,MS	12	1000	Unknown		08/30/2019 15:44	Finished	SAMP,10mL
43		N037144-002A,SAMP	13	1000	Unknown		08/30/2019 15:53	Finished	SAMP,10mL
44		N037144-003A,SAMP	14	1000	Unknown		08/30/2019 16:03	Finished	SAMP,10mL
45		N037144-004A,SAMP	15	1000	Unknown		08/30/2019 16:12	Finished	SAMP,10mL
46		N037140-002A,SAMP	17	1000	Unknown		08/30/2019 16:26	Finished	SAMP,10mL
47	4	CCV-3,CCV1,1,	18	1000	Unknown		08/30/2019 16:38	Finished	CCV @10ppb, IWST-190702A
48	4	CCB-3,CCB,1,	19	1000	Unknown		08/30/2019 16:47	Finished	CCB R190617C
49		N037140-002AMS,MS	20	1000	Unknown		08/30/2019 16:57	Finished	SAMP,10mL
50		N037143-002A,SAMP	21	1000	Unknown		08/30/2019 17:06	Finished	SAMP,10mL
51		N037143-002AMS,MS	22	1000	Unknown		08/30/2019 17:16	Finished	SAMP,10mL
52		N037178-002A,SAMP	23	1000	Unknown		08/30/2019 17:25	Finished	SAMP,10mL
53		N037178-002AMS,MS	24	1000	Unknown		08/30/2019 17:35	Finished	SAMP,10mL
54		N037180-002A,SAMP	25	1000	Unknown		08/30/2019 17:44	Finished	SAMP,10mL
55		N037180-002AMS,MS	26	1000	Unknown		08/30/2019 17:54	Finished	SAMP,10mL
56		N037181-002A,SAMP	27	1000	Unknown		08/30/2019 18:03	Finished	SAMP,10mL
57		N037181-002AMS,MS	28	1000	Unknown		08/30/2019 18:12	Finished	SAMP,10mL
58	5	CCV-4,CCV,1,	29	1000	Unknown		08/30/2019 18:22	Finished	CCV @5ppb, IWST-190702A
59	5	CCB-4,CCB,1,	30	1000	Unknown		08/30/2019 18:31	Finished	CCB R190617C
60		SHUTDOWN	31	1000	Unknown		08/30/2019 18:41	Finished	

61	Eluent: R190828B	32	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190828A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 10:48 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/03/19 10:59 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/03/19 11:08 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/03/19 11:18 AM	Reported
13	MB-R136330	MBLK	1	Hexavalent Chromium	09/03/19 11:27 AM	Reported
14	LCS-R136330	LCS	1	Hexavalent Chromium	09/03/19 11:37 AM	Reported
15	N037145-002AMS	MS	1	Hexavalent Chromium	09/03/19 11:46 AM	Not Reported
16	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 11:56 AM	Not Reported
17	N037176-005AMS	MS	1	Hexavalent Chromium	09/03/19 12:05 PM	Reported
18	N037176-006AMS	MS	1	Hexavalent Chromium	09/03/19 12:14 PM	Reported
19	N037181-001AMS	MS	1	Hexavalent Chromium	09/03/19 12:24 PM	Not Reported
20	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 12:33 PM	Not Reported
21	N037145-002A	SAMP	50	Hexavalent Chromium	09/03/19 12:43 PM	Reported
22	N037147-003A	SAMP	1	Hexavalent Chromium	09/03/19 1:47 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/03/19 1:58 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/03/19 2:08 PM	Reported
25	N037176-005AMSD	MSD	1	Hexavalent Chromium	09/03/19 2:17 PM	Reported
26	N037176-005A	SAMP	1	Hexavalent Chromium	09/03/19 2:27 PM	Reported
27	N037176-005ADUP	DUP	1	Hexavalent Chromium	09/03/19 2:36 PM	Reported
28	N037176-006A	SAMP	1	Hexavalent Chromium	09/03/19 2:46 PM	Reported
29	N037181-001AMS	MS	100	Hexavalent Chromium	09/03/19 2:55 PM	Not Reported
30	N037181-001A	SAMP	100	Hexavalent Chromium	09/03/19 3:05 PM	Not Reported
31	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 3:14 PM	Reported
32	N037148-001AMS	MS	1	Hexavalent Chromium	09/03/19 3:23 PM	Reported
33	N037148-002AMS	MS	1	Hexavalent Chromium	09/03/19 3:33 PM	Reported
34	N037148-003AMS	MS	1	Hexavalent Chromium	09/03/19 3:42 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/03/19 3:52 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/03/19 4:01 PM	Reported
37	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 4:11 PM	Not Reported
38	N037148-005AMS	MS	1	Hexavalent Chromium	09/03/19 4:20 PM	Reported
39	N037148-006AMS	MS	1	Hexavalent Chromium	09/03/19 4:30 PM	Reported
40	N037148-007AMS	MS	1	Hexavalent Chromium	09/03/19 4:39 PM	Reported
41	N037148-008AMS	MS	1	Hexavalent Chromium	09/03/19 4:56 PM	Reported
42	N037148-009AMS	MS	1	Hexavalent Chromium	09/03/19 5:07 PM	Reported

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037148-010AMS	MS	1	Hexavalent Chromium	09/03/19 5:16 PM	Reported
44	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 5:26 PM	Reported
45	N037181-001AMS	MS	200	Hexavalent Chromium	09/03/19 5:35 PM	Reported
46	N037181-001A	SAMP	200	Hexavalent Chromium	09/03/19 5:45 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	09/03/19 5:54 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	09/03/19 6:04 PM	Reported
49	N037148-001A	SAMP	1	Hexavalent Chromium	09/03/19 6:13 PM	Reported
50	N037148-002A	SAMP	1	Hexavalent Chromium	09/03/19 6:23 PM	Reported
51	N037148-003A	SAMP	1	Hexavalent Chromium	09/03/19 6:32 PM	Reported
52	N037148-004A	SAMP	1	Hexavalent Chromium	09/03/19 6:42 PM	Reported
53	N037148-005A	SAMP	1	Hexavalent Chromium	09/03/19 6:51 PM	Reported
54	N037148-006A	SAMP	1	Hexavalent Chromium	09/03/19 7:01 PM	Reported
55	N037148-007A	SAMP	1	Hexavalent Chromium	09/03/19 7:10 PM	Reported
56	N037148-008A	SAMP	1	Hexavalent Chromium	09/03/19 7:19 PM	Reported
57	N037148-009A	SAMP	1	Hexavalent Chromium	09/03/19 7:29 PM	Reported
58	N037148-010A	SAMP	1	Hexavalent Chromium	09/03/19 7:38 PM	Reported
59	CCV-5	CCV	1	Hexavalent Chromium	09/03/19 7:48 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	09/03/19 7:57 PM	Reported
61	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 8:07 PM	Reported
62	N037148-011AMS	MS	1	Hexavalent Chromium	09/03/19 8:16 PM	Not Reported
63	N037148-011A	SAMP	1	Hexavalent Chromium	09/03/19 8:26 PM	Not Reported
64	N037148-012AMS	MS	1	Hexavalent Chromium	09/03/19 8:35 PM	Reported
65	N037148-012A	SAMP	1	Hexavalent Chromium	09/03/19 8:45 PM	Reported
66	N037148-013AMS	MS	1	Hexavalent Chromium	09/03/19 8:54 PM	Reported
67	N037148-013A	SAMP	1	Hexavalent Chromium	09/03/19 9:04 PM	Reported
68	CCV-6	CCV1	1	Hexavalent Chromium	09/03/19 9:13 PM	Reported
69	CCB-6	CCB	1	Hexavalent Chromium	09/03/19 9:22 PM	Reported
70	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 9:32 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190903A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/Sep/19 09:44:10**
No. of Injections:	**73**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/03/2019 10:48	Finished	BLANK
10	~~CCV1~~CCV,1,	2	1000	Unknown		09/03/2019 10:59	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/03/2019 11:08	Finished	PQL @ 0.2ppb
12	~~CCB~~1,CCB,1,	4	1000	Unknown		09/03/2019 11:18	Finished	CCB R190701
13	MB-H2O,MBLK,1,	5	1000	Unknown		09/03/2019 11:27	Finished	MB R190701
14	LCS-H2O,LCS,1,	6	1000	Unknown		09/03/2019 11:37	Finished	LCS @5ppb, IWST-190702B
15	N037145-002AMS,MS	8	1000	Unknown		09/03/2019 11:46	Finished	MS (1ppb), IWST-190702B,10
16	N037147-003AMS,MS	9	1000	Unknown		09/03/2019 11:56	Finished	MS (1ppb), IWST-190702B,10
17	N037176-005AMS,MS	10	1000	Unknown		09/03/2019 12:05	Finished	MS (1ppb), IWST-190702B,10
18	N037176-006AMS,MS	11	1000	Unknown		09/03/2019 12:14	Finished	MS (1ppb), IWST-190702B,10
19	N037181-001AMS,MS	12	1000	Unknown		09/03/2019 12:24	Finished	MS (1ppb), IWST-190702B,10
20	N037145-002AMS,MS	13	1000	Unknown		09/03/2019 12:33	Finished	MS (5ppb), IWST-190702B,0.2
21	N037145-002A,SAMP	14	1000	Unknown		09/03/2019 12:43	Finished	SAMP,0.2>10mL
22	N037147-003A,SAMP	15	1000	Unknown		09/03/2019 13:47	Finished	SAMP,10mL
23	CCV-2,CCV1,1,	16	1000	Unknown		09/03/2019 13:58	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	17	1000	Unknown		09/03/2019 14:08	Finished	CCB R190617C
25	N037176-005AMSD,M	18	1000	Unknown		09/03/2019 14:17	Finished	MSD (1ppb), IWST-190702B,10
26	N037176-005A,SAMP	19	1000	Unknown		09/03/2019 14:27	Finished	SAMP,10mL
27	N037176-005ADUP,D	20	1000	Unknown		09/03/2019 14:36	Finished	SAMP,10mL
28	N037176-006A,SAMP	21	1000	Unknown		09/03/2019 14:46	Finished	MS (1ppb), IWST-190702B,10
29	N037181-001AMS,MS	22	1000	Unknown		09/03/2019 14:55	Finished	MS (5ppb), IWST-190702B,0.1
30	N037181-001A,SAMP	23	1000	Unknown		09/03/2019 15:05	Finished	SAMP,0.1>10mL
31	N037145-002AMS,MS	24	1000	Unknown		09/03/2019 15:14	Finished	MS (5ppb), IWST-190702B,0.2
32	N037148-001AMS,MS	25	1000	Unknown		09/03/2019 15:23	Finished	MS (1ppb), IWST-190702B,10
33	N037148-002AMS,MS	26	1000	Unknown		09/03/2019 15:33	Finished	MS (1ppb), IWST-190702B,10
34	N037148-003AMS,MS	27	1000	Unknown		09/03/2019 15:42	Finished	MS (1ppb), IWST-190702B,10
35	CCV-3,CCV,1,	28	1000	Unknown		09/03/2019 15:52	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	29	1000	Unknown		09/03/2019 16:01	Finished	CCB R190617C
37	N037148-004AMS,MS	30	1000	Unknown		09/03/2019 16:11	Finished	MS (1ppb), IWST-190702B,10
38	N037148-005AMS,MS	31	1000	Unknown		09/03/2019 16:20	Finished	MS (1ppb), IWST-190702B,10
39	N037148-006AMS,MS	32	1000	Unknown		09/03/2019 16:30	Finished	MS (1ppb), IWST-190702B,10
40	N037148-007AMS,MS	33	1000	Unknown		09/03/2019 16:39	Finished	MS (1ppb), IWST-190702B,10
41	N037148-008AMS,MS	1	1000	Unknown		09/03/2019 16:56	Finished	MS (1ppb), IWST-190702B,10
42	N037148-009AMS,MS	2	1000	Unknown		09/03/2019 17:07	Finished	MS (1ppb), IWST-190702B,10
43	N037148-010AMS,MS	3	1000	Unknown		09/03/2019 17:16	Finished	MS (1ppb), IWST-190702B,10
44	N037147-003AMS,MS	4	1000	Unknown		09/03/2019 17:26	Finished	MS (1ppb), IWST-190702B,10
45	N037181-001AMS,MS	5	1000	Unknown		09/03/2019 17:35	Finished	MS (5ppb), IWST-190702B,0.0
46	N037181-001A,SAMP	6	1000	Unknown		09/03/2019 17:45	Finished	SAMP,0.05>10mL
47	CCV-4,CCV1,1,	7	1000	Unknown		09/03/2019 17:54	Finished	CCV @10ppb, IWST-190702A
48	CCB-4,CCB,1,	8	1000	Unknown		09/03/2019 18:04	Finished	CCB R190617C
49	N037148-001A,SAMP	9	1000	Unknown		09/03/2019 18:13	Finished	SAMP,10mL
50	N037148-002A,SAMP	10	1000	Unknown		09/03/2019 18:23	Finished	SAMP,10mL
51	N037148-003A,SAMP	11	1000	Unknown		09/03/2019 18:32	Finished	SAMP,10mL
52	N037148-004A,SAMP	12	1000	Unknown		09/03/2019 18:42	Finished	SAMP,10mL
53	N037148-005A,SAMP	13	1000	Unknown		09/03/2019 18:51	Finished	SAMP,10mL
54	N037148-006A,SAMP	14	1000	Unknown		09/03/2019 19:01	Finished	SAMP,10mL
55	N037148-007A,SAMP	15	1000	Unknown		09/03/2019 19:10	Finished	SAMP,10mL
56	N037148-008A,SAMP	16	1000	Unknown		09/03/2019 19:19	Finished	SAMP,10mL
57	N037148-009A,SAMP	17	1000	Unknown		09/03/2019 19:29	Finished	SAMP,10mL
58	N037148-010A,SAMP	18	1000	Unknown		09/03/2019 19:38	Finished	SAMP,10mL
59	CCV-5,CCV,1,	19	1000	Unknown		09/03/2019 19:48	Finished	CCV @5ppb, IWST-190702A
60	CCB-5,CCB,1,	20	1000	Unknown		09/03/2019 19:57	Finished	CCB R190617C

CCV-1

CCB-1

61	N037148-004AMS,MS	21	1000	Unknown		09/03/2019 20:07	Finished	MS (1ppb), IWST-190702B,10
62	N037148-011AMS,MS	22	1000	Unknown		09/03/2019 20:16	Finished	MS (1ppb), IWST-190702B,10
63	N037148-011A,SAMP	23	1000	Unknown		09/03/2019 20:26	Finished	SAMP,10mL
64	N037148-012AMS,MS	24	1000	Unknown		09/03/2019 20:35	Finished	MS (1ppb), IWST-190702B,10
65	N037148-012A,SAMP	25	1000	Unknown		09/03/2019 20:45	Finished	SAMP,10mL
66	N037148-013AMS,MS	26	1000	Unknown		09/03/2019 20:54	Finished	MS (1ppb), IWST-190702B,10
67	N037148-013A,SAMP	27	1000	Unknown		09/03/2019 21:04	Finished	SAMP,10mL
68	CCV-6,CCV1,1,	28	1000	Unknown		09/03/2019 21:13	Finished	CCV @10ppb, IWST-190702A
69	CCB-6,CCB,1,	29	1000	Unknown		09/03/2019 21:22	Finished	CCB R190617C
70	BLANK	30	1000	Unknown		09/03/2019 21:32	Finished	BLANK
71	SHUTDOWN	31	1000	Unknown		09/03/2019 21:41	Finished	
72	Eluent: R190903A	32	1000	Unknown		n.a.	Finished	Eluent
73	PCR: R190903B	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

09/10/19

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/22/19
Time Prepared: 1300
Prepared By: HSG

SLOPE: 98.2%
pH 4: 4.02
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190828A
NH4OH + NH4SO4 buffer: R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of ~~buffer~~ GN NaOH (R190722A) added	Comments
1)	N037118-~~9A~~ 12A	9.23	9.36	~200 mL	~250 mL	+2 drops	1/3
2)	-~~9A~~ 12A	9.25	9.32			+1 drop	2/3
3)	-~~9A~~ 12A	9.24	9.37			+2 drops	3/3
4)	-13A	9.25	9.38			+2 drops	1/3
5)	-13A	9.22	9.35			+2 drops	2/3
6)	-13A	9.23	9.36			+2 drops	3/3
7)	-14A	8.74	9.45			+3 drops	1/3
8)	-14A	9.20	9.34			+2 drops	2/3
9)	-14A	9.10	9.35			+2 drops	3/3
10)	-15A	9.21	9.35			+2 drops	1/3
11)	-15A	9.25	9.35			+2 drops	2/3
12)	-15A	9.22	9.32			+2 drops	3/3
13)	-16A	9.24	9.35			+1 drop	
14)	-17A	9.27	9.37			+1 drop	
15)							

Sample Preparation

Date Prepared: 8/23/19
Time Prepared: 1206 PM
Prepared By: HSG / LSR

SLOPE: 98.5%
pH 4: 4.03
7: 7.03
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190822A, R190828B, R190903A
NH4OH + NH4SO4 buffer: R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of ~~buffer~~ GN NaOH (R190722A) added	Comments
1)	N037141-1A	9.36	—	~250 ml	~250 mL	—	
2)	N037139-1A	8.81	9.37			+3 drops	
3)	-2A	8.79	9.35			+3 drops	
4)	N037140-2A	9.10	9.54			+2 drops	
5)	N037142-2A	8.89	9.40			+3 drops	
6)	N037143-1A	9.25	9.34			+1 drop	
7)	2A	9.39	—			—	
8)	N037144-1A	9.26	9.35			+1 drop NaOH	
9)	2A	9.26	9.38			+1 drop	
10)	3A	9.18	9.36			+2 drops	
11)	4A	9.10	9.36			+3 drops	
12)	N037145-1A	9.18	9.32			+3 drops	
13)	2A	9.00	9.31			+4 drops	
14)	N037146-1A	9.17	9.34			+2 drops	
15)	2A	9.20	9.38			+2 drops	
	N037147-3A	9.35	—			—	

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/27/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0535	0.2527	1.2778	2.5458	3.9240	5.1959	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ICV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.202	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.873	0.20	5.000	0	97.5	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.195	0.20	0.2000	0	97.6	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.687	0.20	10.00	0	96.9	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.921	0.20	5.000	0	98.4	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ZZZZZZ**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499011**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.811	0.20	10.00	0	98.1	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCV**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.960	0.20	5.000	0	99.2	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.885	0.20	5.000	0	97.7	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.198	0.20	0.2000	0	99.2	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.860	0.20	10.00	0	98.6	95	105				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.953	0.20	5.000	0	99.1	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.906	0.20	10.00	0	99.1	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.947	0.20	5.000	0	98.9	95	105				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.837	0.20	10.00	0	98.4	95	105				

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ICV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.202	0.20	0.2000	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **ICB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3497254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3497272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136209**
Client ID: **CCB**	Batch ID: **R136209**	TestNo: **EPA 218.6**		Analysis Date: **8/30/2019**	SeqNo: **3499012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5** SampType: **CCB** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136209**
Client ID: **CCB** Batch ID: **R136209** TestNo: **EPA 218.6** Analysis Date: **8/30/2019** SeqNo: **3499023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.174	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.131	0.20									

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ICB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/30/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.690	
Average	4.696	
Actual RT Window	4.616 - 4.776	
Applied RT Window	4.496 - 4.896	
MB-R136209	N.A.	N.A.
LCS-R136209	4.690	PASS
N037240-001BMS	4.656	PASS
N037142-002AMS	4.690	PASS
N037143-001AMS	4.665	PASS
N037144-001AMS	4.323	FAIL
N037240-001B	4.656	PASS
N037240-001BMSD	4.656	PASS
N037142-002A	N.A.	N.A.
N037142-002ADUP	N.A.	N.A.
N037144-002AMS	N.A.	N.A.
N037144-003AMS	N.A.	N.A.
N037144-004AMS	4.465	FAIL
N037145-001AMS	4.673	PASS
N037143-001AMS	4.631	PASS
N037144-001AMS	4.648	PASS
N037143-001A	4.631	PASS
N037143-001AMS	4.631	PASS
N037144-001A	4.648	PASS
N037144-001AMS	4.648	PASS
N037144-002AMS	4.656	PASS
N037144-003AMS	4.656	PASS
N037144-004AMS	4.665	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/30/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.690	
Average	4.696	
Actual RT Window	4.616 - 4.776	
Applied RT Window	4.496 - 4.896	
N037145-001A	N.A.	N.A.
N037144-001A	4.673	PASS
N037144-001AMS	4.673	PASS
N037144-002A	N.A.	N.A.
N037144-003A	N.A.	N.A.
N037144-004A	4.665	PASS
N037140-002A	N.A.	N.A.
N037140-002AMS	4.698	PASS
N037143-002A	N.A.	N.A.
N037143-002AMS	4.698	PASS
N037178-002A	N.A.	N.A.
N037178-002AMS	4.698	PASS
N037180-002A	N.A.	N.A.
N037180-002AMS	4.698	PASS
N037181-002A	4.698	PASS
N037181-002AMS	4.698	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.698	
CCV-6	4.698	

Average	4.698
Actual RT Window	4.618 - 4.778
Applied RT Window	4.498 - 4.898

MB-R136330	N.A.	N.A.
LCS-R136330	4.698	PASS
N037145-002AMS	4.598	PASS
N037147-003AMS	4.698	PASS
N037176-005AMS	4.698	PASS
N037176-006AMS	4.698	PASS
N037181-001AMS	4.415	FAIL
N037145-002AMS	4.698	PASS
N037145-002A	4.698	PASS
N037147-003A	N.A.	N.A.
N037176-005AMSD	4.698	PASS
N037176-005A	N.A.	N.A.
N037176-005ADUP	N.A.	N.A.
N037176-006A	N.A.	N.A.
N037181-001AMS	4.698	PASS
N037181-001A	4.698	PASS
N037145-002AMS	4.698	PASS
N037148-001AMS	4.698	PASS
N037148-002AMS	4.698	PASS
N037148-003AMS	4.698	PASS
N037148-004AMS	4.690	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.698	
CCV-6	4.698	
Average	4.698	
Actual RT Window	4.618 - 4.778	
Applied RT Window	4.498 - 4.898	
N037148-005AMS	4.698	PASS
N037148-006AMS	4.698	PASS
N037148-007AMS	4.698	PASS
N037148-008AMS	4.690	PASS
N037148-009AMS	4.698	PASS
N037148-010AMS	4.690	PASS
N037147-003AMS	4.698	PASS
N037181-001AMS	4.698	PASS
N037181-001A	4.690	PASS
N037148-001A	N.A.	N.A.
N037148-002A	4.698	PASS
N037148-003A	N.A.	N.A.
N037148-004A	N.A.	N.A.
N037148-005A	N.A.	N.A.
N037148-006A	N.A.	N.A.
N037148-007A	N.A.	N.A.
N037148-008A	4.698	PASS
N037148-009A	N.A.	N.A.
N037148-010A	N.A.	N.A.
N037148-004AMS	4.698	PASS
N037148-011AMS	4.681	PASS
N037148-011A	4.306	FAIL

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.698	
CCV-6	4.698	
Average	4.698	
Actual RT Window	4.618 - 4.778	
Applied RT Window	4.498 - 4.898	
N037148-012AMS	4.698	PASS
N037148-012A	N.A.	N.A.
N037148-013AMS	4.698	PASS
N037148-013A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

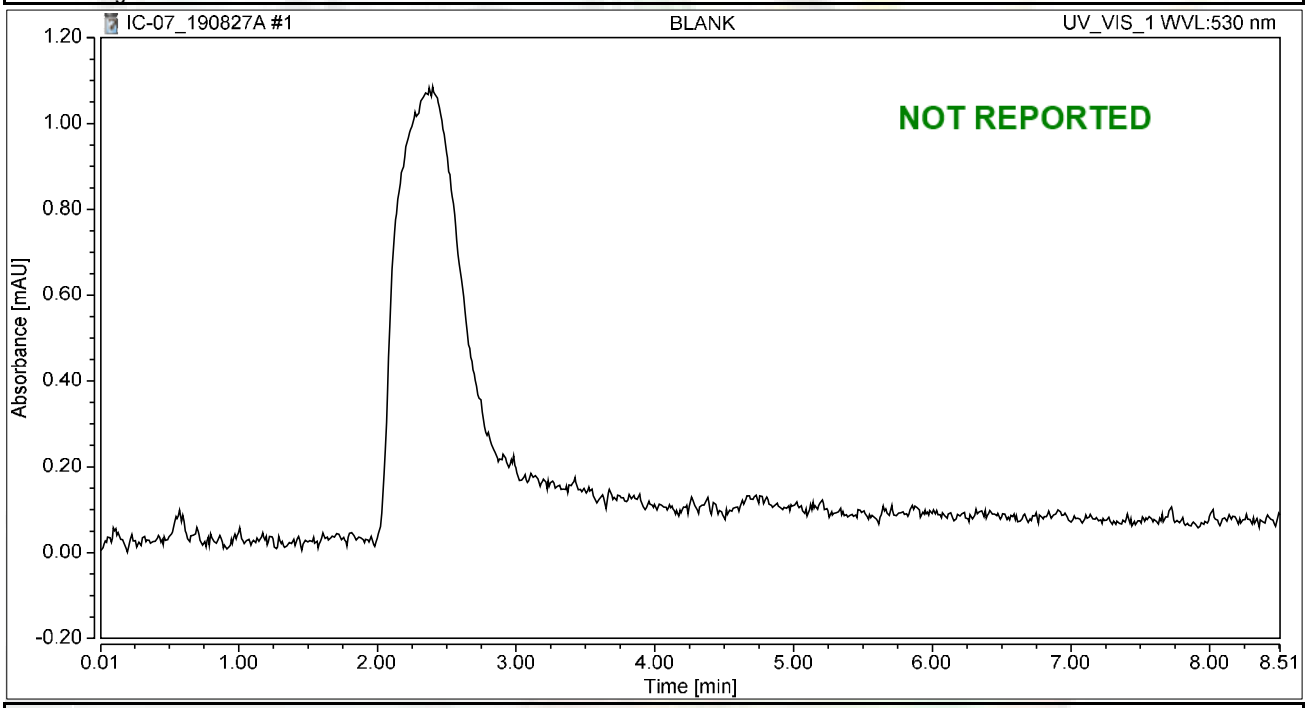
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

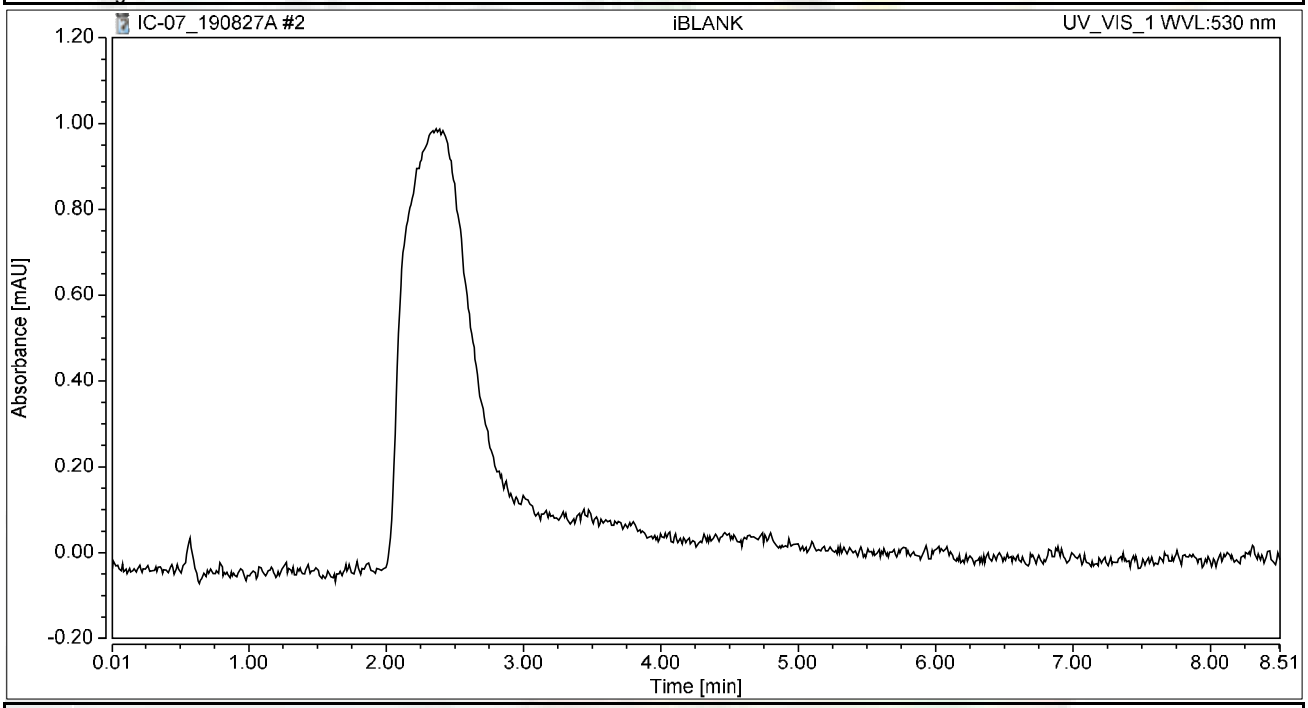
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

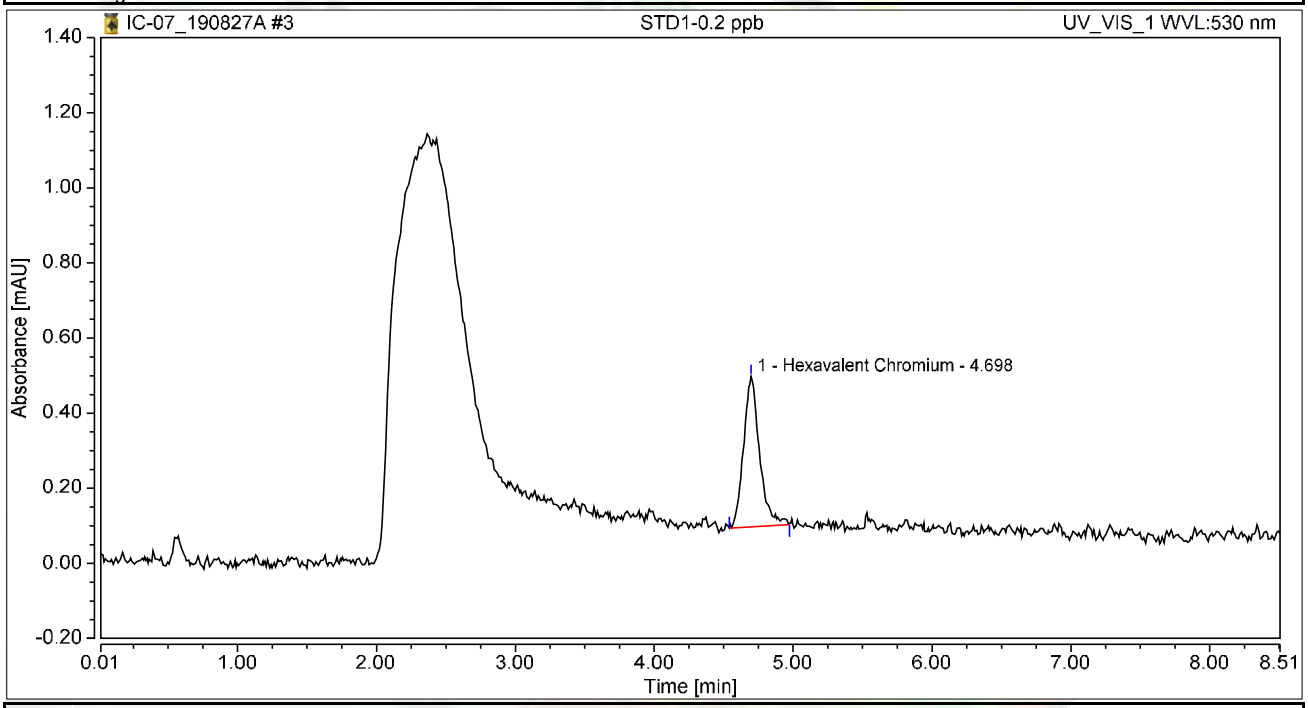
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

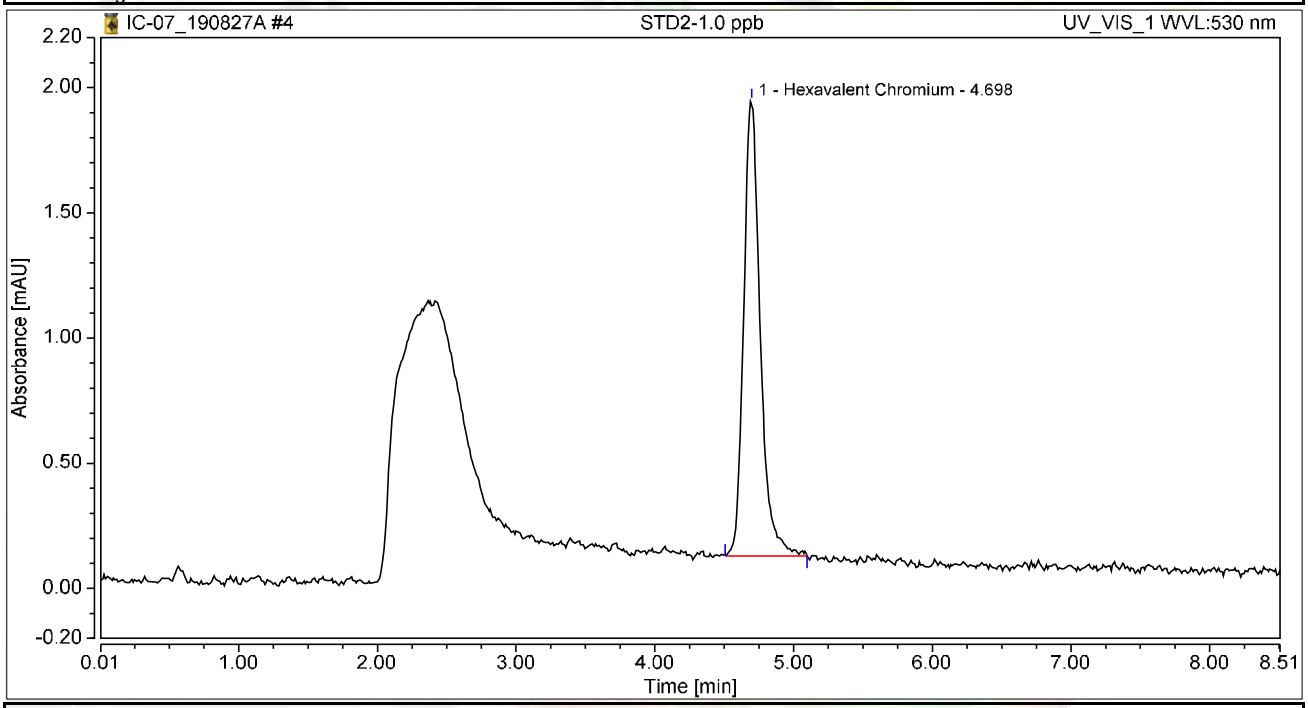
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.401	100.00	100.00	0.2063
Total:			**0.054**	**0.401**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

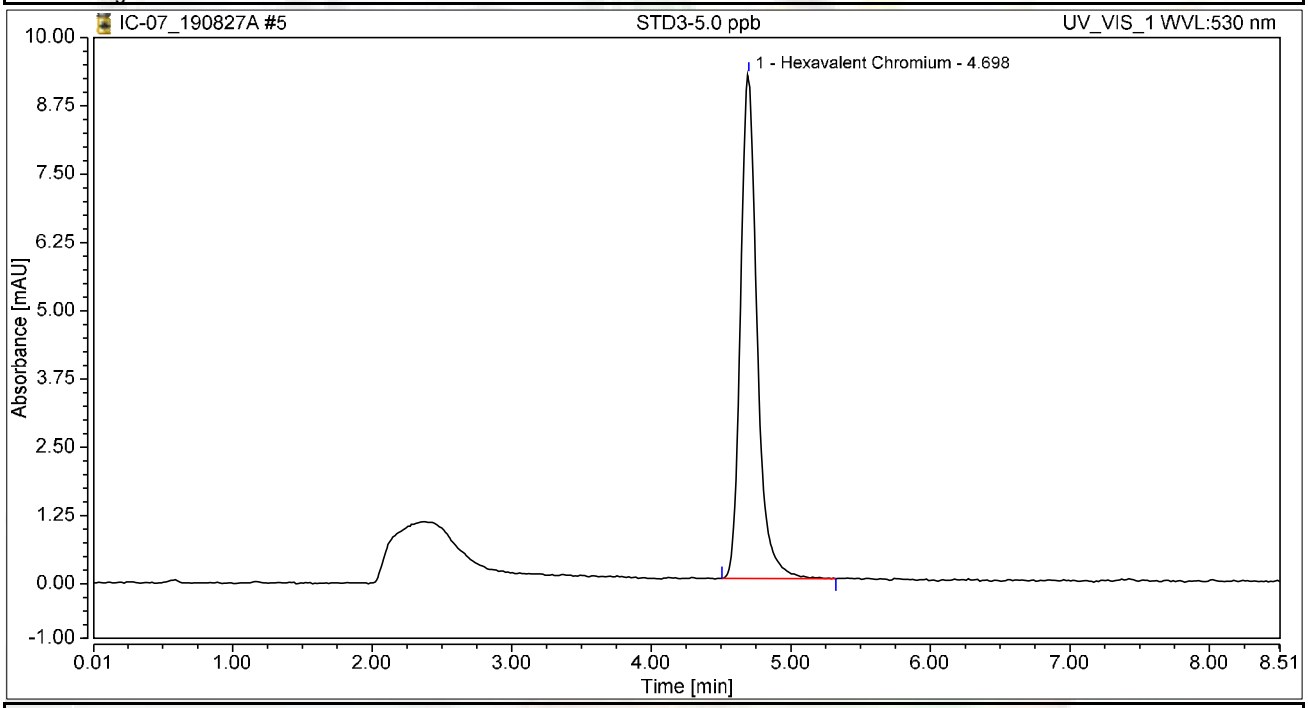
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.253	1.819	100.00	100.00	0.9737
Total:			**0.253**	**1.819**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

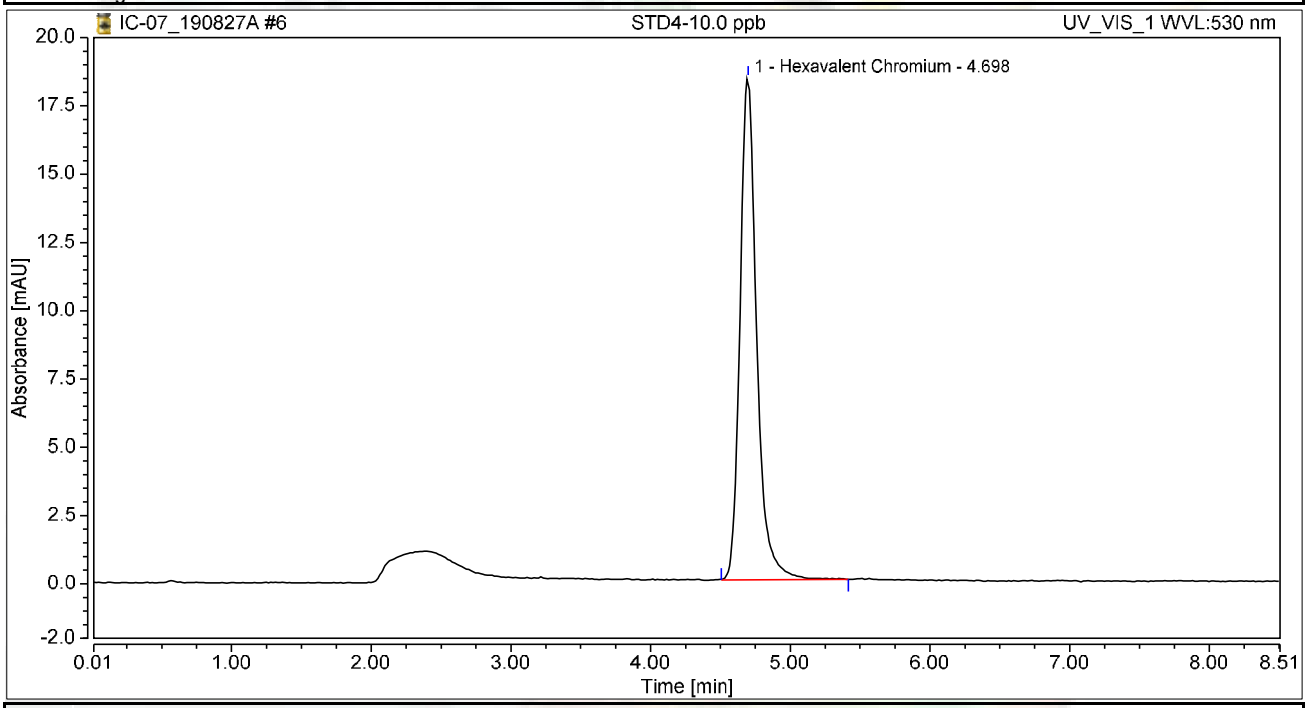
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.278	9.233	100.00	100.00	4.9242
Total:			**1.278**	**9.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

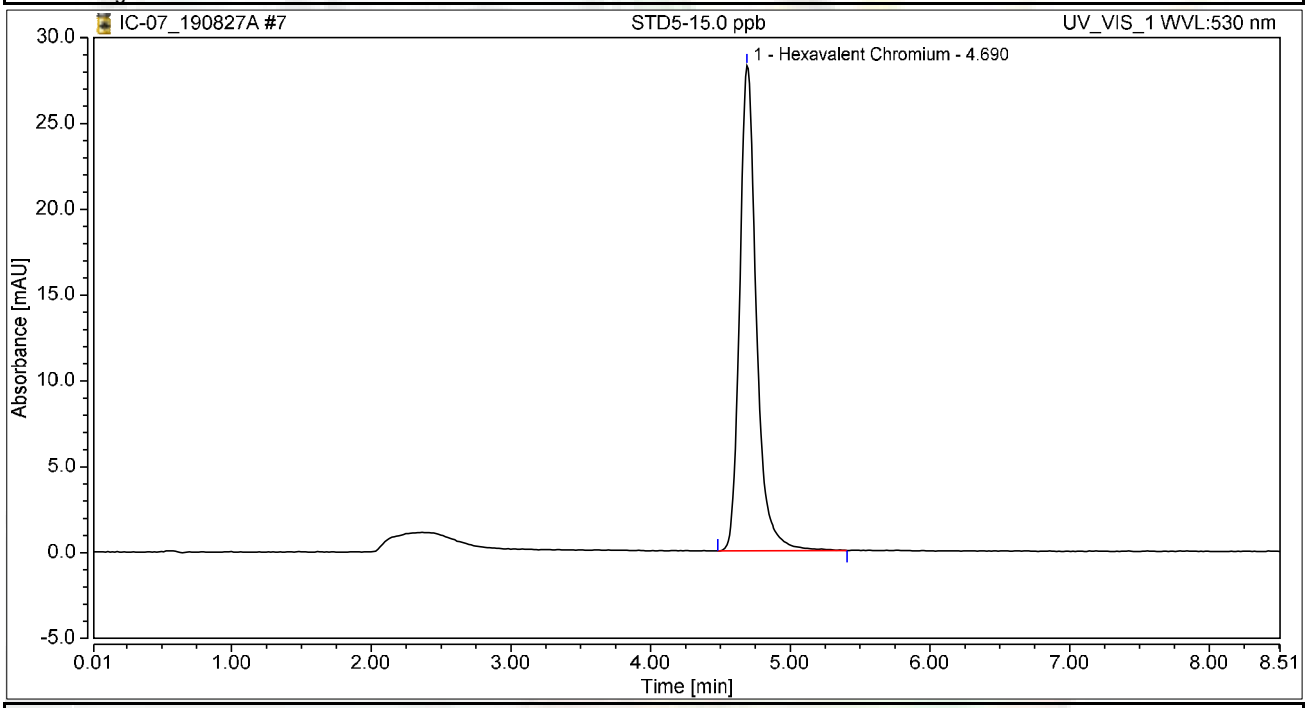
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.546	18.373	100.00	100.00	9.8106
Total:			**2.546**	**18.373**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

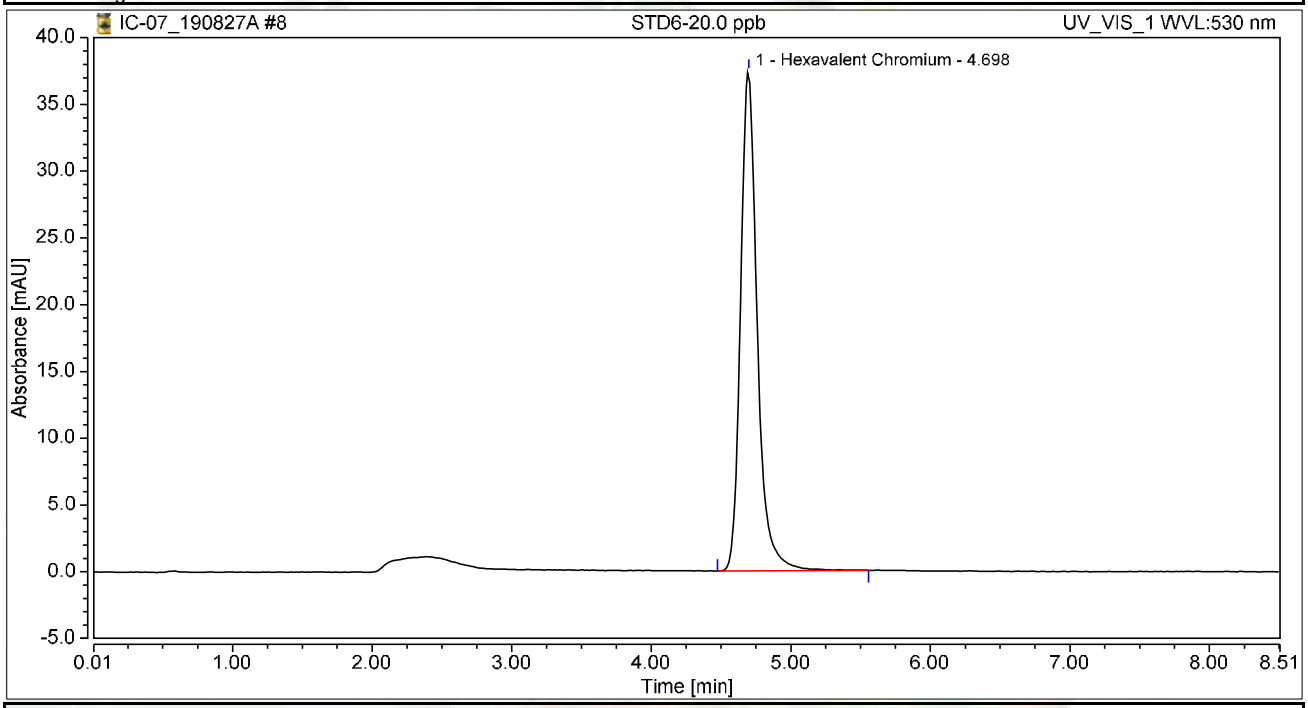
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.924	28.263	100.00	100.00	15.1217
Total:			**3.924**	**28.263**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



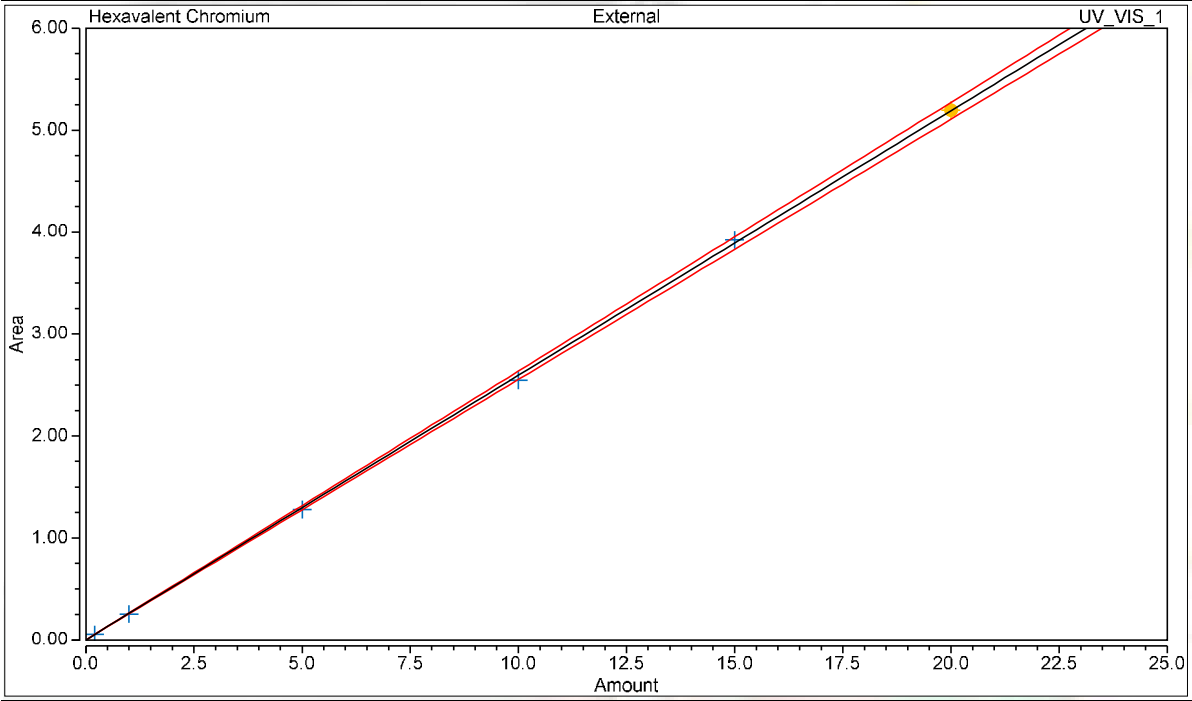
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.196	37.432	100.00	100.00	20.0236
Total:			**5.196**	**37.432**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99982

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

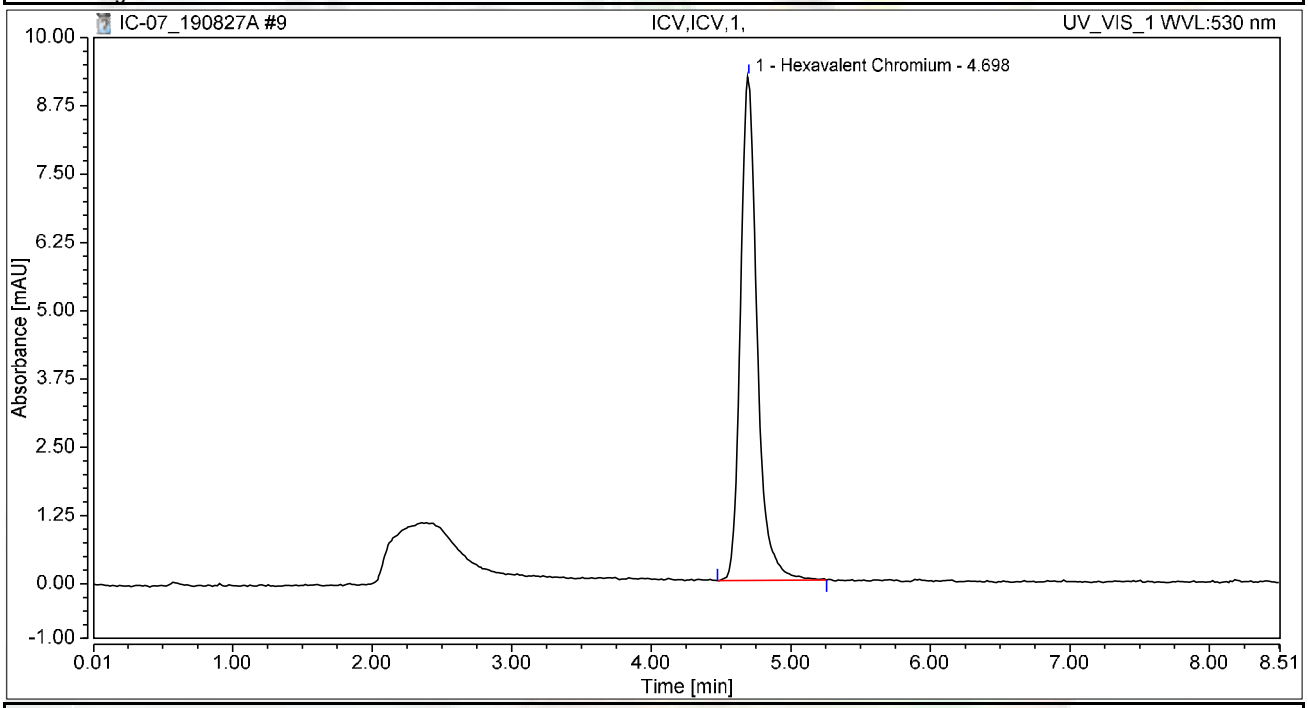
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
3	STD1-0.2 ppb	01	0.2000	0.0535	0.054	0.401
4	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.819
5	STD3-5.0 ppb	03	5.0000	1.2778	1.278	9.233
6	STD4-10.0 ppb	04	10.0000	2.5458	2.546	18.373
7	STD5-15.0 ppb	05	15.0000	3.9240	3.924	28.263
8	STD6-20.0 ppb	06	20.0000	5.1959	5.196	37.432

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

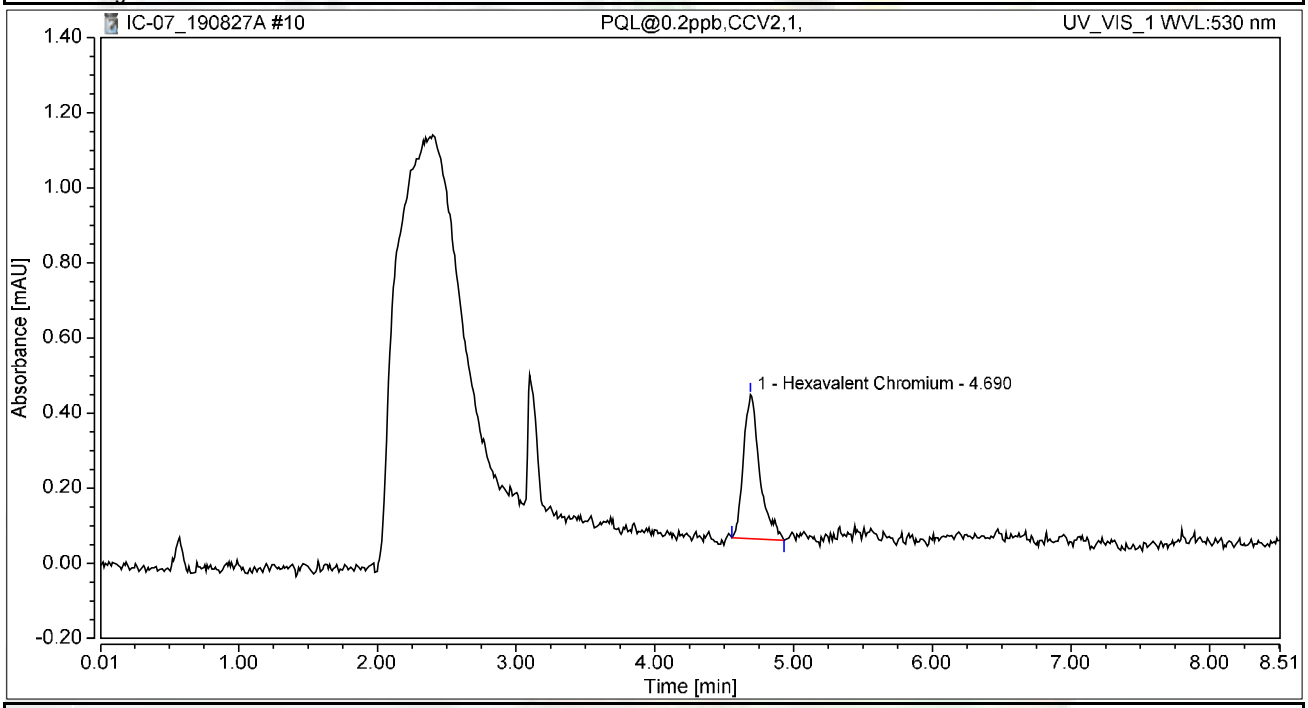
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.281	9.225	100.00	100.00	4.9381
Total:			**1.281**	**9.225**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

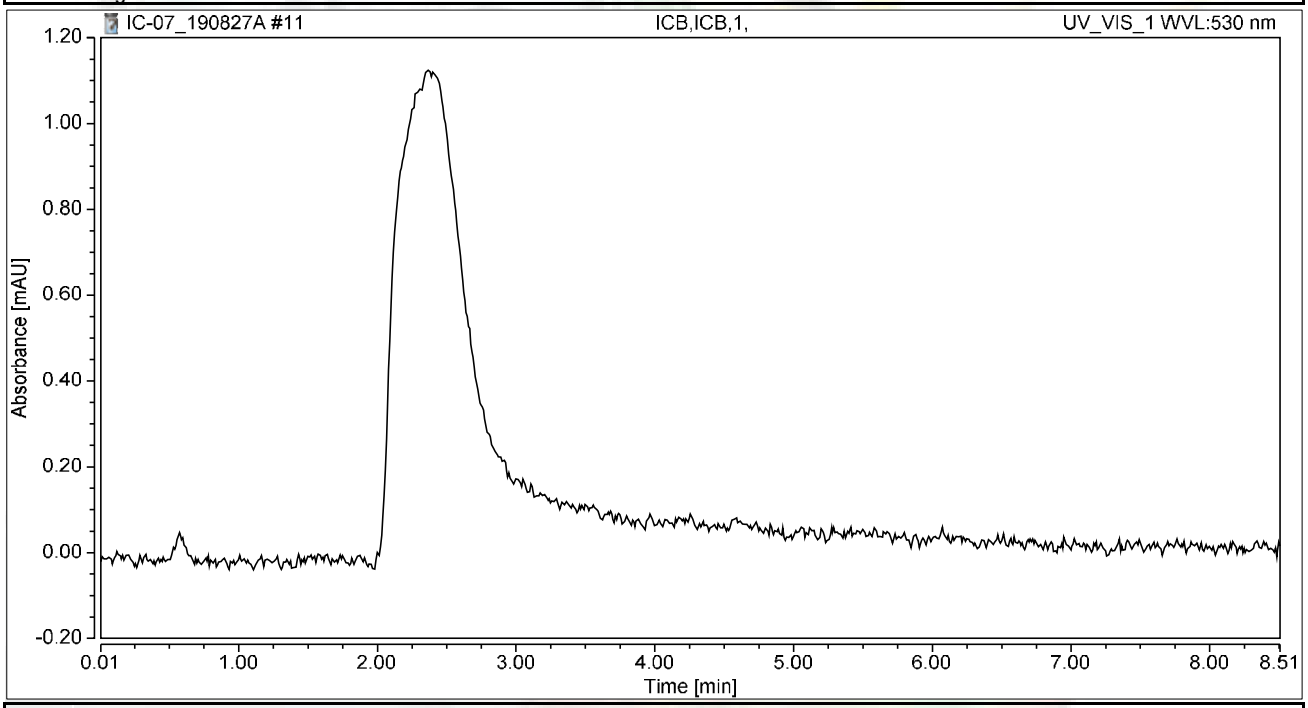
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.052	0.383	100.00	100.00	0.2022
Total:			**0.052**	**0.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	08/30/19 9:56 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	08/30/19 10:07 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/30/19 10:17 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	08/30/19 10:26 AM	Reported
13	MB-R136209	MBLK	1	Hexavalent Chromium	08/30/19 10:36 AM	Reported
14	LCS-R136209	LCS	1	Hexavalent Chromium	08/30/19 10:45 AM	Reported
15	N037240-001BMS	MS	1	Hexavalent Chromium	08/30/19 11:00 AM	Reported
16	N037142-002AMS	MS	1	Hexavalent Chromium	08/30/19 11:11 AM	Reported
17	N037143-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:21 AM	Not Reported
18	N037144-001AMS	MS	1	Hexavalent Chromium	08/30/19 11:30 AM	Not Reported
19	N037240-001B	SAMP	1	Hexavalent Chromium	08/30/19 11:40 AM	Reported
20	N037240-001BMSD	MSD	1	Hexavalent Chromium	08/30/19 11:49 AM	Reported
21	N037142-002A	SAMP	1	Hexavalent Chromium	08/30/19 11:59 AM	Reported
22	N037142-002ADUP	DUP	1	Hexavalent Chromium	08/30/19 12:08 PM	Reported
23	CCV-1 2	CCV1	1	Hexavalent Chromium	08/30/19 12:18 PM	Reported
24	CCB-1 2	CCB	1	Hexavalent Chromium	08/30/19 12:27 PM	Reported
25	N037144-002AMS	MS	1	Hexavalent Chromium	08/30/19 12:37 PM	Not Reported
26	N037144-003AMS	MS	1	Hexavalent Chromium	08/30/19 12:46 PM	Not Reported
27	N037144-004AMS	MS	1	Hexavalent Chromium	08/30/19 12:56 PM	Not Reported
28	N037145-001AMS	MS	1	Hexavalent Chromium	08/30/19 1:05 PM	Reported
29	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:14 PM	Not Reported
30	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 1:24 PM	Not Reported
31	N037143-001A	SAMP	5	Hexavalent Chromium	08/30/19 1:58 PM	Reported
32	N037143-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:09 PM	Reported
33	N037144-001A	SAMP	5	Hexavalent Chromium	08/30/19 2:19 PM	Not Reported
34	N037144-001AMS	MS	5	Hexavalent Chromium	08/30/19 2:28 PM	Not Reported
35	CCV-2 3	CCV	1	Hexavalent Chromium	08/30/19 2:38 PM	Reported
36	CCB-2 3	CCB	1	Hexavalent Chromium	08/30/19 2:47 PM	Reported
37	N037144-002AMS	MS	5	Hexavalent Chromium	08/30/19 2:57 PM	Reported
38	N037144-003AMS	MS	5	Hexavalent Chromium	08/30/19 3:06 PM	Reported
39	N037144-004AMS	MS	5	Hexavalent Chromium	08/30/19 3:15 PM	Reported
40	N037145-001A	SAMP	1	Hexavalent Chromium	08/30/19 3:25 PM	Reported
41	N037144-001A	SAMP	10	Hexavalent Chromium	08/30/19 3:34 PM	Reported
42	N037144-001AMS	MS	10	Hexavalent Chromium	08/30/19 3:44 PM	Reported

INJECTION LOG: 190830A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037144-002A	SAMP	5	Hexavalent Chromium	08/30/19 3:53 PM	Reported
44	N037144-003A	SAMP	5	Hexavalent Chromium	08/30/19 4:03 PM	Reported
45	N037144-004A	SAMP	5	Hexavalent Chromium	08/30/19 4:12 PM	Reported
46	N037140-002A	SAMP	1	Hexavalent Chromium	08/30/19 4:26 PM	Reported
47	CCV-3 4	CCV1	1	Hexavalent Chromium	08/30/19 4:38 PM	Reported
48	CCB-3 4	CCB	1	Hexavalent Chromium	08/30/19 4:47 PM	Reported
49	N037140-002AMS	MS	1	Hexavalent Chromium	08/30/19 4:57 PM	Reported
50	N037143-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:06 PM	Reported
51	N037143-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:16 PM	Reported
52	N037178-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:25 PM	Reported
53	N037178-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:35 PM	Reported
54	N037180-002A	SAMP	1	Hexavalent Chromium	08/30/19 5:44 PM	Reported
55	N037180-002AMS	MS	1	Hexavalent Chromium	08/30/19 5:54 PM	Reported
56	N037181-002A	SAMP	1	Hexavalent Chromium	08/30/19 6:03 PM	Reported
57	N037181-002AMS	MS	1	Hexavalent Chromium	08/30/19 6:12 PM	Reported
58	CCV-4 5	CCV	1	Hexavalent Chromium	08/30/19 6:22 PM	Reported
59	CCB-4 5	CCB	1	Hexavalent Chromium	08/30/19 6:31 PM	Reported

NS 9/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190830A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**30/Aug/19 19:02:14**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

No.		Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1		BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2		iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3		STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4		STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5		STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6		STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7		STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8		STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9		BLANK	1	1000	Unknown		08/30/2019 09:56	Finished	BLANK
10	CCV-1	CCV,CCV,1,	2	1000	Unknown		08/30/2019 10:07	Finished	CCV @5ppb, IWST-190702A
11		PQL@0.2ppb,CCV2,1	3	1000	Unknown		08/30/2019 10:17	Finished	PQL @ 0.2ppb
12	CCB-1	CCB,CCB,1,	4	1000	Unknown		08/30/2019 10:26	Finished	CCB R190701
13		MB-H2O,MBLK,1,	5	1000	Unknown		08/30/2019 10:36	Finished	MB R190701
14		LCS-H2O,LCS,1,	6	1000	Unknown		08/30/2019 10:45	Finished	LCS @5ppb, IWST-190702B
15		N037240-001BMS,MS	8	1000	Unknown		08/30/2019 11:00	Finished	MS (1ppb), IWST-190702B,10
16		N037142-002AMS,MS	9	1000	Unknown		08/30/2019 11:11	Finished	MS (1ppb), IWST-190702B,10
17		N037143-001AMS,MS	10	1000	Unknown		08/30/2019 11:21	Finished	MS (1ppb), IWST-190702B,10
18		N037144-001AMS,MS	11	1000	Unknown		08/30/2019 11:30	Finished	MS (1ppb), IWST-190702B,10
19		N037240-001B,SAMP	12	1000	Unknown		08/30/2019 11:40	Finished	SAMP,10mL
20		N037240-001BMSD,M	13	1000	Unknown		08/30/2019 11:49	Finished	MSD (1ppb), IWST-190702B,10
21		N037142-002A,SAMP	14	1000	Unknown		08/30/2019 11:59	Finished	SAMP,10mL
22		N037142-002ADUP,D	15	1000	Unknown		08/30/2019 12:08	Finished	DUP,10mL
23	2	CCV-1,CCV1,1,	16	1000	Unknown		08/30/2019 12:18	Finished	CCV @10ppb, IWST-190702A
24	2	CCB-1,CCB,1,	17	1000	Unknown		08/30/2019 12:27	Finished	CCB R190617C
25		N037144-002AMS,MS	18	1000	Unknown		08/30/2019 12:37	Finished	MS (1ppb), IWST-190702B,10
26		N037144-003AMS,MS	19	1000	Unknown		08/30/2019 12:46	Finished	MS (1ppb), IWST-190702B,10
27		N037144-004AMS,MS	20	1000	Unknown		08/30/2019 12:56	Finished	MS (1ppb), IWST-190702B,10
28		N037145-001AMS,MS	21	1000	Unknown		08/30/2019 13:05	Finished	MS (1ppb), IWST-190702B,10
29		N037143-001AMS,MS	22	1000	Unknown		08/30/2019 13:14	Finished	MS (1ppb), IWST-190702B,2>1
30		N037144-001AMS,MS	23	1000	Unknown		08/30/2019 13:24	Finished	MS (1ppb), IWST-190702B,2>1
31		N037143-001A,SAMP	1	1000	Unknown		08/30/2019 13:58	Finished	SAMP,2>10mL
32		N037143-001AMS,MS	2	1000	Unknown		08/30/2019 14:09	Finished	MS (5ppb), IWST-190702B,2>1
33		N037144-001A,SAMP	3	1000	Unknown		08/30/2019 14:19	Finished	SAMP,2>10mL
34		N037144-001AMS,MS	4	1000	Unknown		08/30/2019 14:28	Finished	MS (5ppb), IWST-190702B,2>1
35	3	CCV-2,CCV,1,	5	1000	Unknown		08/30/2019 14:38	Finished	CCV @5ppb, IWST-190702A
36	3	CCB-2,CCB,1,	6	1000	Unknown		08/30/2019 14:47	Finished	CCB R190617C
37		N037144-002AMS,MS	7	1000	Unknown		08/30/2019 14:57	Finished	MS (1ppb), IWST-190702B,2>1
38		N037144-003AMS,MS	8	1000	Unknown		08/30/2019 15:06	Finished	MS (1ppb), IWST-190702B,2>1
39		N037144-004AMS,MS	9	1000	Unknown		08/30/2019 15:15	Finished	SAMP,10mL
40		N037145-001A,SAMP	10	1000	Unknown		08/30/2019 15:25	Finished	SAMP,10mL
41		N037144-001A,SAMP	11	1000	Unknown		08/30/2019 15:34	Finished	SAMP,10mL
42		N037144-001AMS,MS	12	1000	Unknown		08/30/2019 15:44	Finished	SAMP,10mL
43		N037144-002A,SAMP	13	1000	Unknown		08/30/2019 15:53	Finished	SAMP,10mL
44		N037144-003A,SAMP	14	1000	Unknown		08/30/2019 16:03	Finished	SAMP,10mL
45		N037144-004A,SAMP	15	1000	Unknown		08/30/2019 16:12	Finished	SAMP,10mL
46		N037140-002A,SAMP	17	1000	Unknown		08/30/2019 16:26	Finished	SAMP,10mL
47	4	CCV-3,CCV1,1,	18	1000	Unknown		08/30/2019 16:38	Finished	CCV @10ppb, IWST-190702A
48	4	CCB-3,CCB,1,	19	1000	Unknown		08/30/2019 16:47	Finished	CCB R190617C
49		N037140-002AMS,MS	20	1000	Unknown		08/30/2019 16:57	Finished	SAMP,10mL
50		N037143-002A,SAMP	21	1000	Unknown		08/30/2019 17:06	Finished	SAMP,10mL
51		N037143-002AMS,MS	22	1000	Unknown		08/30/2019 17:16	Finished	SAMP,10mL
52		N037178-002A,SAMP	23	1000	Unknown		08/30/2019 17:25	Finished	SAMP,10mL
53		N037178-002AMS,MS	24	1000	Unknown		08/30/2019 17:35	Finished	SAMP,10mL
54		N037180-002A,SAMP	25	1000	Unknown		08/30/2019 17:44	Finished	SAMP,10mL
55		N037180-002AMS,MS	26	1000	Unknown		08/30/2019 17:54	Finished	SAMP,10mL
56		N037181-002A,SAMP	27	1000	Unknown		08/30/2019 18:03	Finished	SAMP,10mL
57		N037181-002AMS,MS	28	1000	Unknown		08/30/2019 18:12	Finished	SAMP,10mL
58	5	CCV-4,CCV,1,	29	1000	Unknown		08/30/2019 18:22	Finished	CCV @5ppb, IWST-190702A
59	5	CCB-4,CCB,1,	30	1000	Unknown		08/30/2019 18:31	Finished	CCB R190617C
60		SHUTDOWN	31	1000	Unknown		08/30/2019 18:41	Finished	

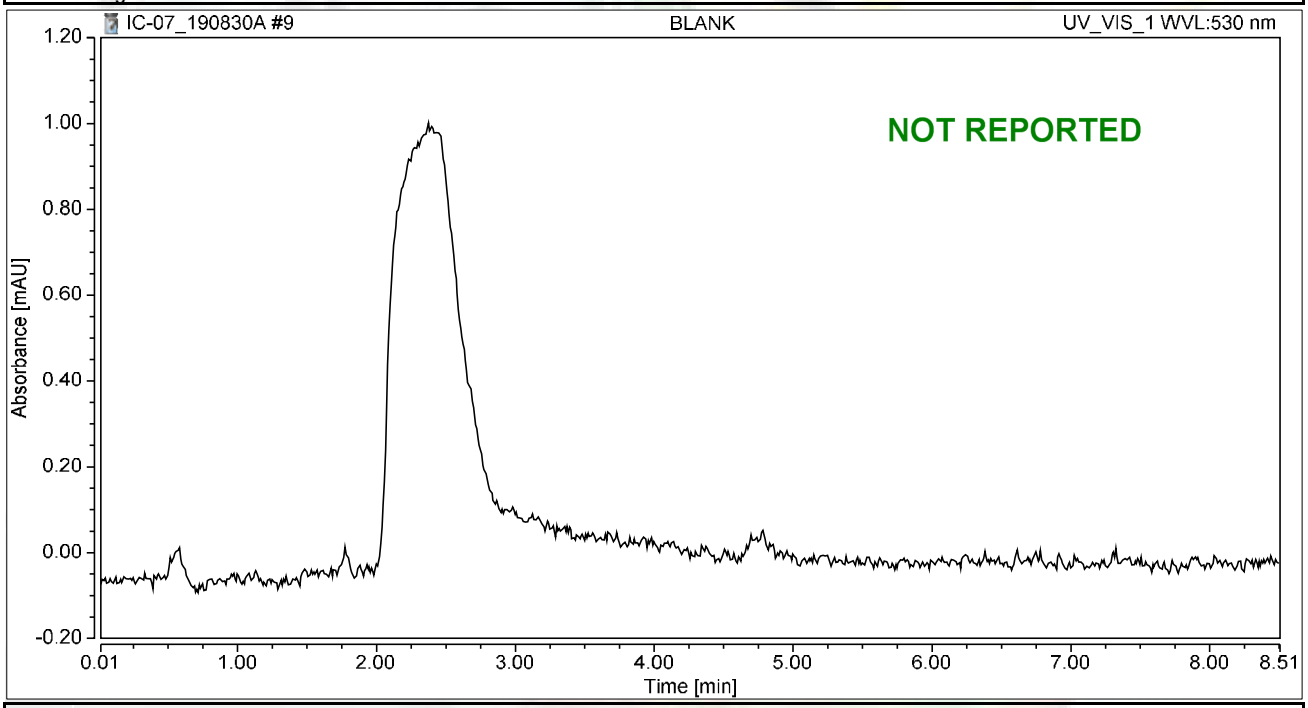
61	Eluent: R190828B	32	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190828A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 09:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

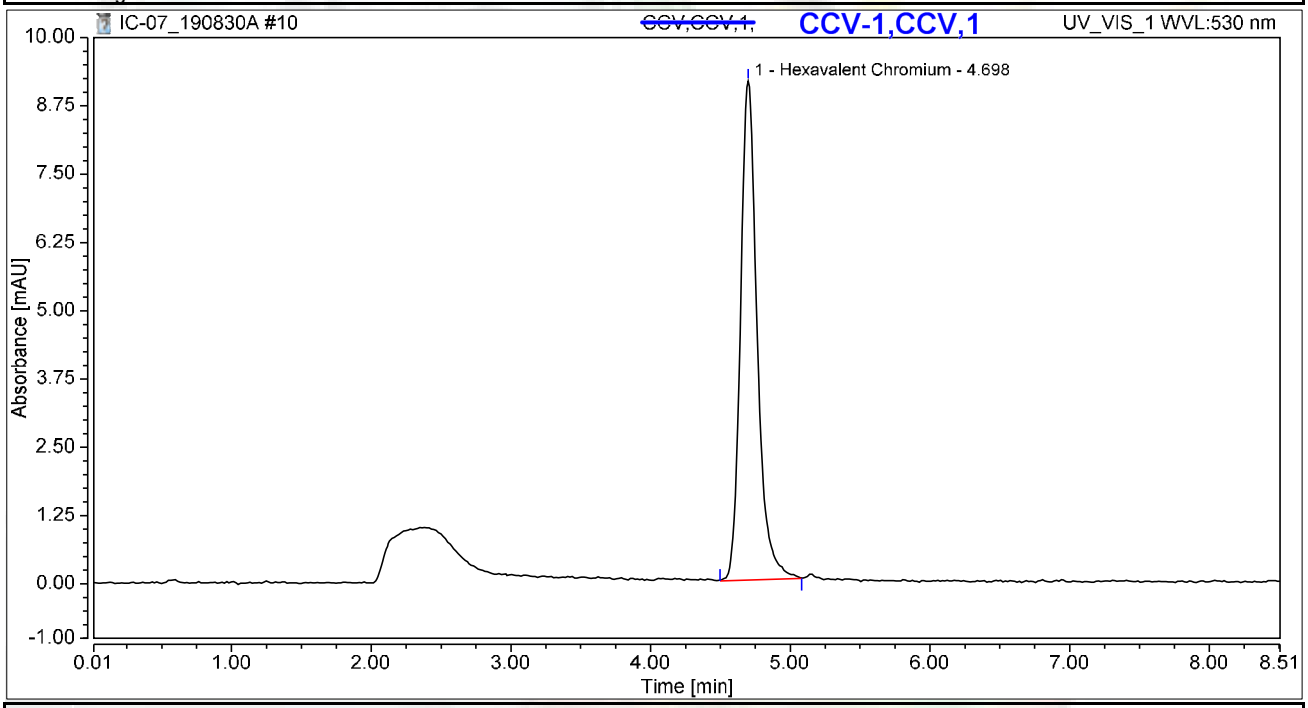
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV,CCV,1,~~ CCV-1,CCV,1	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.264	9.137	100.00	100.00	4.8727
Total:			**1.264**	**9.137**	**100.00**	**100.00**	

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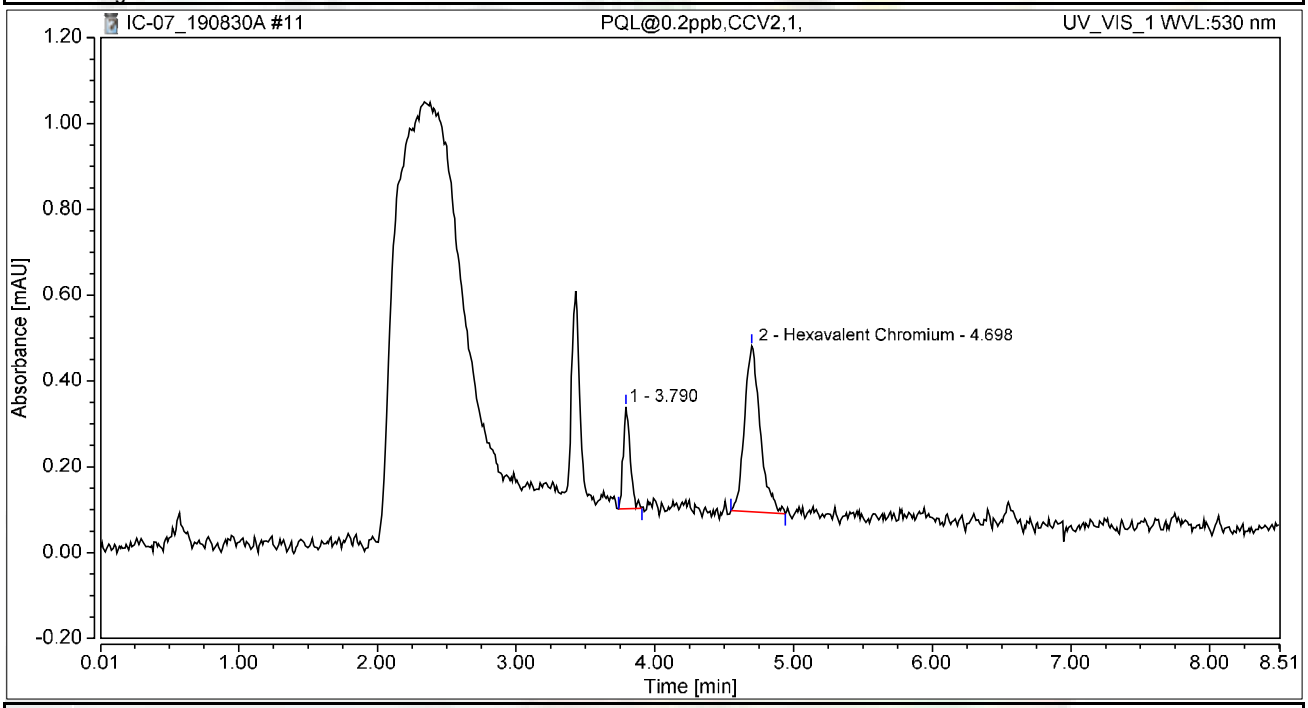
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.790	0.014	0.238	21.65	38.10	n.a.
2	Hexavalent Chromium	4.698	0.051	0.386	78.35	61.90	0.1951
Total:			**0.065**	**0.623**	**100.00**	**100.00**	

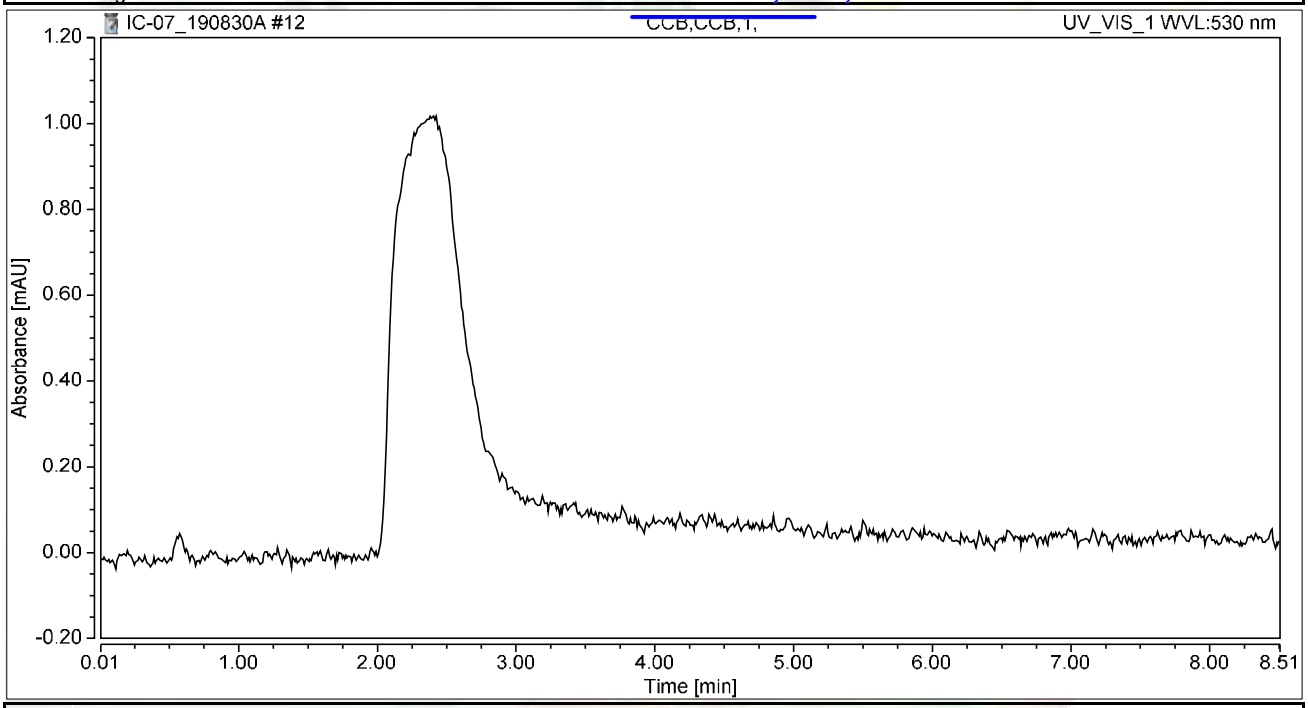
Chromatogram and Results

Injection Details

Injection Name:	~~CCB,CCB,1,~~ CCB-1,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:26**	*Sample Weight:*	**1.0000**

Chromatogram

CCB-1,CCB,1



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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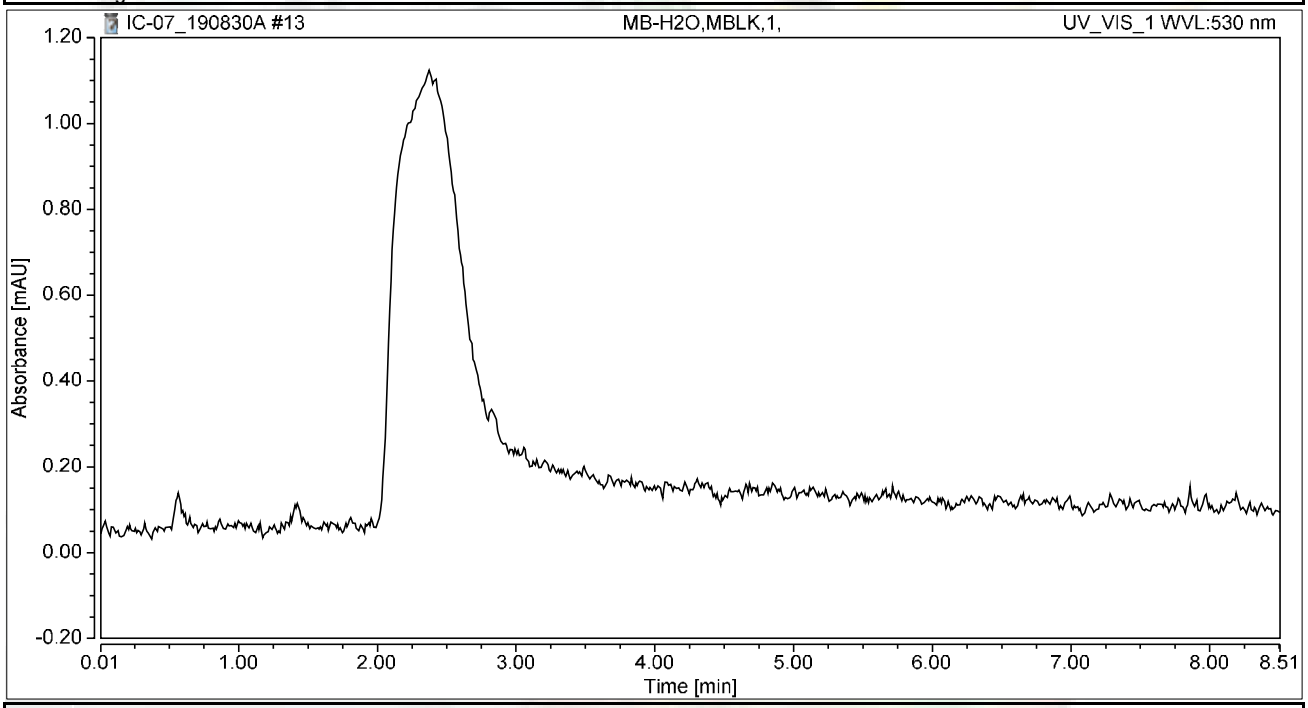
Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

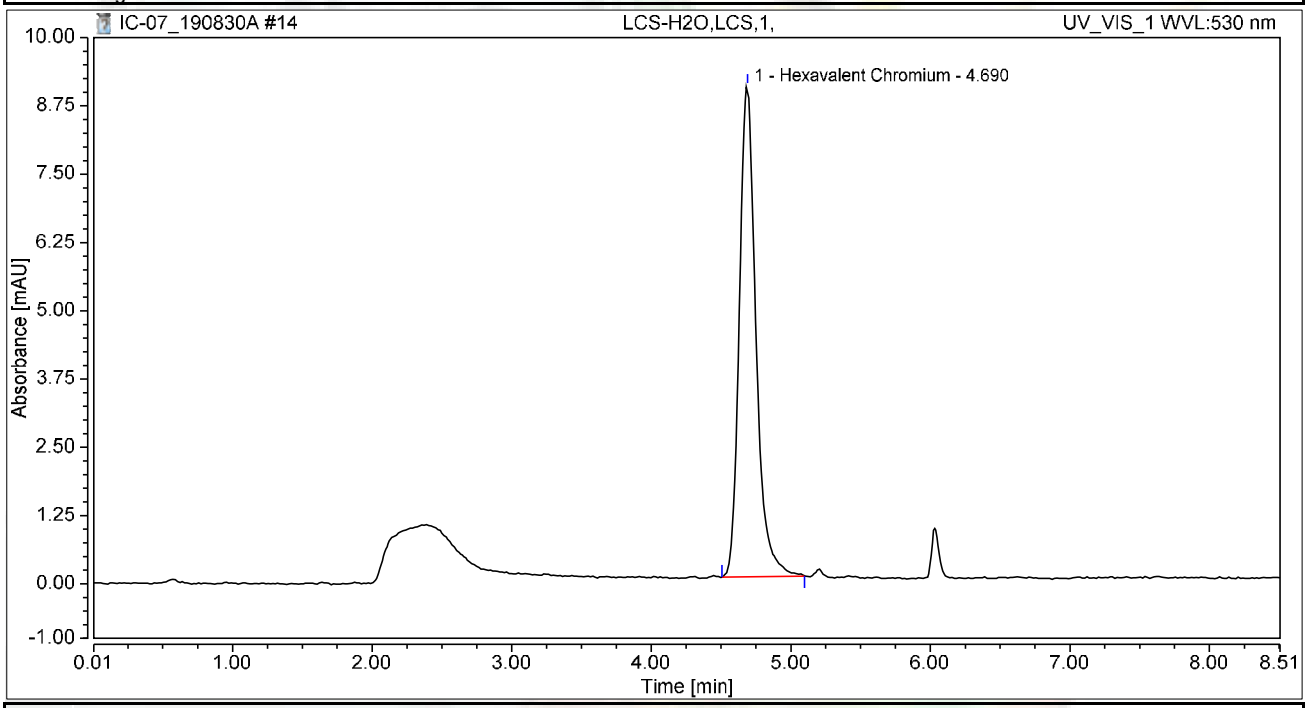
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 10:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

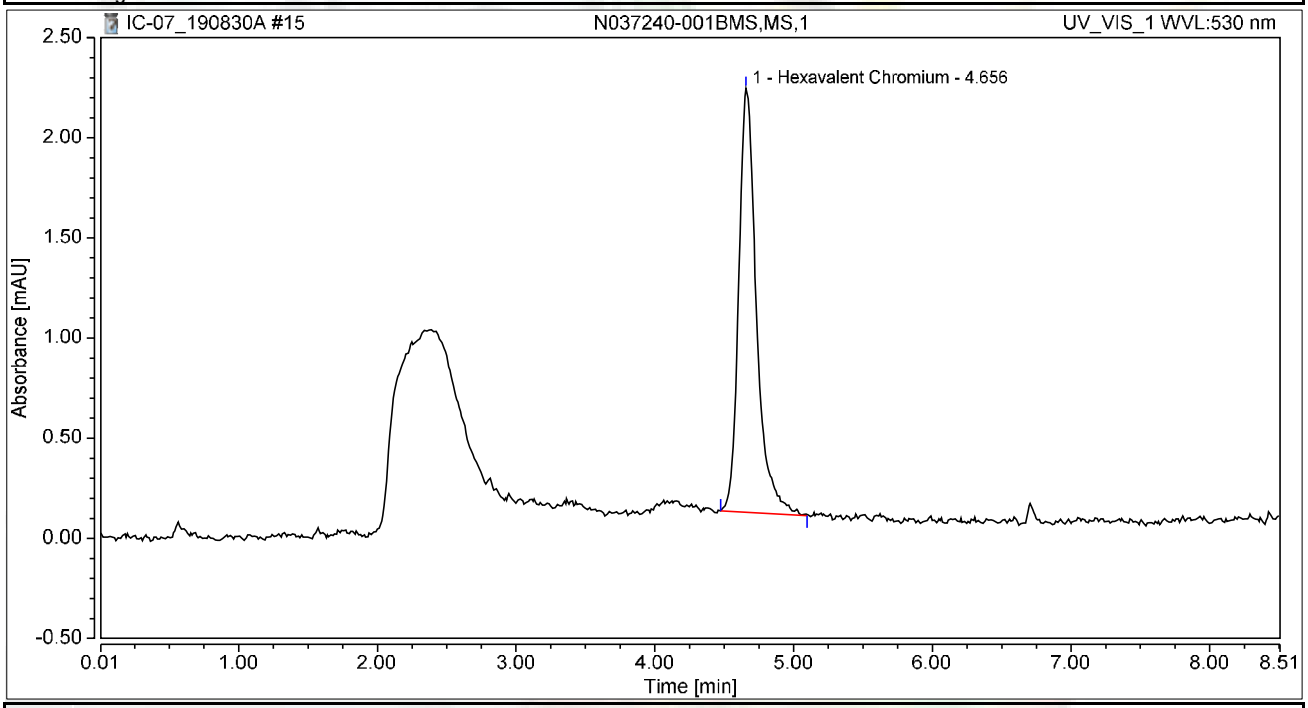
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.244	8.982	100.00	100.00	4.7925
Total:			**1.244**	**8.982**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037240-001BMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

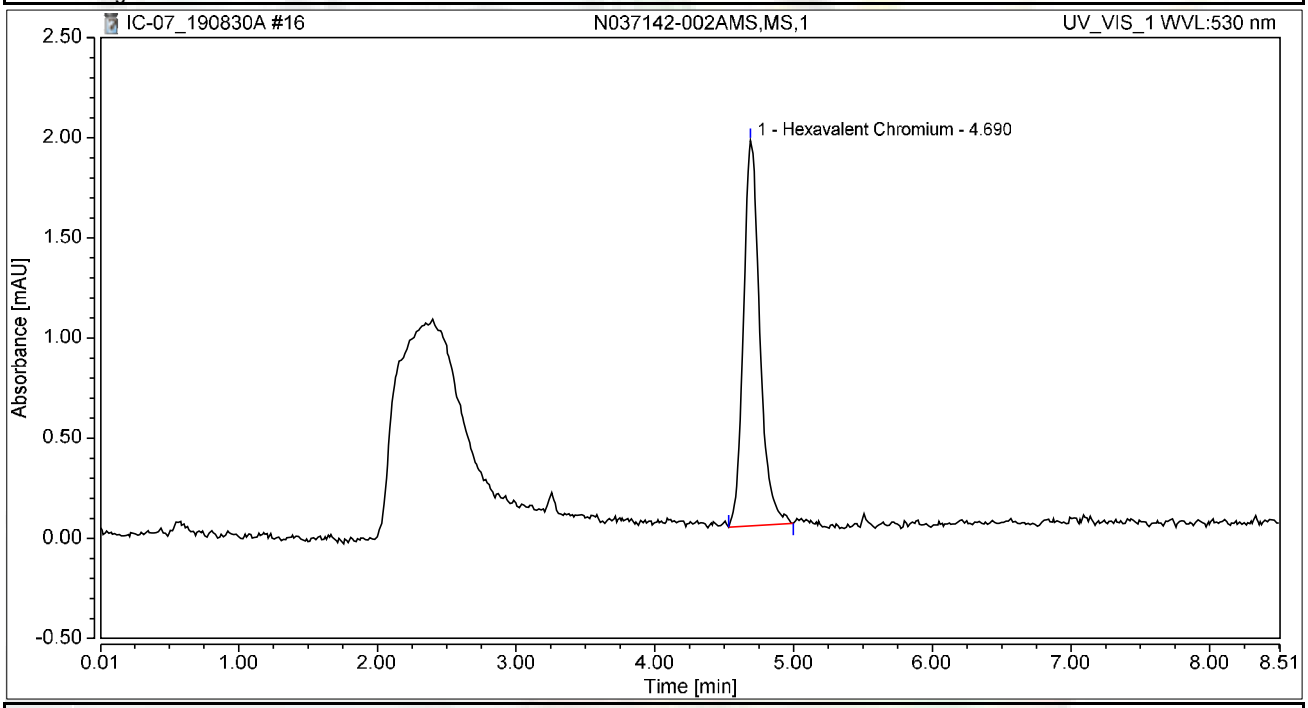
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.314	2.116	100.00	100.00	1.2094
Total:			**0.314**	**2.116**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037142-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

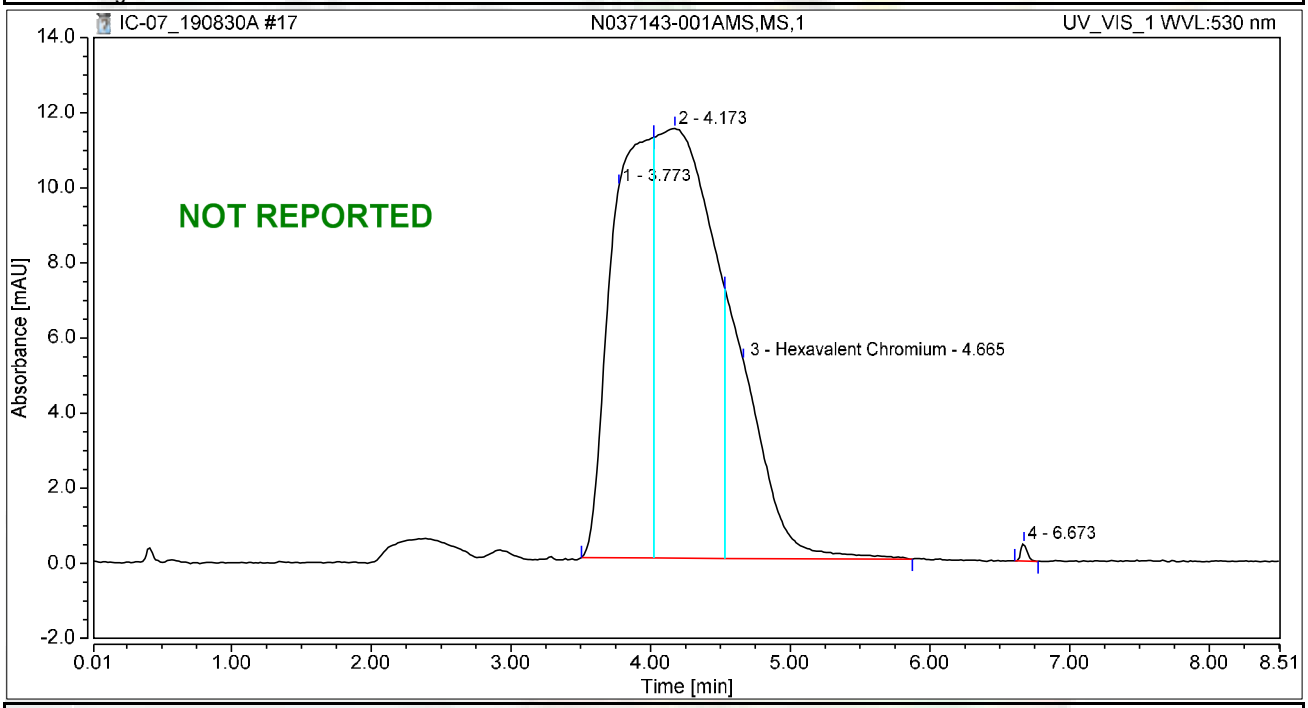
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.264	1.924	100.00	100.00	1.0163
Total:			**0.264**	**1.924**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

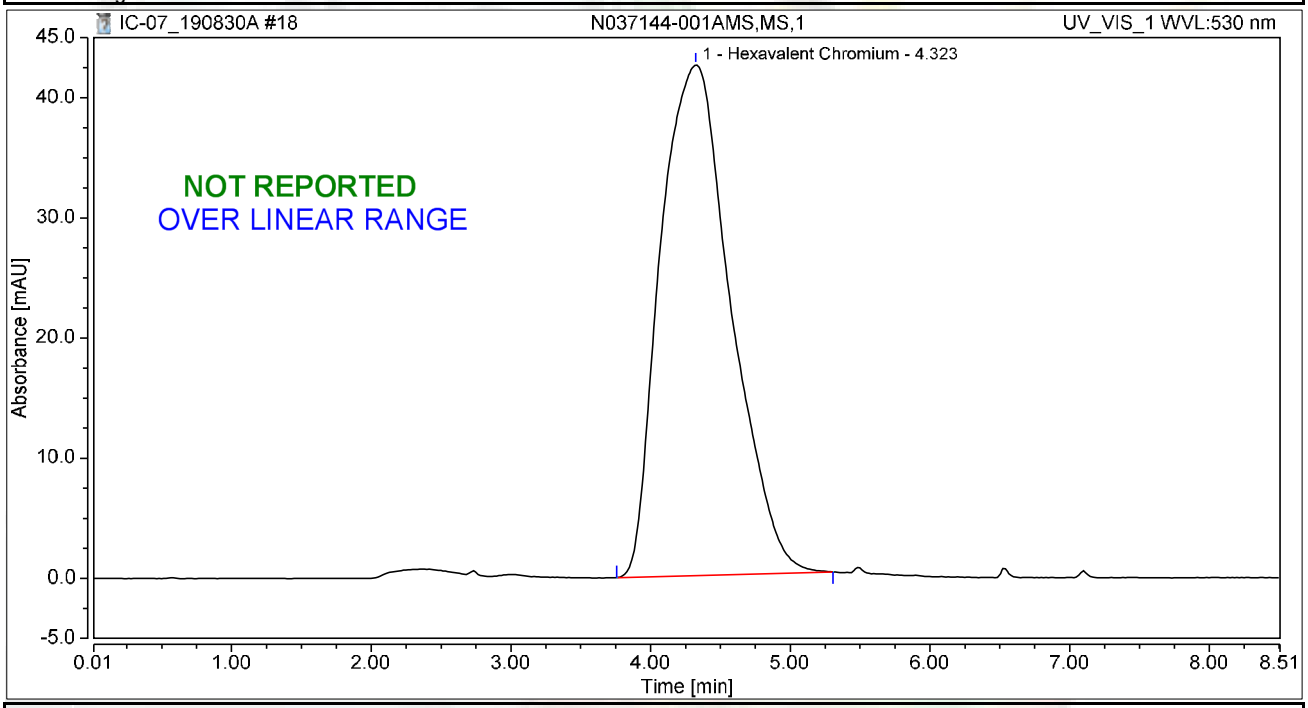
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.773	3.836	9.896	35.24	36.56	n.a.
2		4.173	5.197	11.438	47.74	42.25	n.a.
3	Hexavalent Chromium	4.665	1.827	5.272	16.79	19.48	7.0419
4		6.673	0.025	0.463	0.23	1.71	n.a.
Total:			**10.886**	**27.069**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

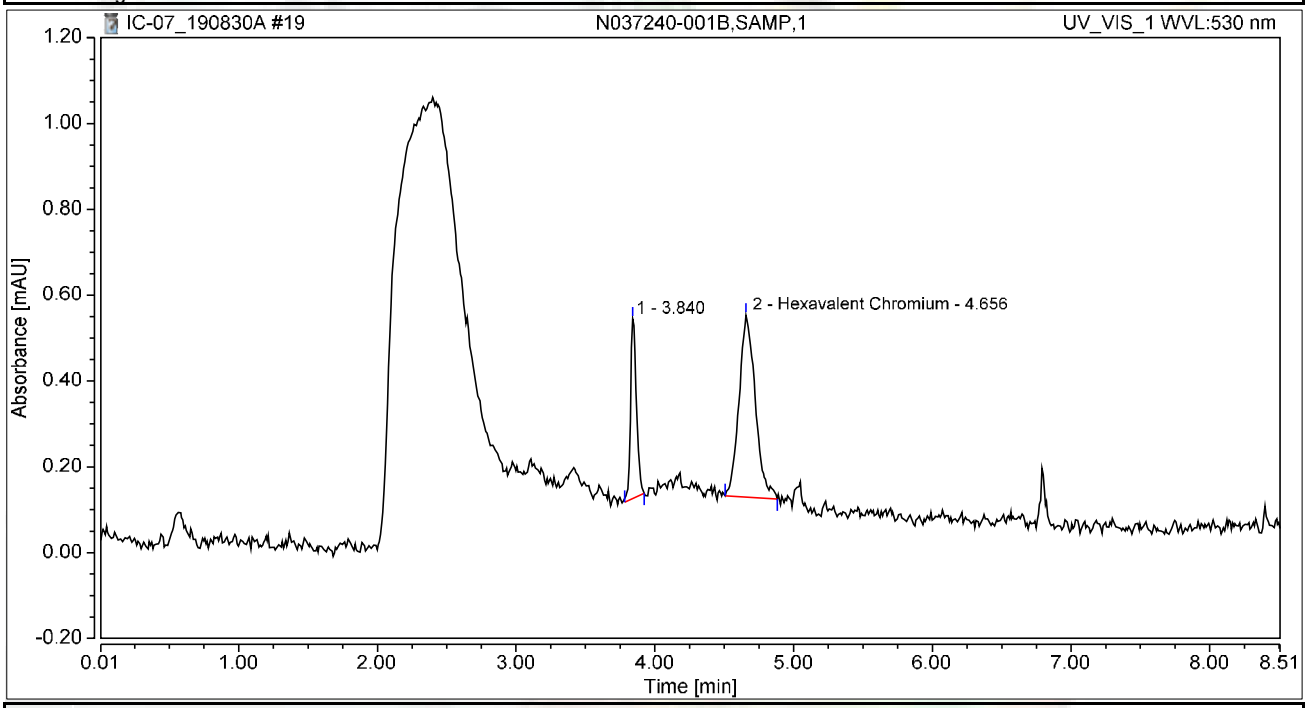
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	24.864	42.491	100.00	100.00	95.8193
Total:			**24.864**	**42.491**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037240-001B,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

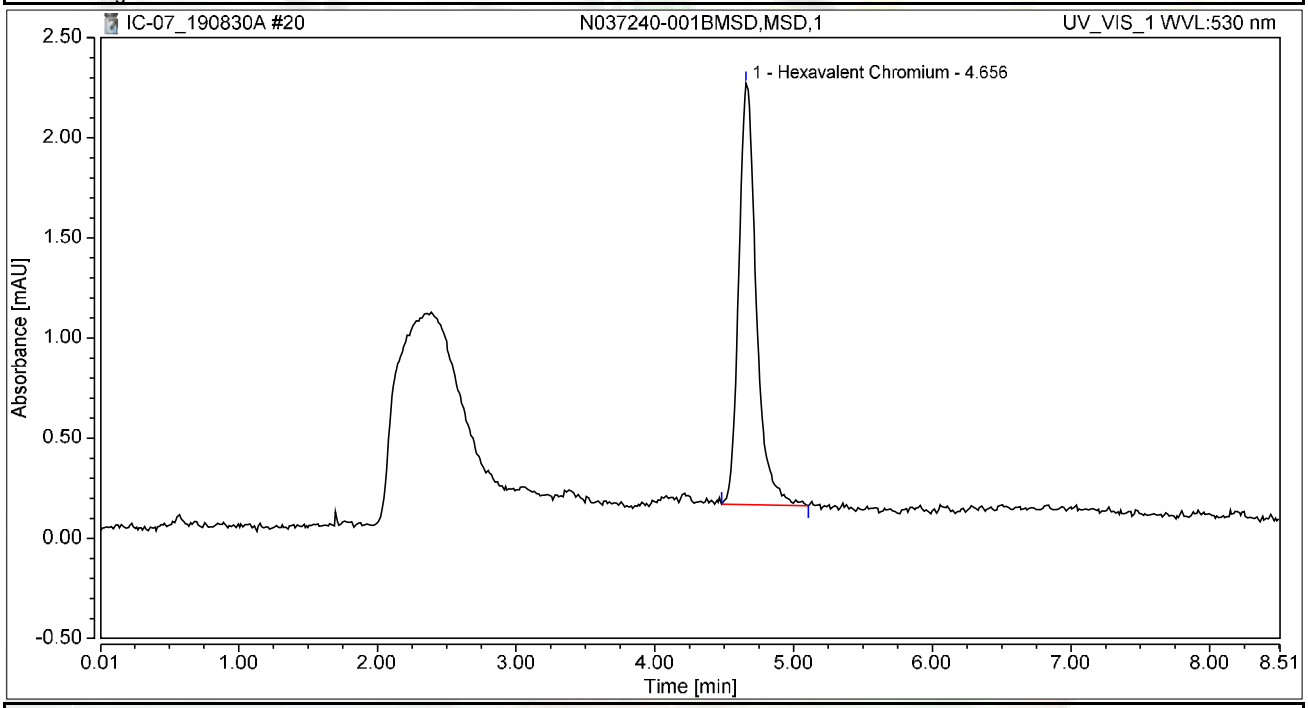
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.840	0.021	0.419	26.51	49.74	n.a.
2	Hexavalent Chromium	4.656	0.058	0.423	73.49	50.26	0.2223
Total:			**0.078**	**0.842**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037240-001BMSD,MSD,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

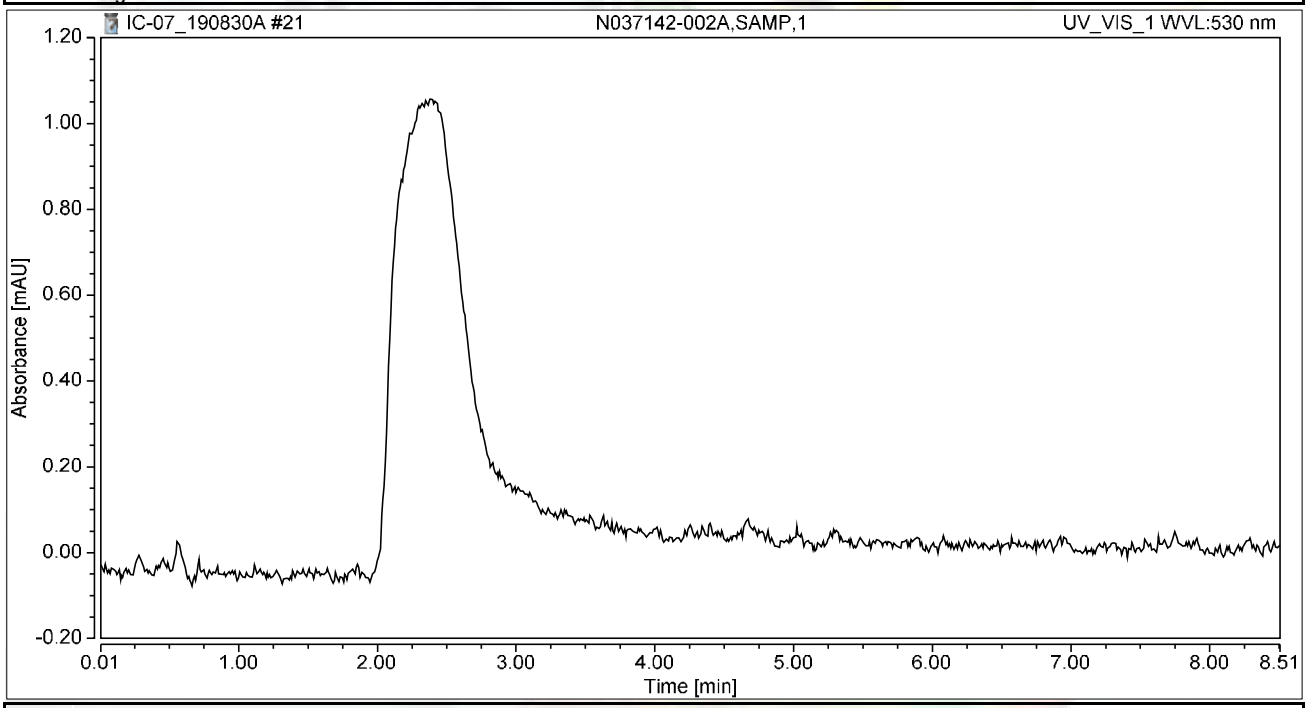
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.309	2.104	100.00	100.00	1.1903
Total:			**0.309**	**2.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037142-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

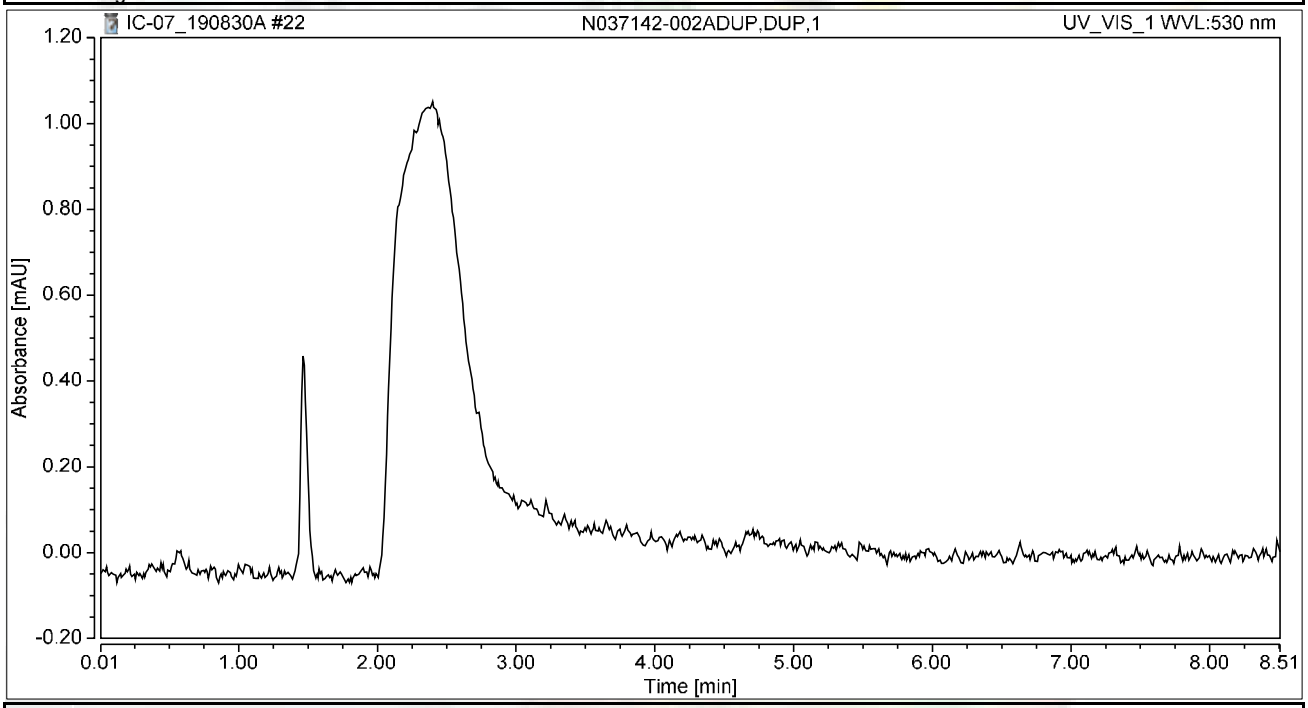
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037142-002ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

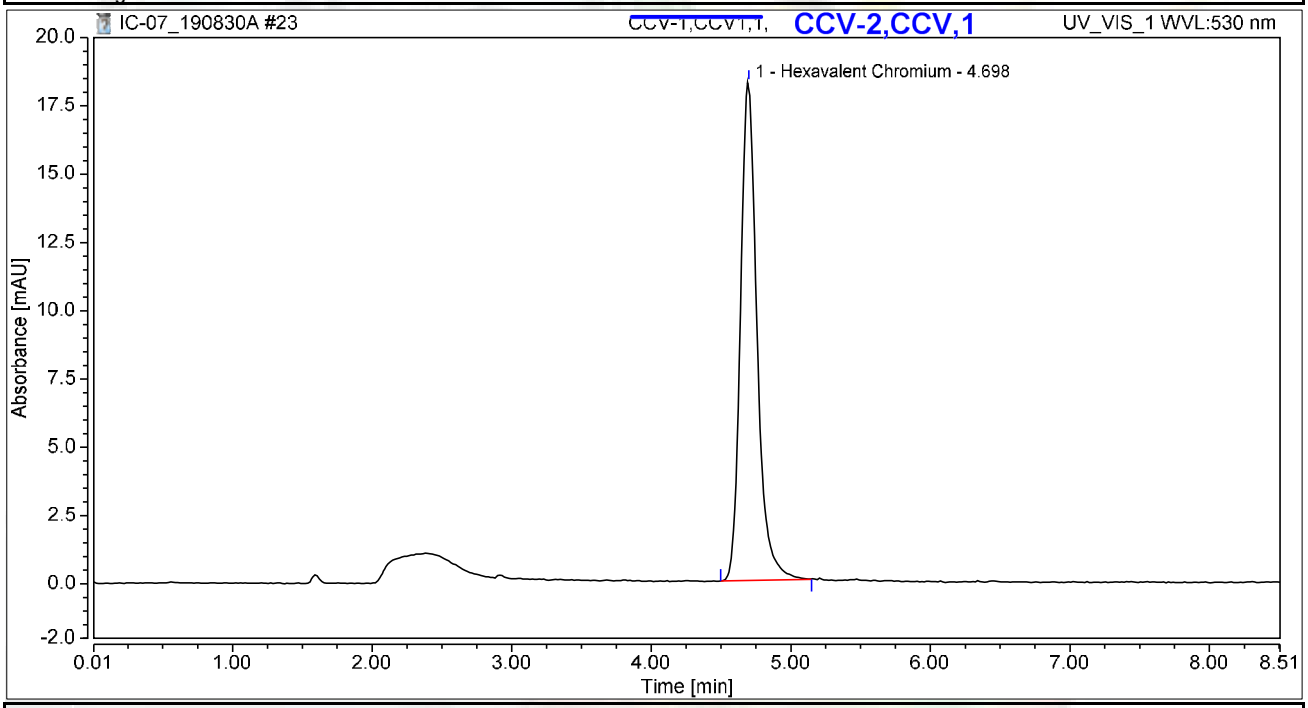
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV-1,CCV1,1,~~ CCV-2,CCV,1	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.514	18.239	100.00	100.00	9.6871
Total:			**2.514**	**18.239**	**100.00**	**100.00**	

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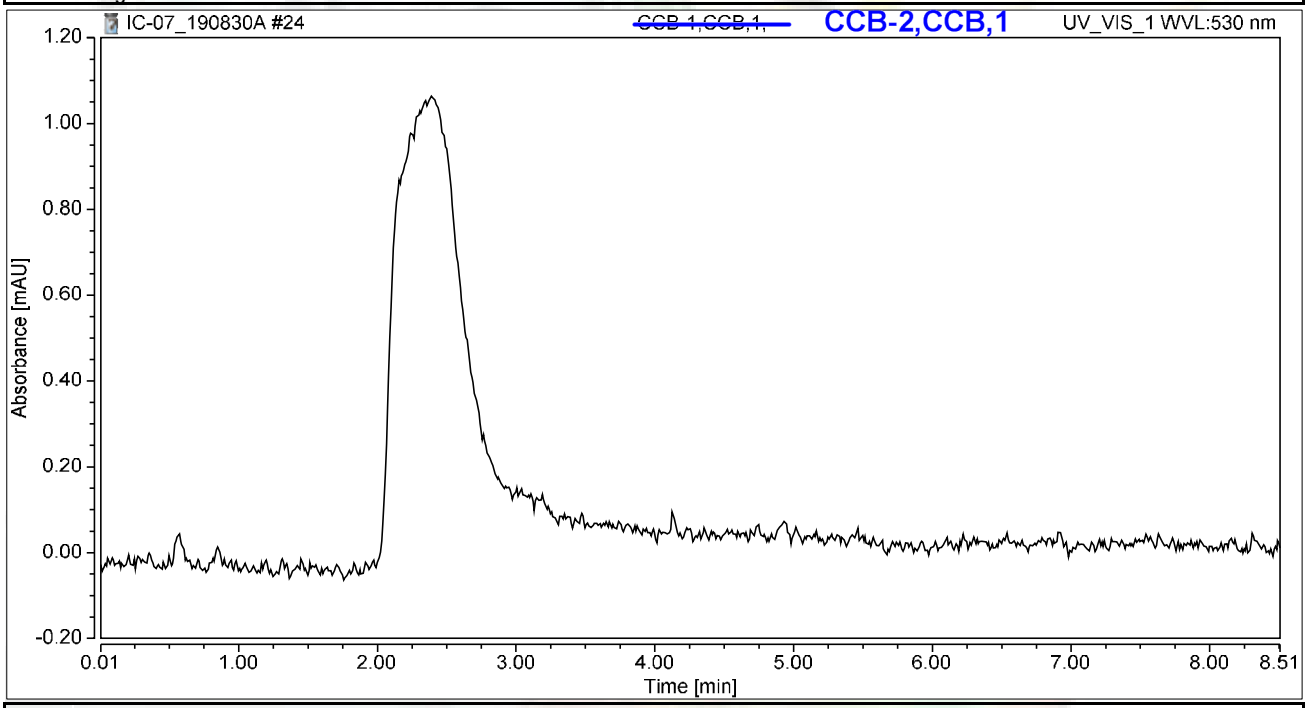
Chromatogram and Results

Injection Details

Injection Name:	~~CCB-1,CCB,1,~~ CCB-2,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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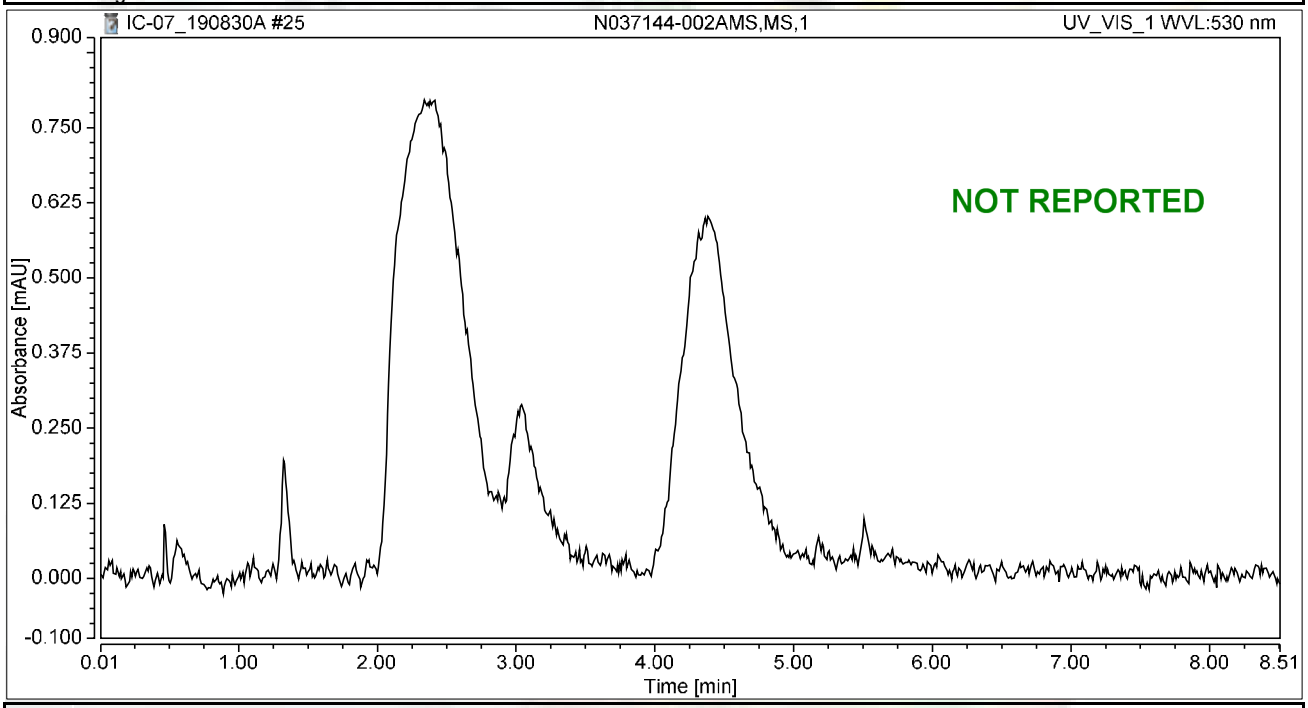
Chromatogram and Results

Injection Details

Injection Name:	**N037144-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

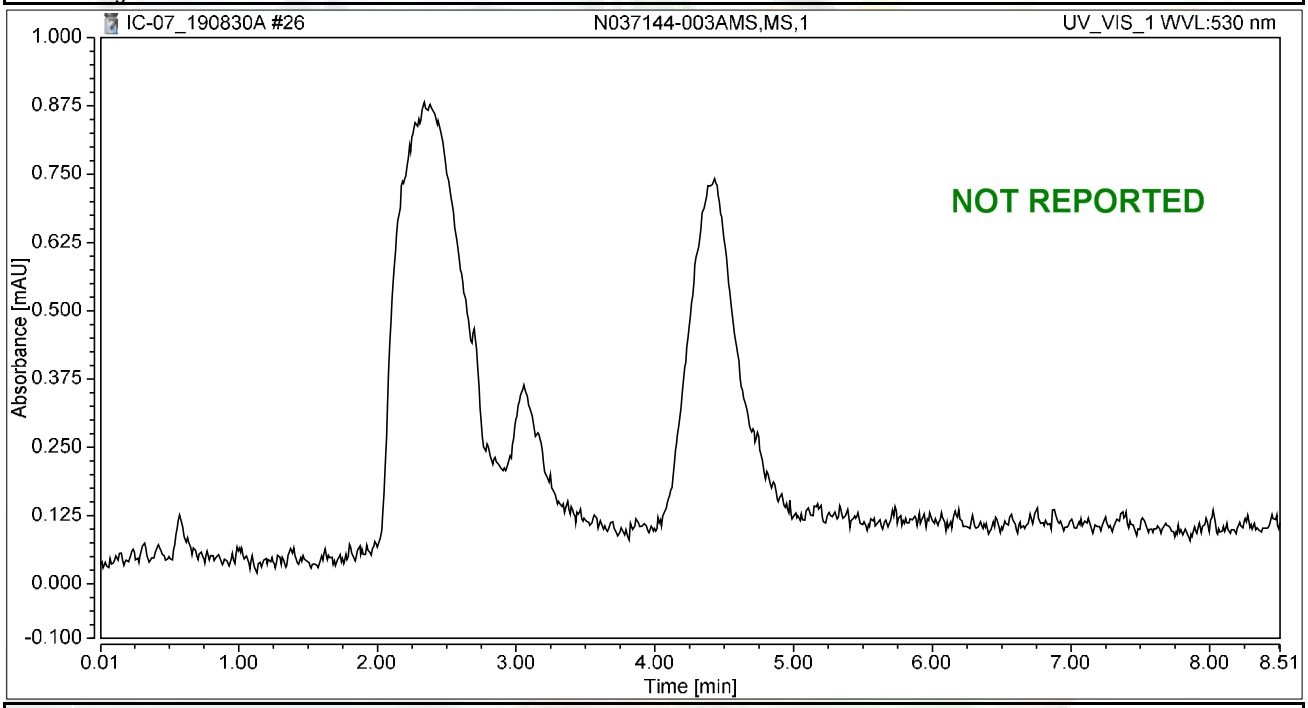
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

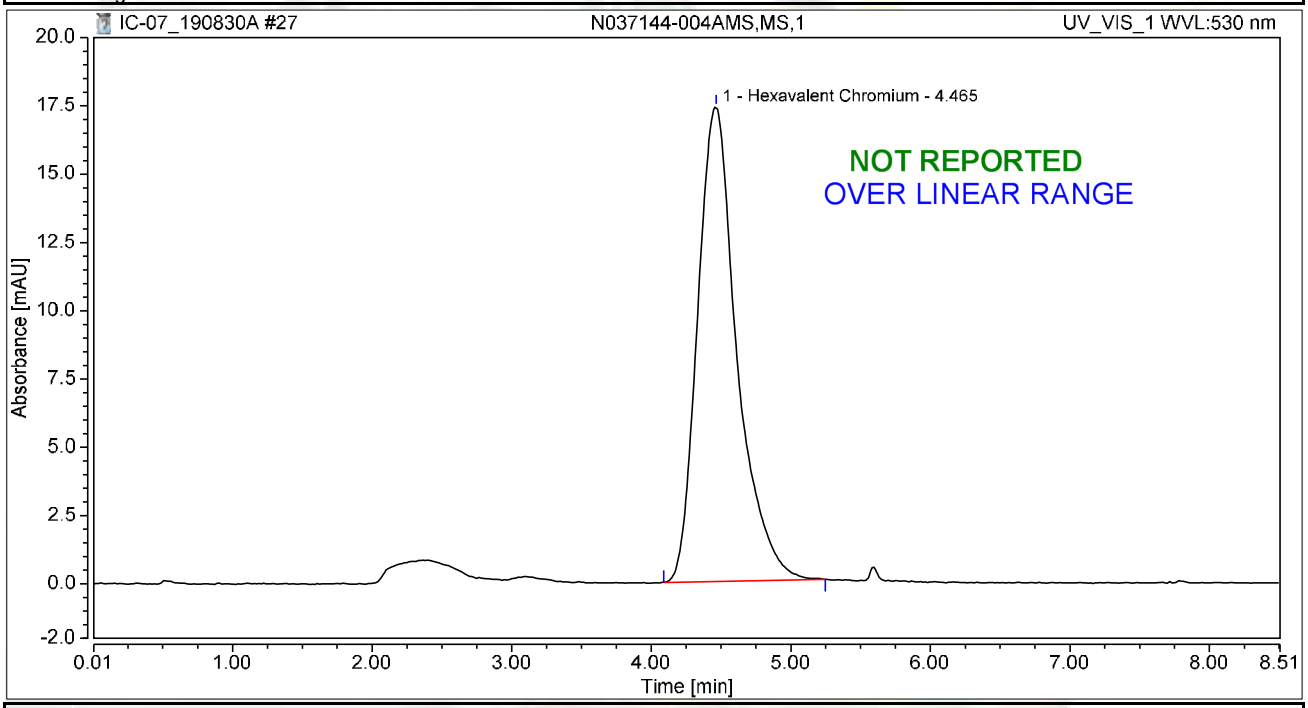
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

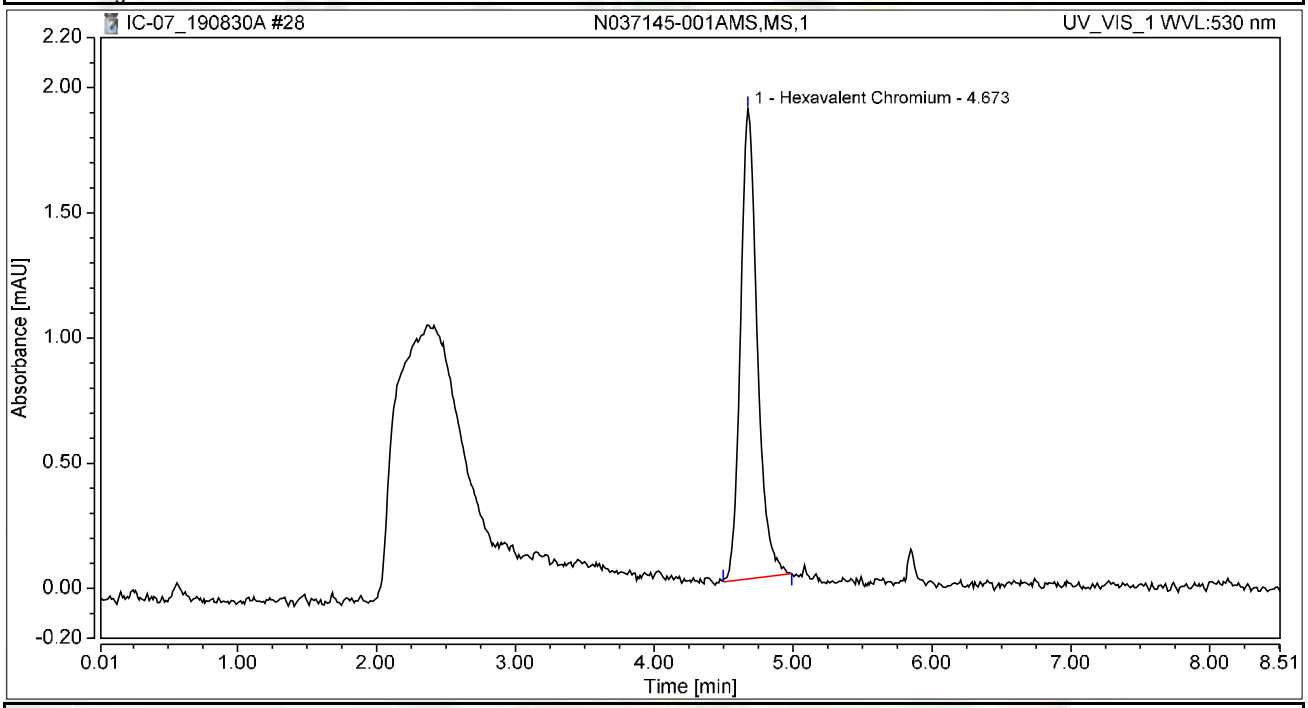
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.465	5.660	17.375	100.00	100.00	21.8112
Total:			**5.660**	**17.375**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

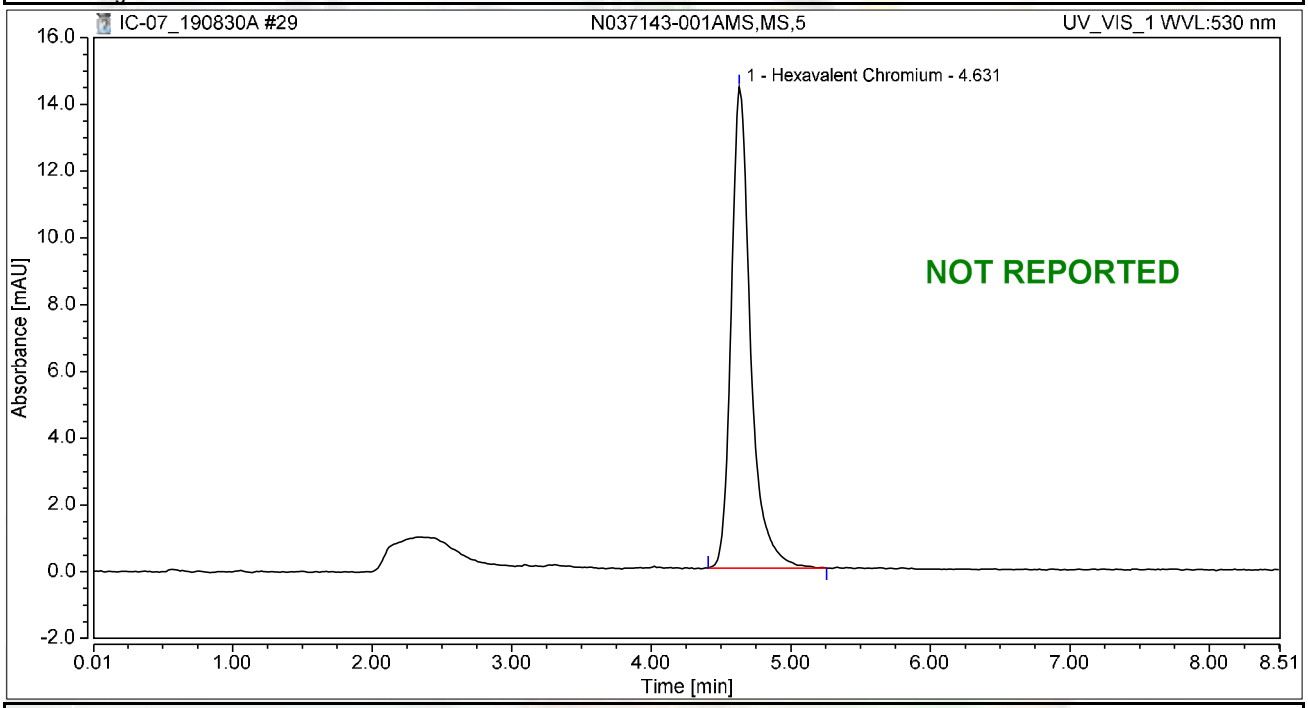
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.263	1.878	100.00	100.00	1.0141
Total:			**0.263**	**1.878**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

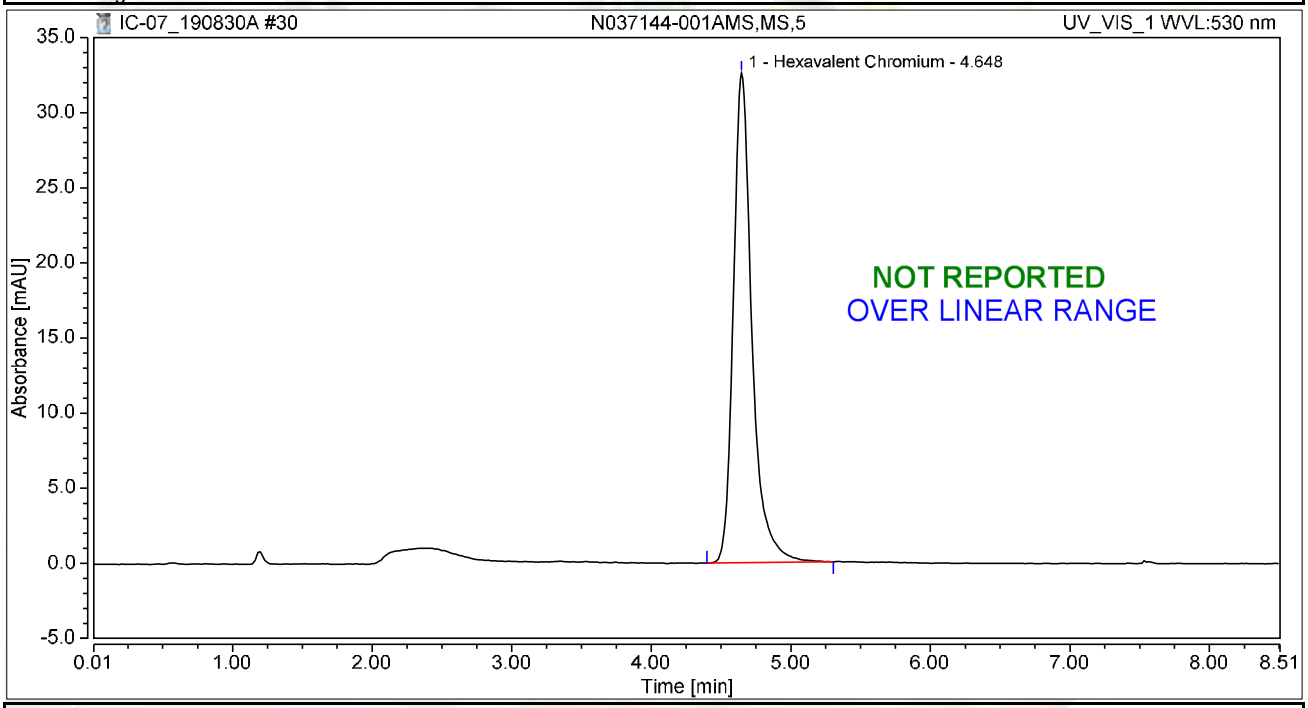
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	2.321	14.419	100.00	100.00	8.9453
Total:			**2.321**	**14.419**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

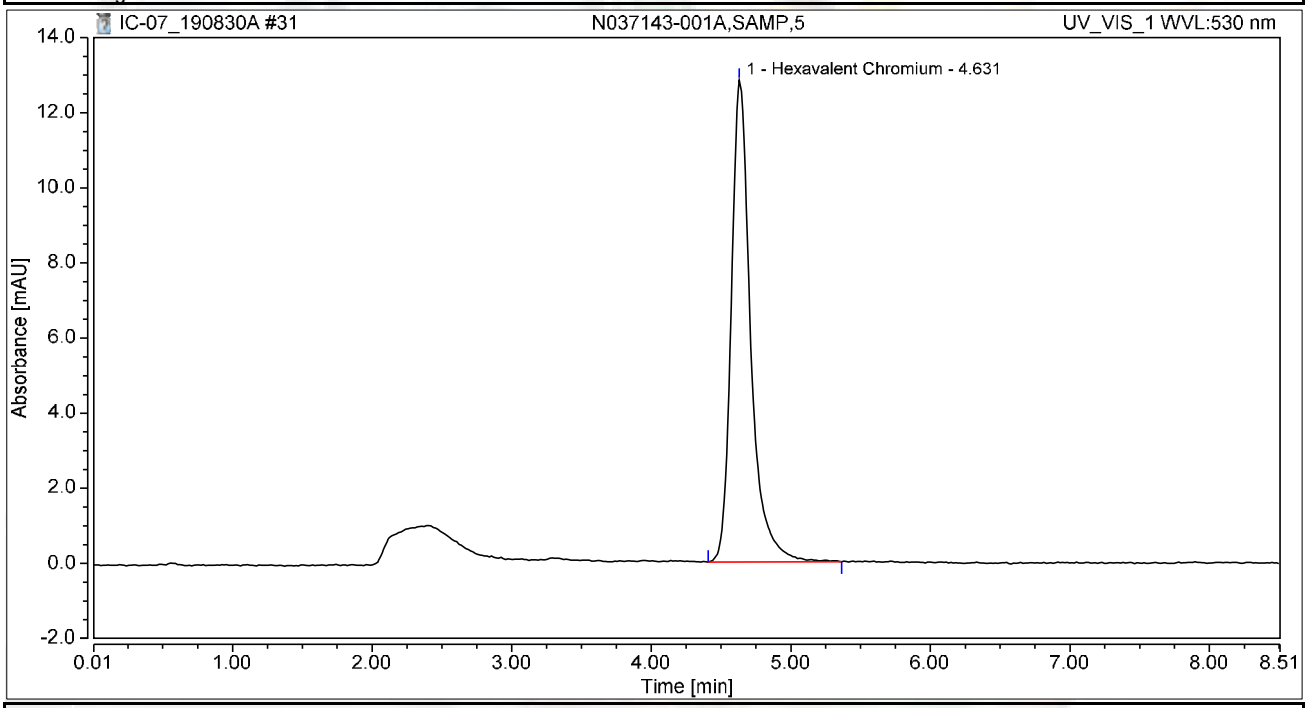
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	5.038	32.608	100.00	100.00	19.4158
Total:			**5.038**	**32.608**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 13:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

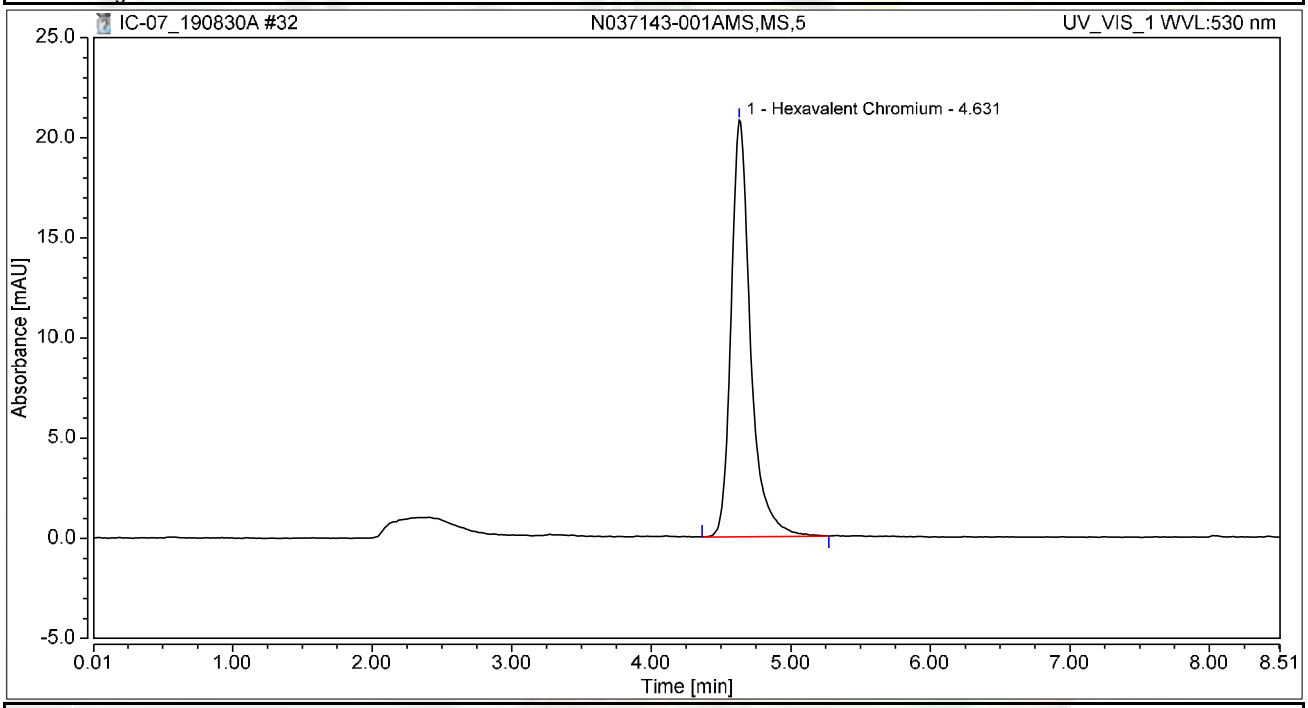
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	2.072	12.830	100.00	100.00	7.9861
Total:			**2.072**	**12.830**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

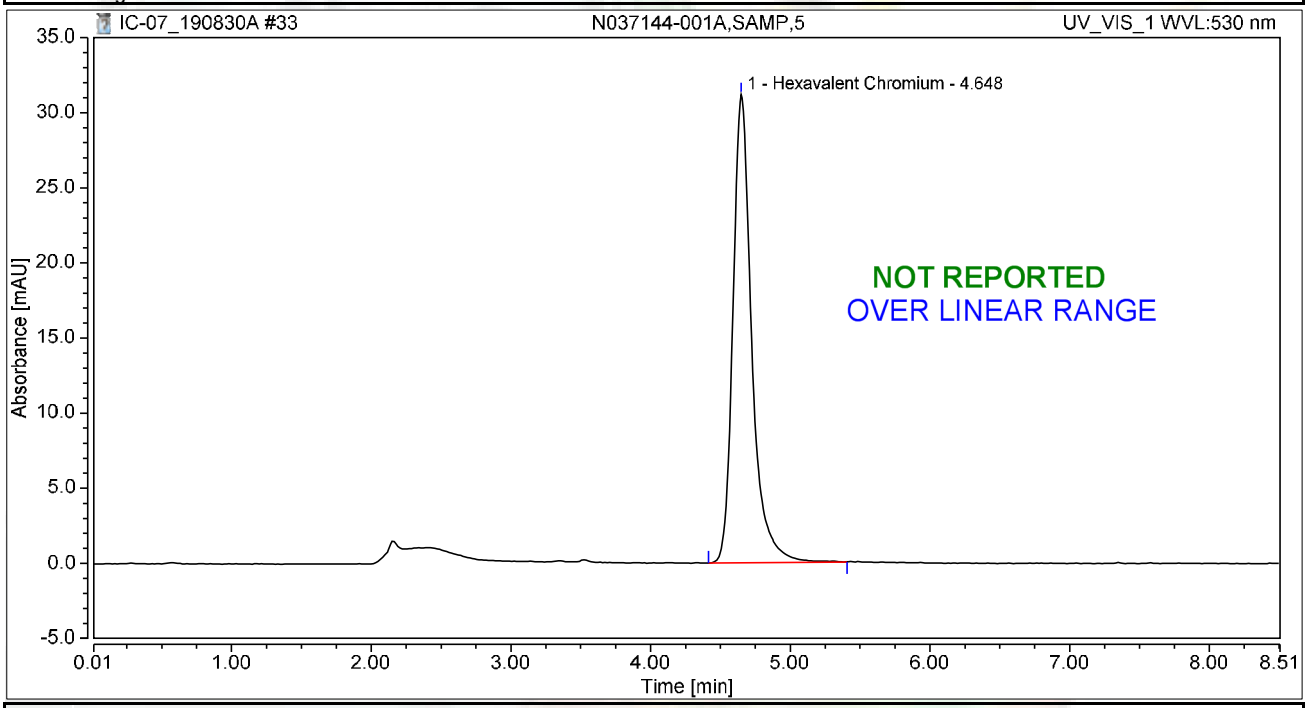
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	3.361	20.794	100.00	100.00	12.9540
Total:			**3.361**	**20.794**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

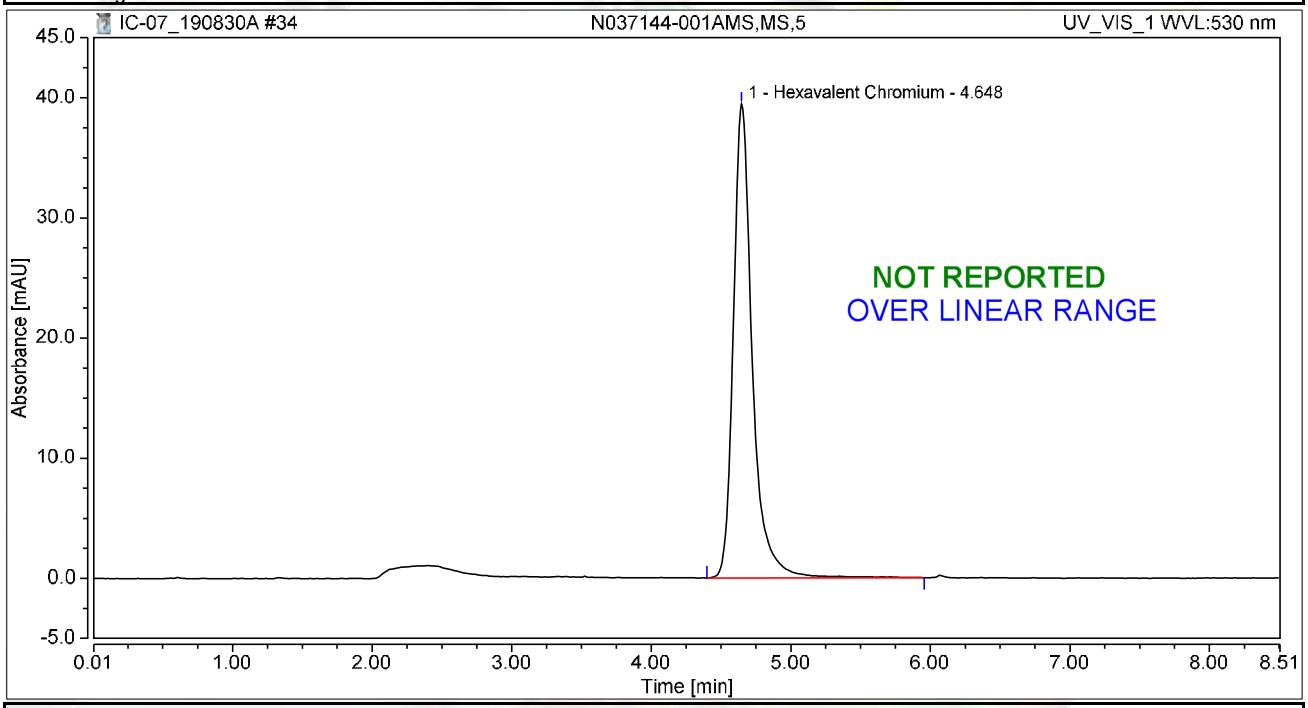
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	4.845	31.168	100.00	100.00	18.6724
Total:			**4.845**	**31.168**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

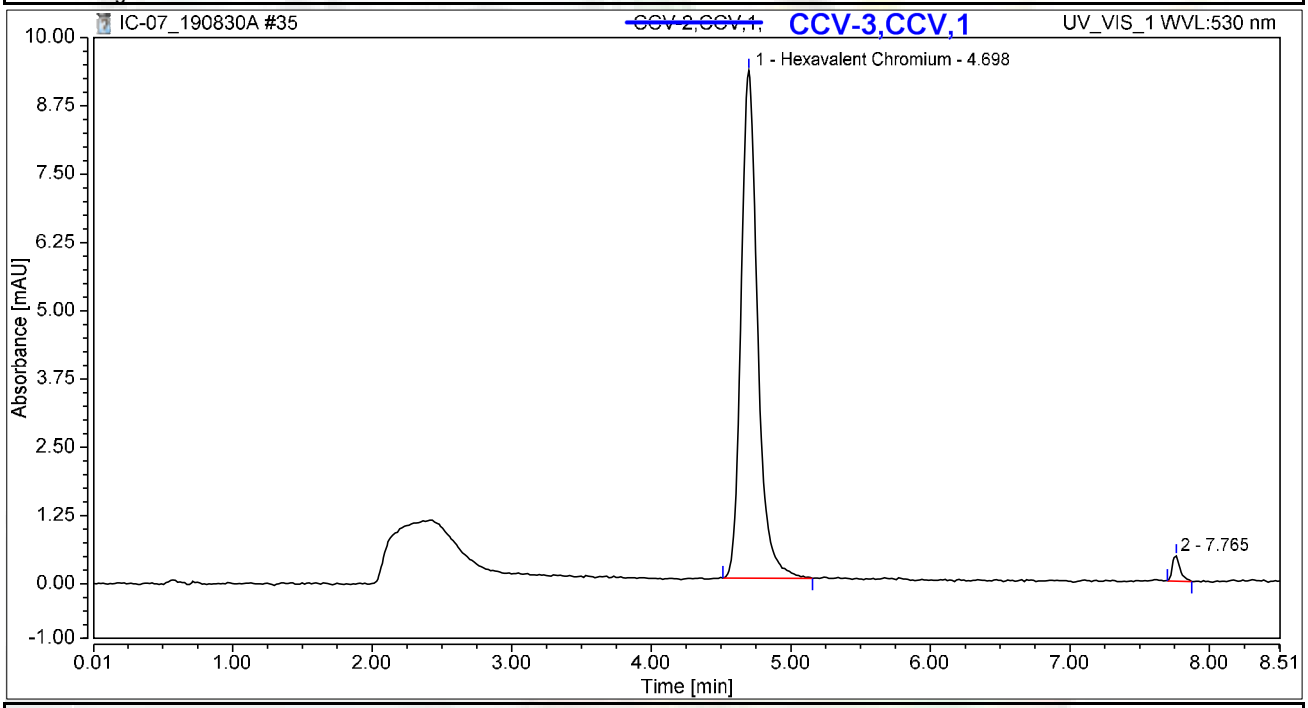
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	6.197	39.458	100.00	100.00	23.8817
Total:			**6.197**	**39.458**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV-2,CCV,1,~~ CCV-3,CCV,1	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.277	9.290	97.71	95.28	4.9207
2		7.765	0.030	0.460	2.29	4.72	n.a.
Total:			**1.307**	**9.750**	**100.00**	**100.00**	

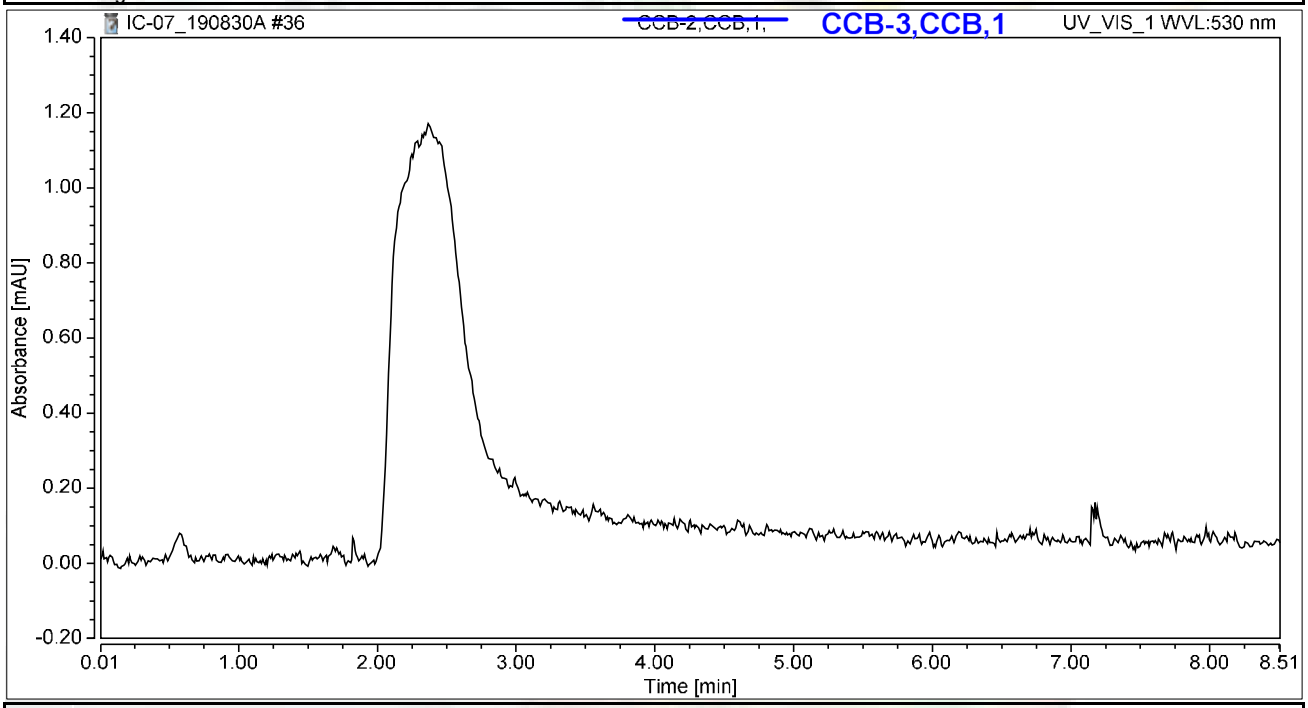
NS 9/11/2019

Chromatogram and Results

Injection Details

Injection Name:	~~CCB-2,CCB,1,~~ CCB3,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

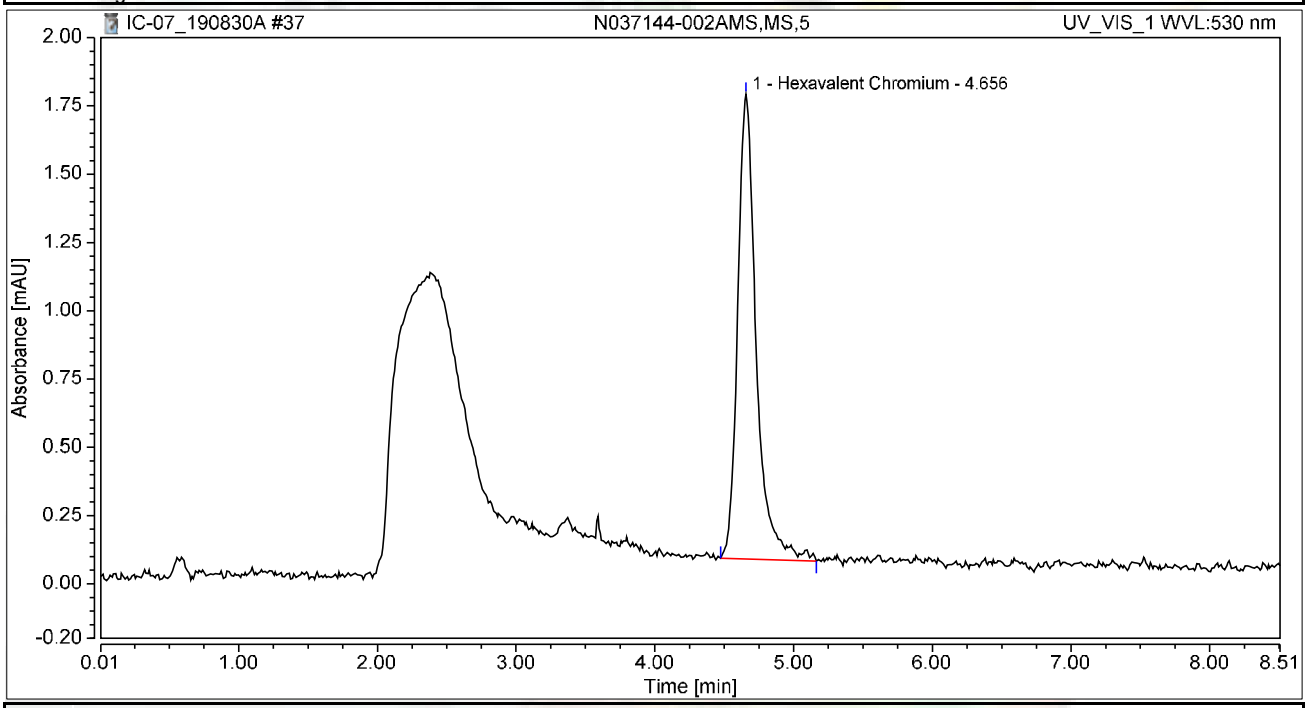
NS 9/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037144-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 14:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

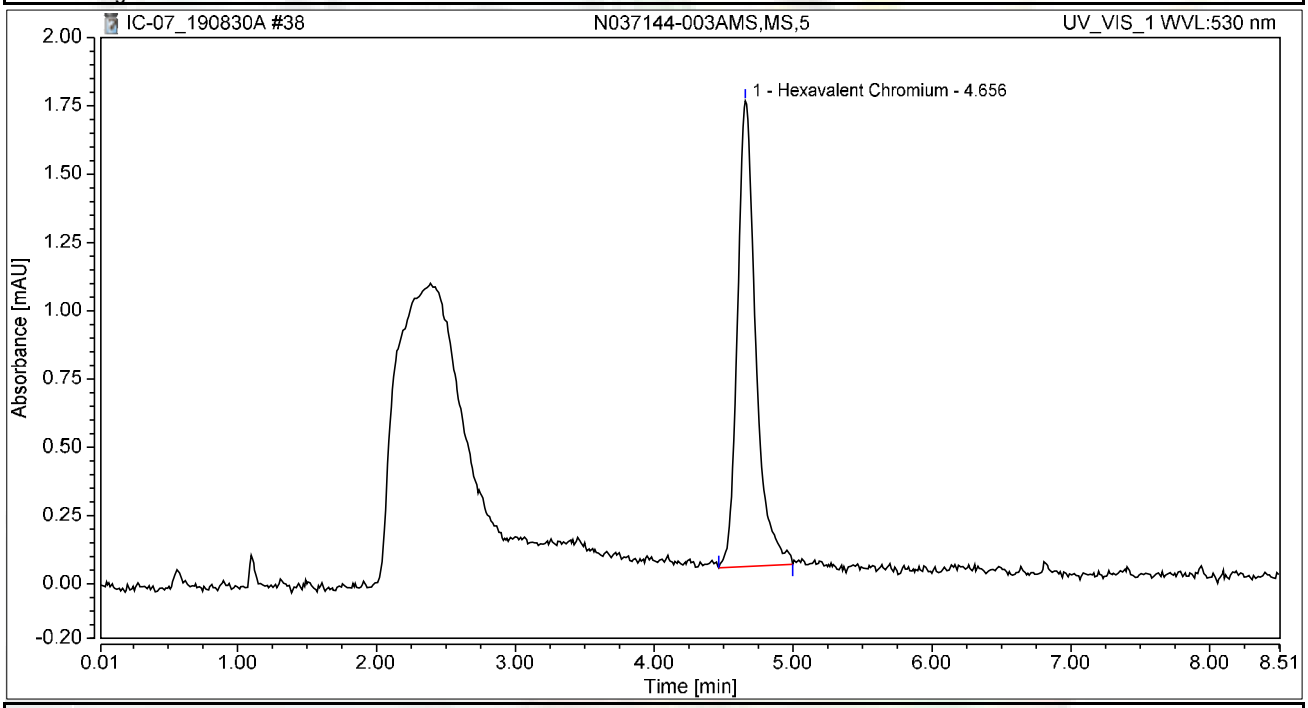
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.264	1.701	100.00	100.00	1.0160
Total:			**0.264**	**1.701**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

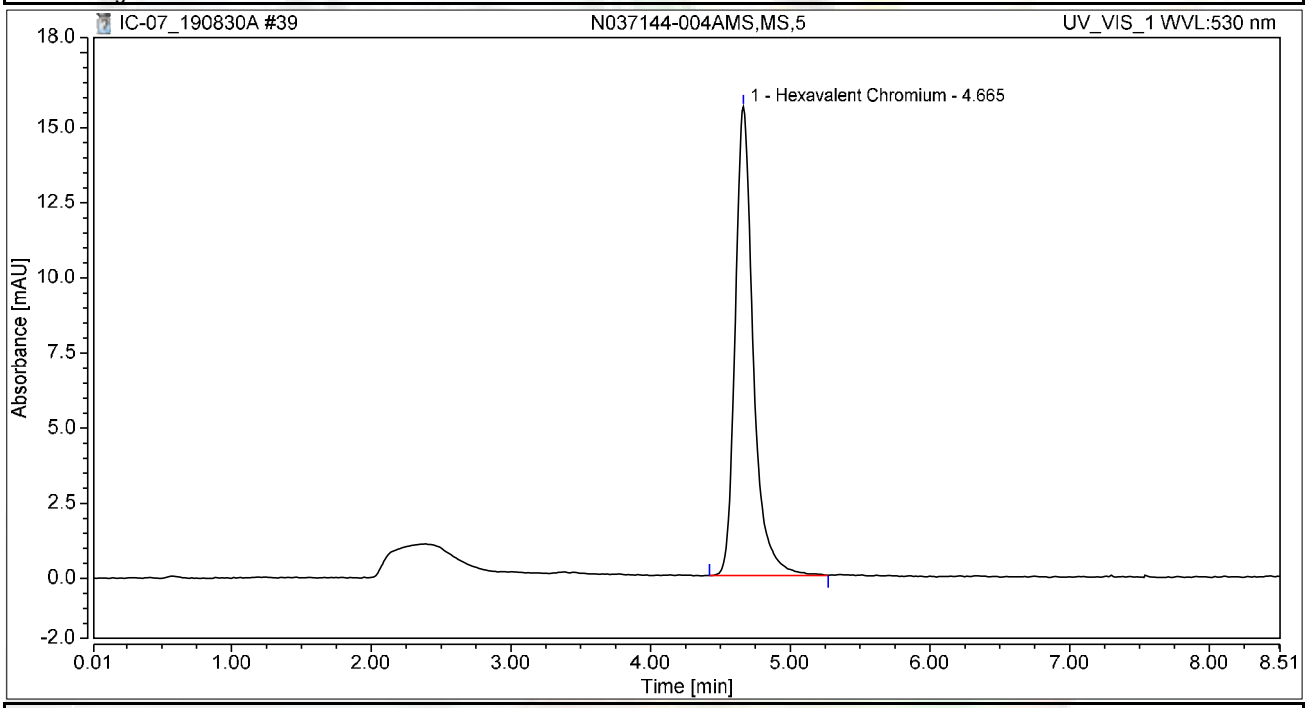
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.260	1.704	100.00	100.00	1.0036
Total:			**0.260**	**1.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-004AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

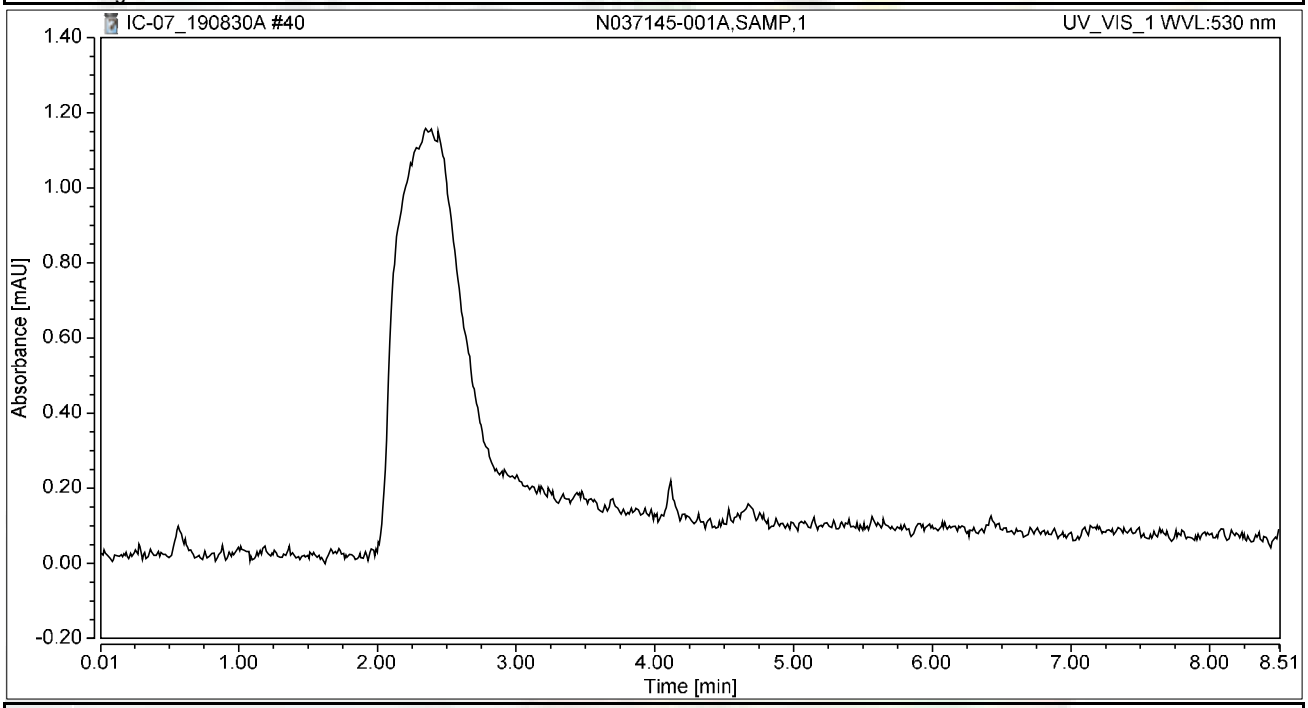
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	2.339	15.611	100.00	100.00	9.0128
Total:			**2.339**	**15.611**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

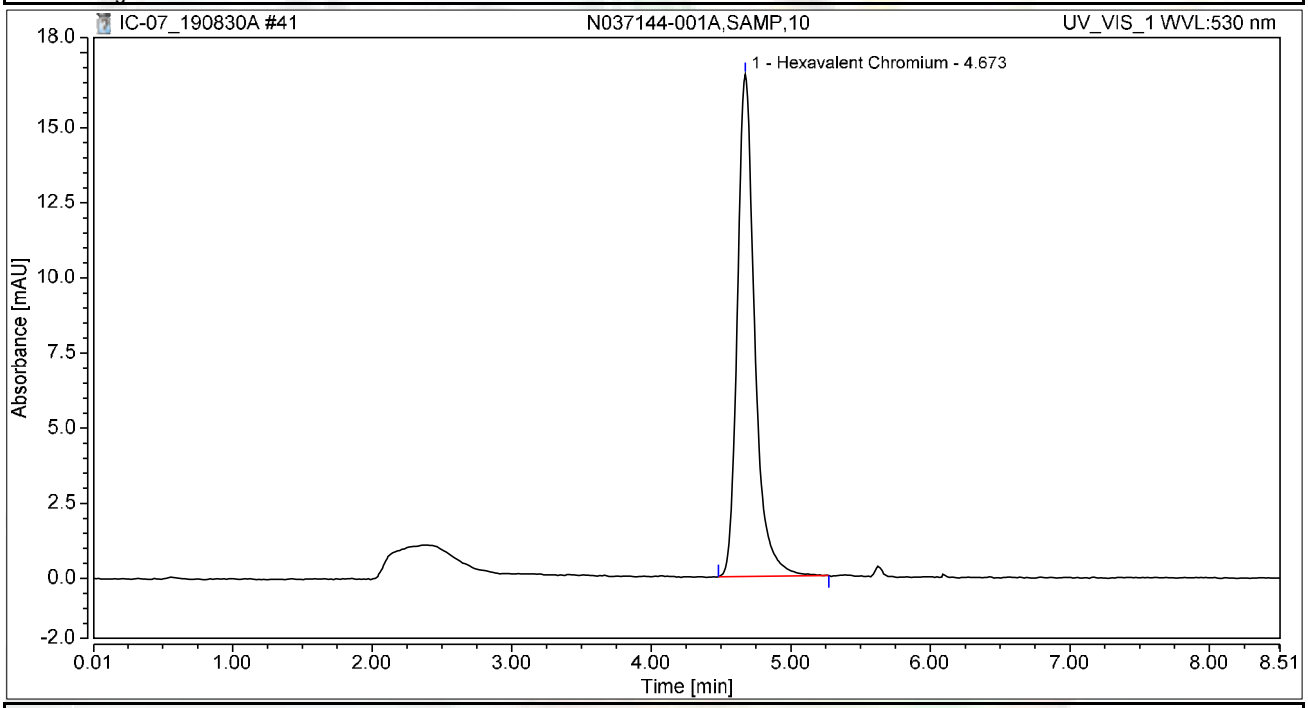
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

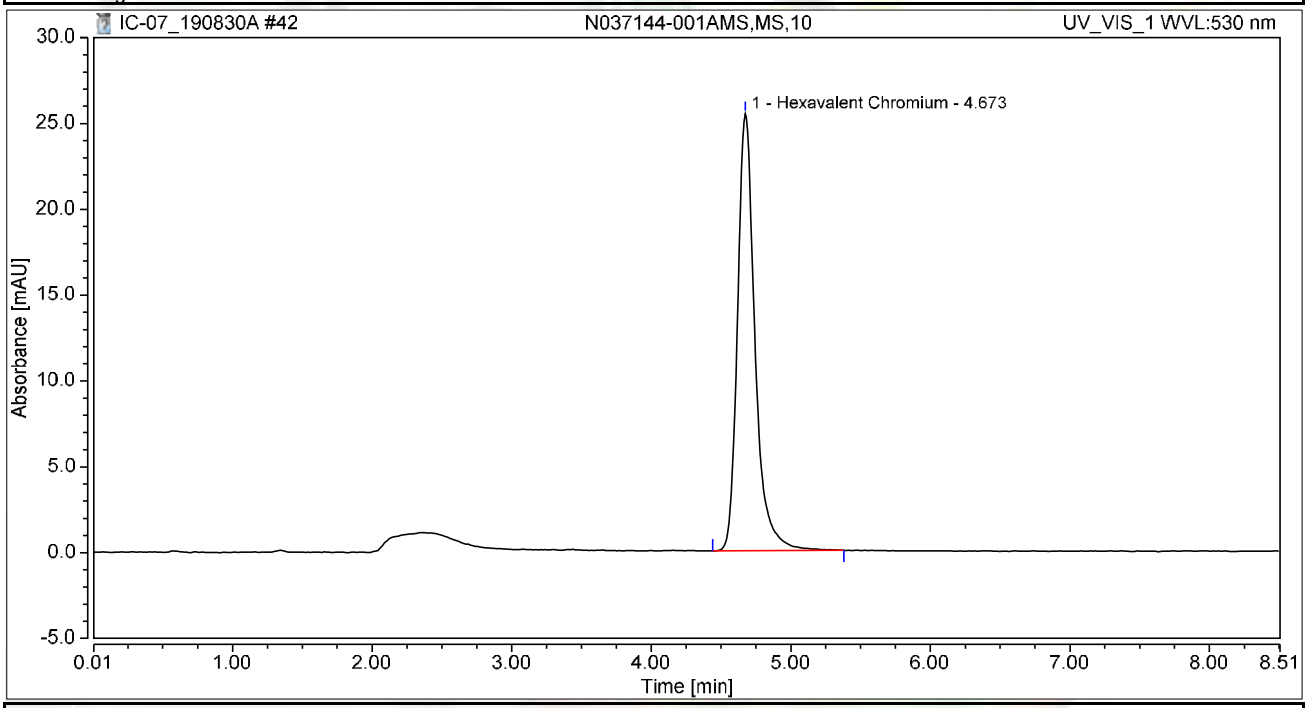
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	2.408	16.714	100.00	100.00	9.2788
Total:			**2.408**	**16.714**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-001AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

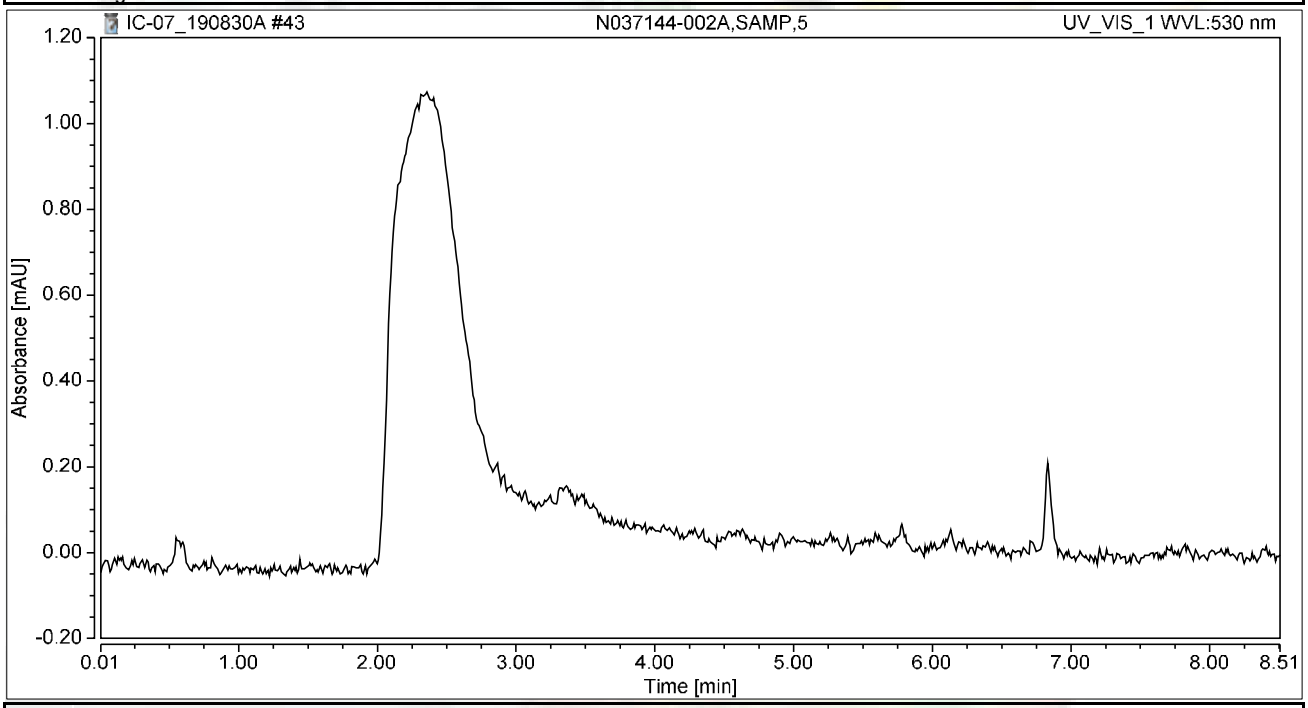
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	3.702	25.459	100.00	100.00	14.2663
Total:			**3.702**	**25.459**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 15:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

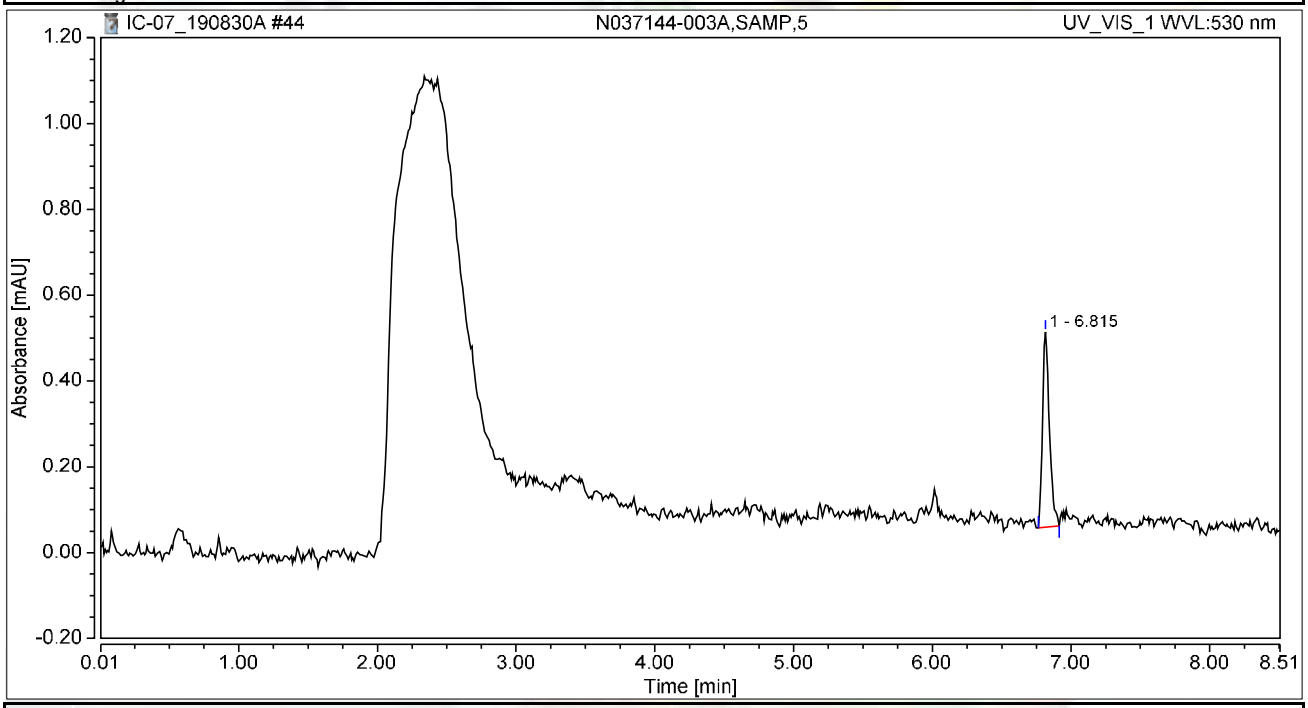
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

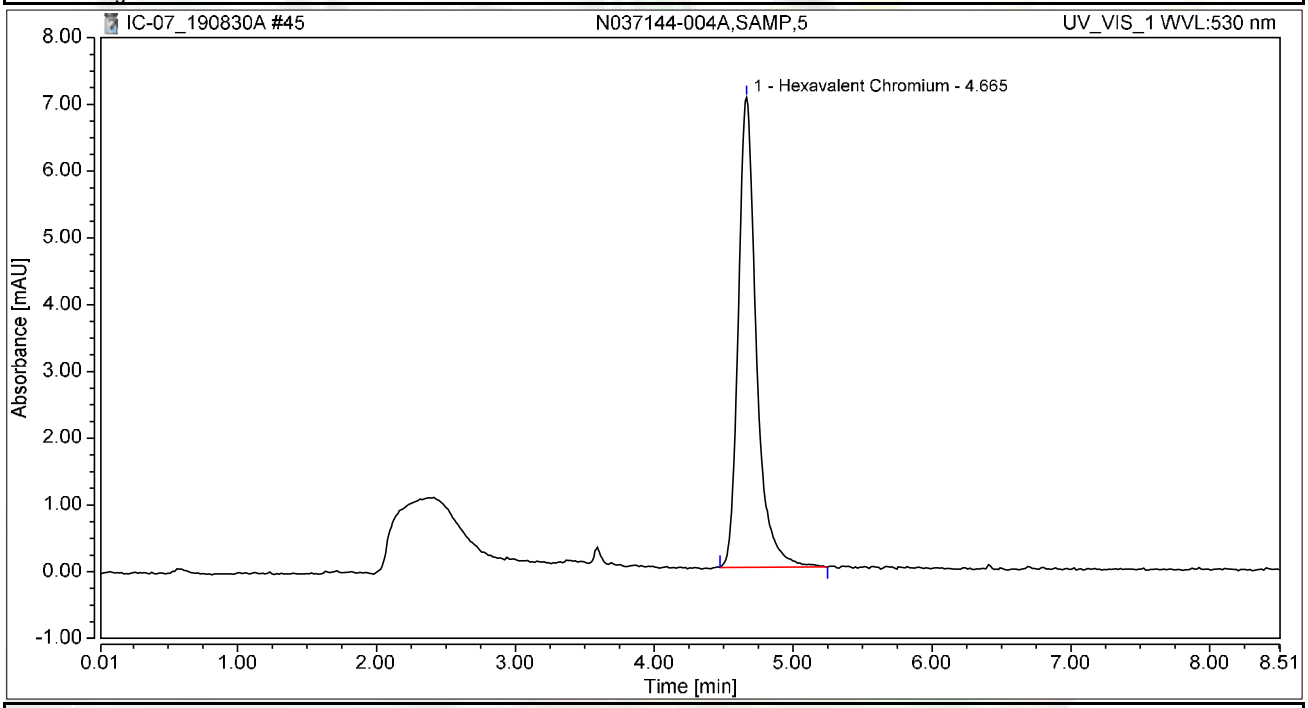
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.815	0.026	0.455	100.00	100.00	n.a.
Total:			**0.026**	**0.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037144-004A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

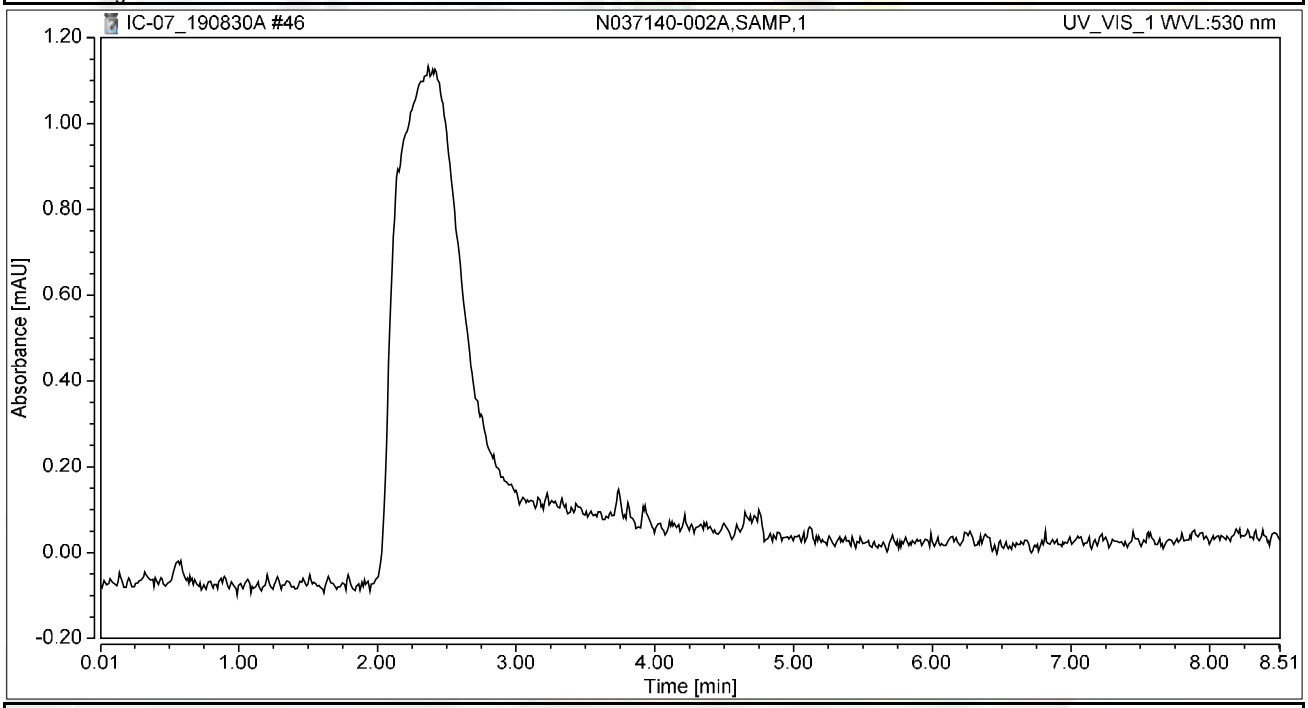
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	1.059	7.038	100.00	100.00	4.0823
Total:			**1.059**	**7.038**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037140-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

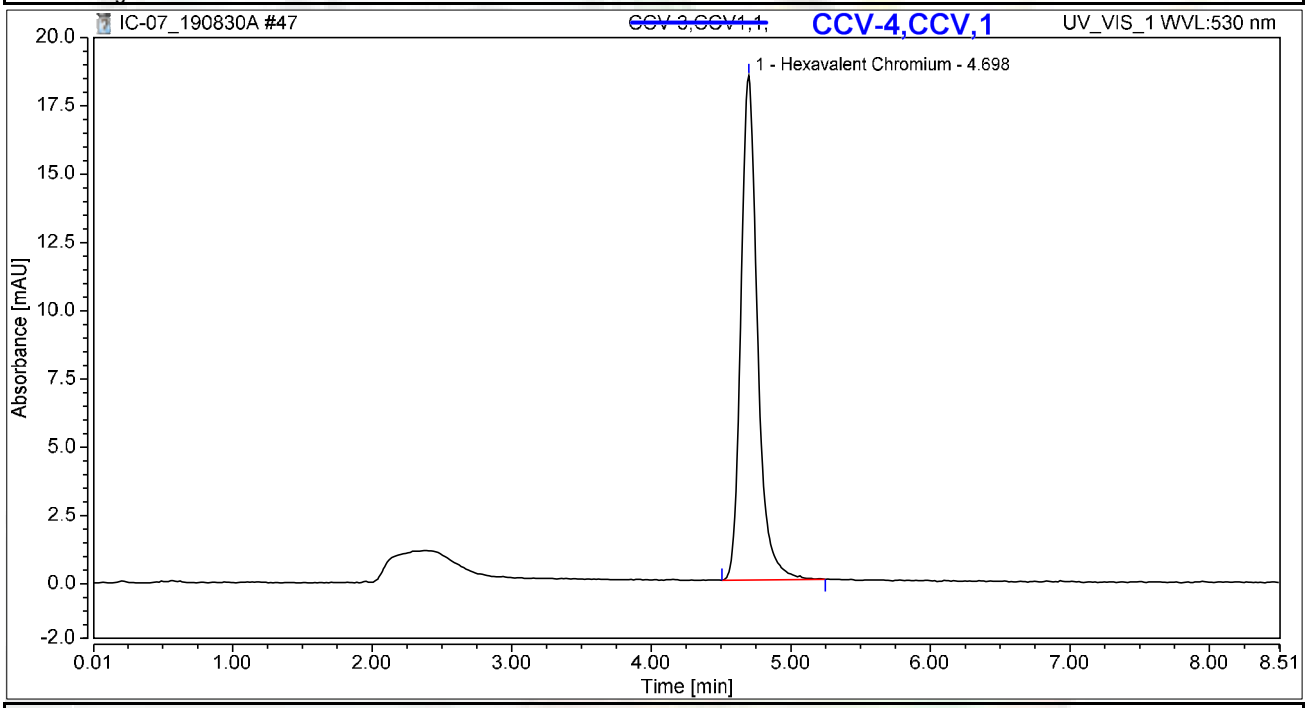
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV-3,CCV1,1,~~ CCV-4,CCV,1	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.546	18.466	100.00	100.00	9.8113
Total:			**2.546**	**18.466**	**100.00**	**100.00**	

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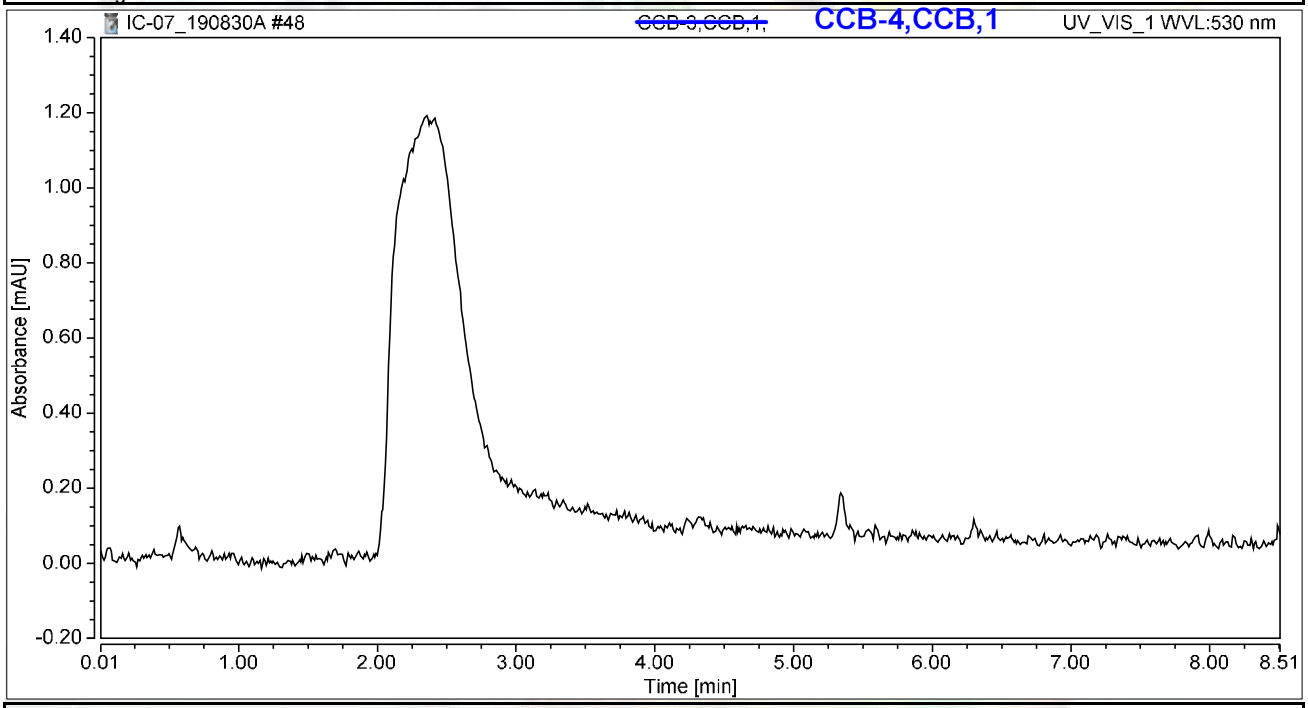
Chromatogram and Results

Injection Details

Injection Name:	~~CCB-3,CCB,1,~~ CCB-4,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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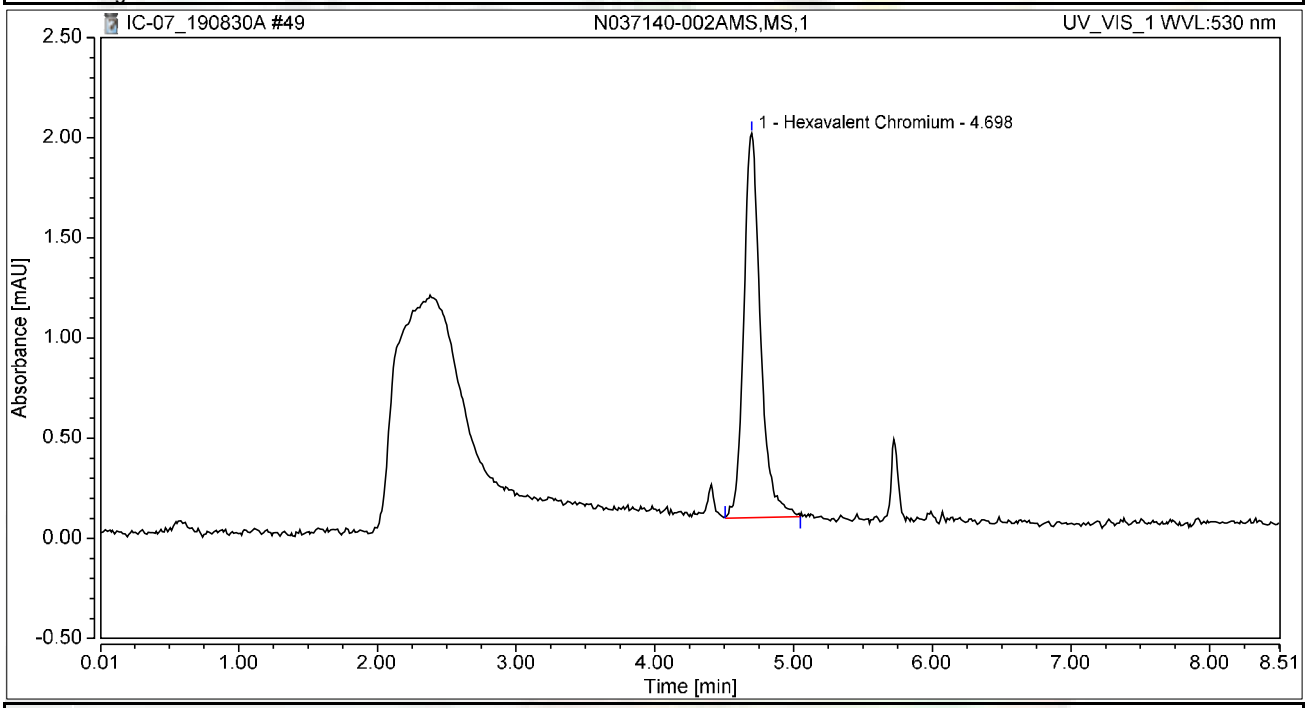
Chromatogram and Results

Injection Details

Injection Name:	**N037140-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 16:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

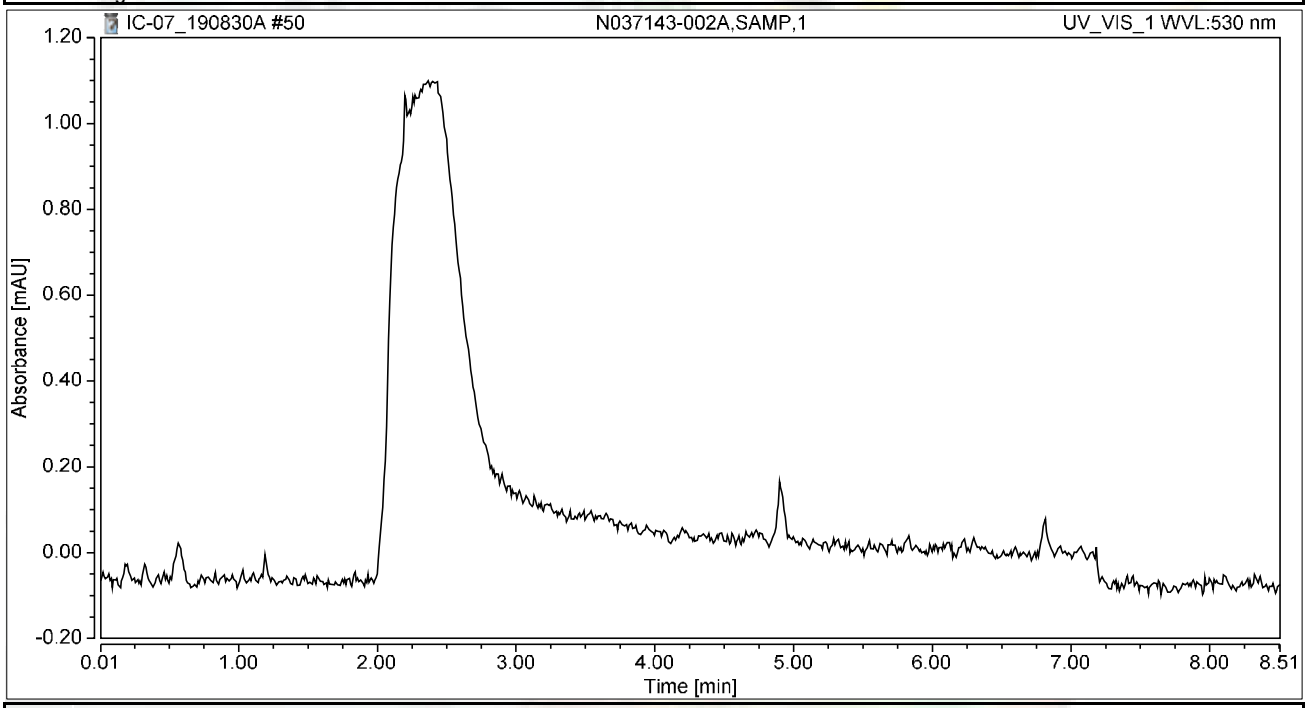
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.268	1.918	100.00	100.00	1.0341
Total:			**0.268**	**1.918**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

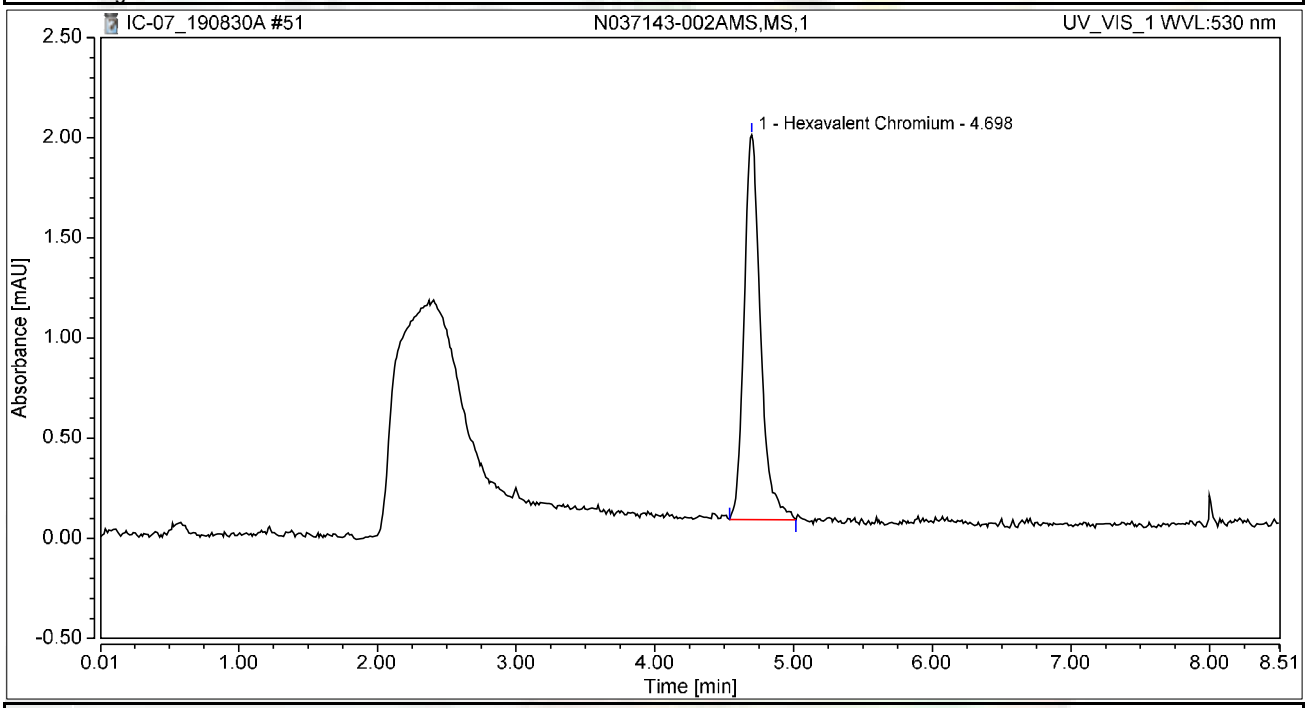
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037143-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

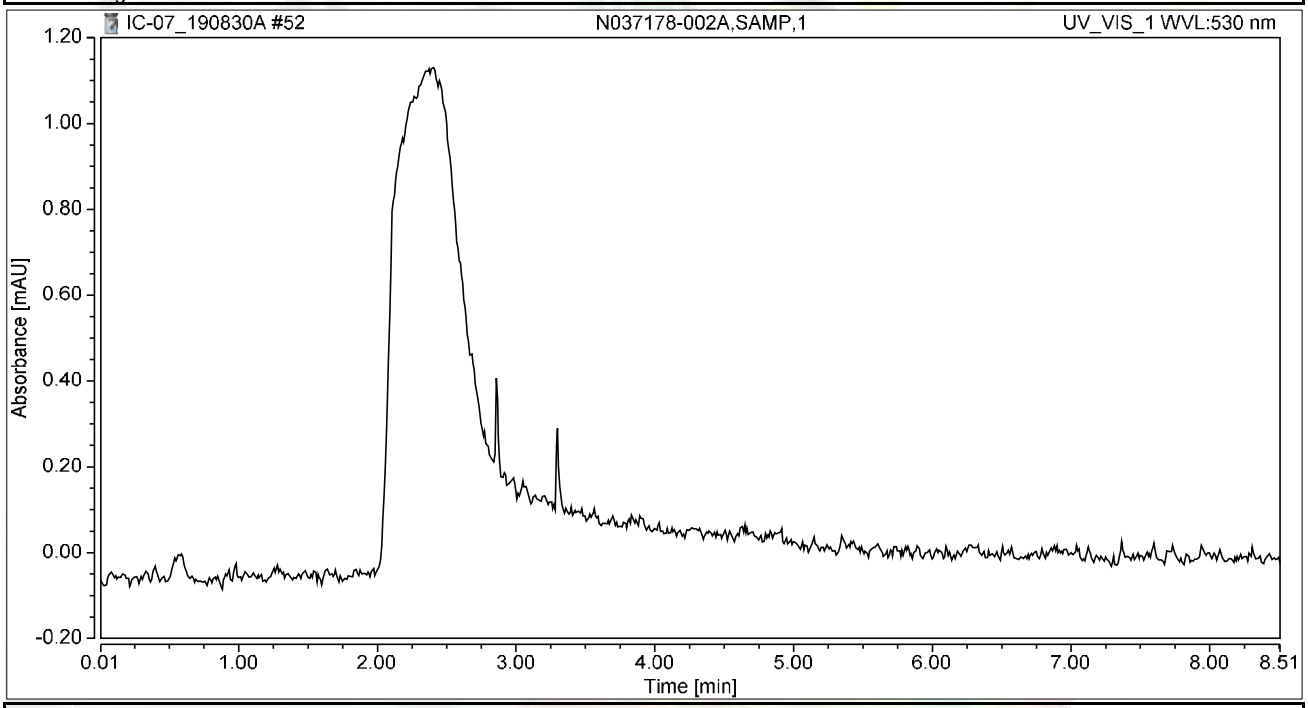
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.263	1.922	100.00	100.00	1.0151
Total:			**0.263**	**1.922**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037178-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

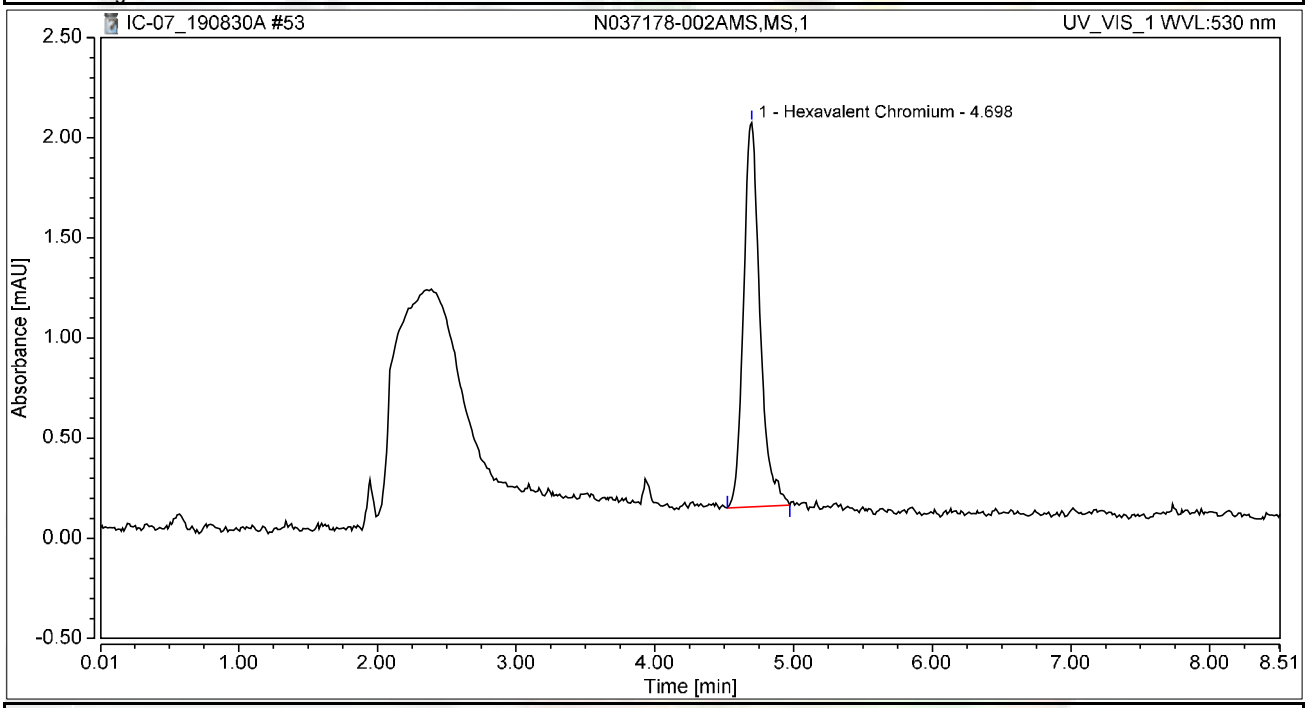
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037178-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

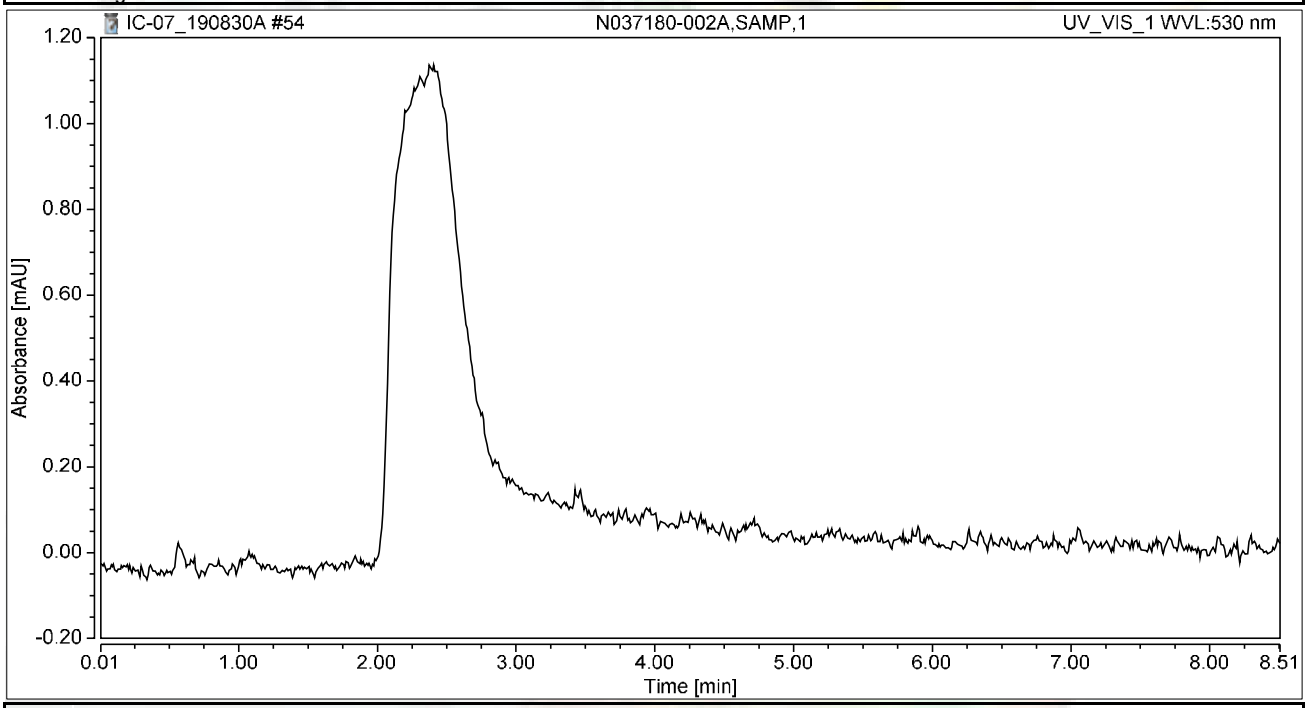
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.264	1.918	100.00	100.00	1.0174
Total:			**0.264**	**1.918**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037180-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

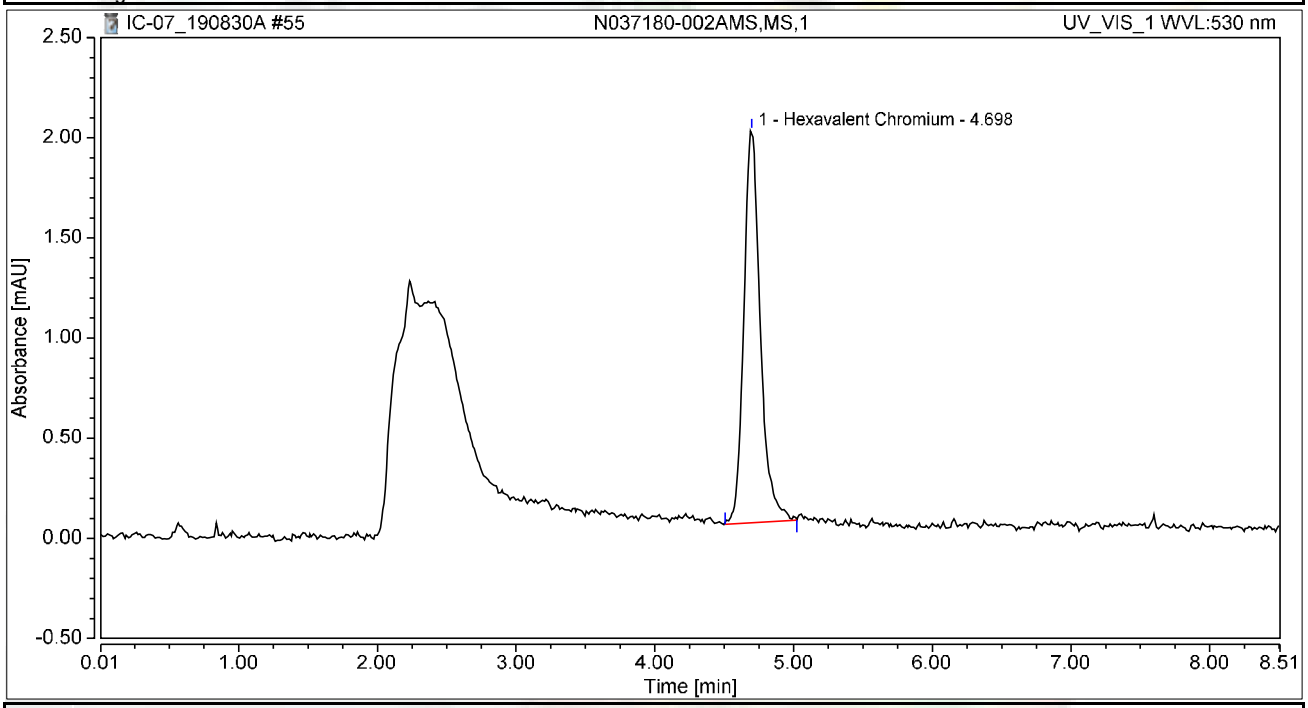
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037180-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 17:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

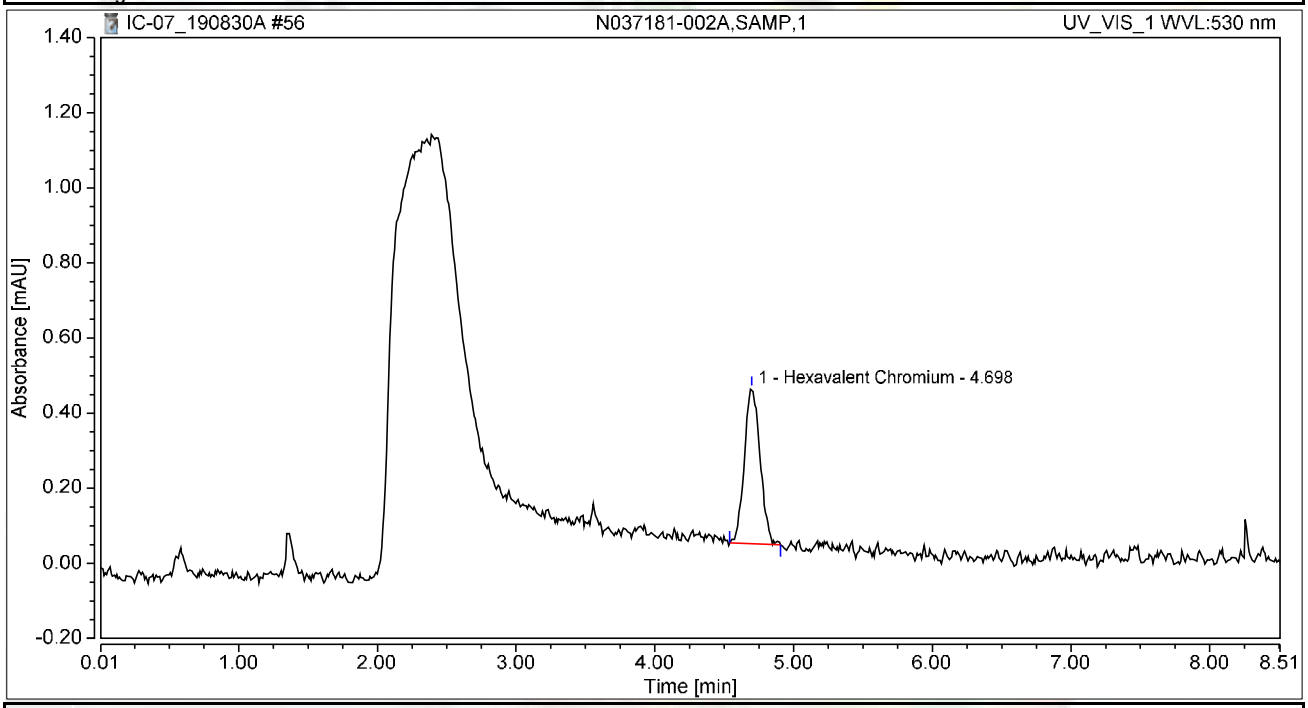
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.271	1.958	100.00	100.00	1.0428
Total:			**0.271**	**1.958**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

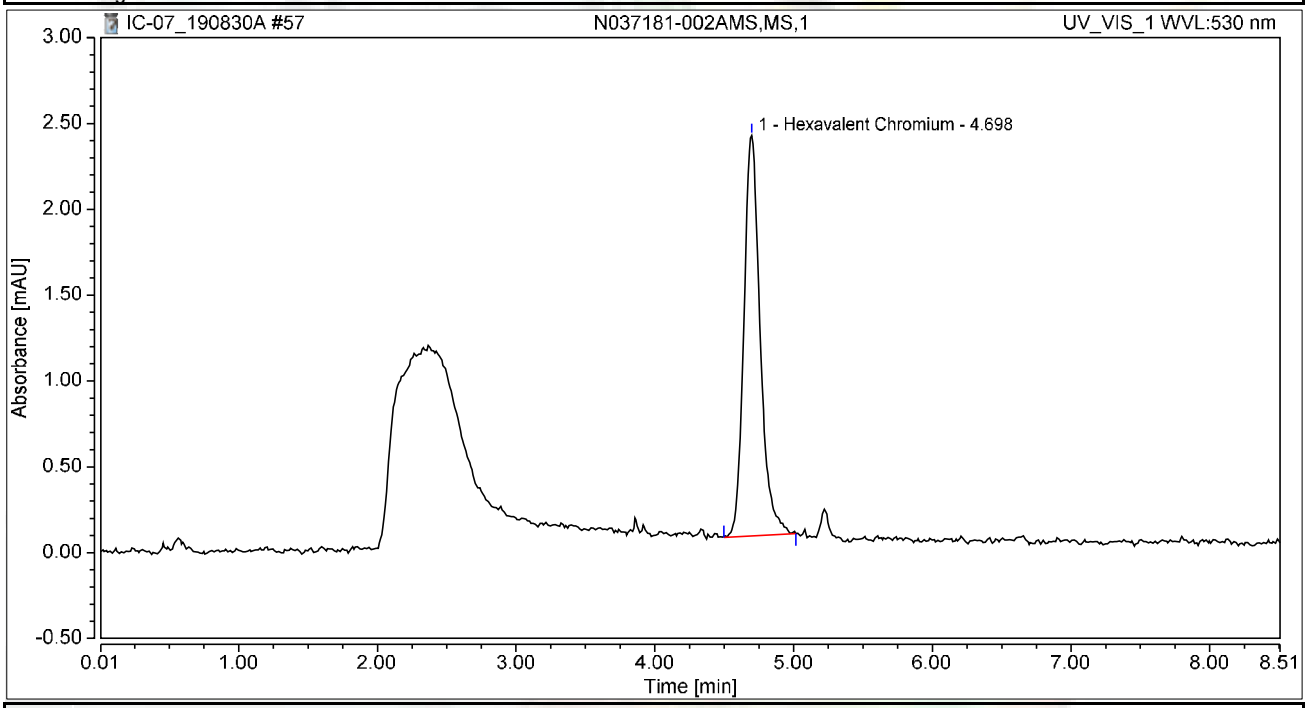
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.413	100.00	100.00	0.2093
Total:			**0.054**	**0.413**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

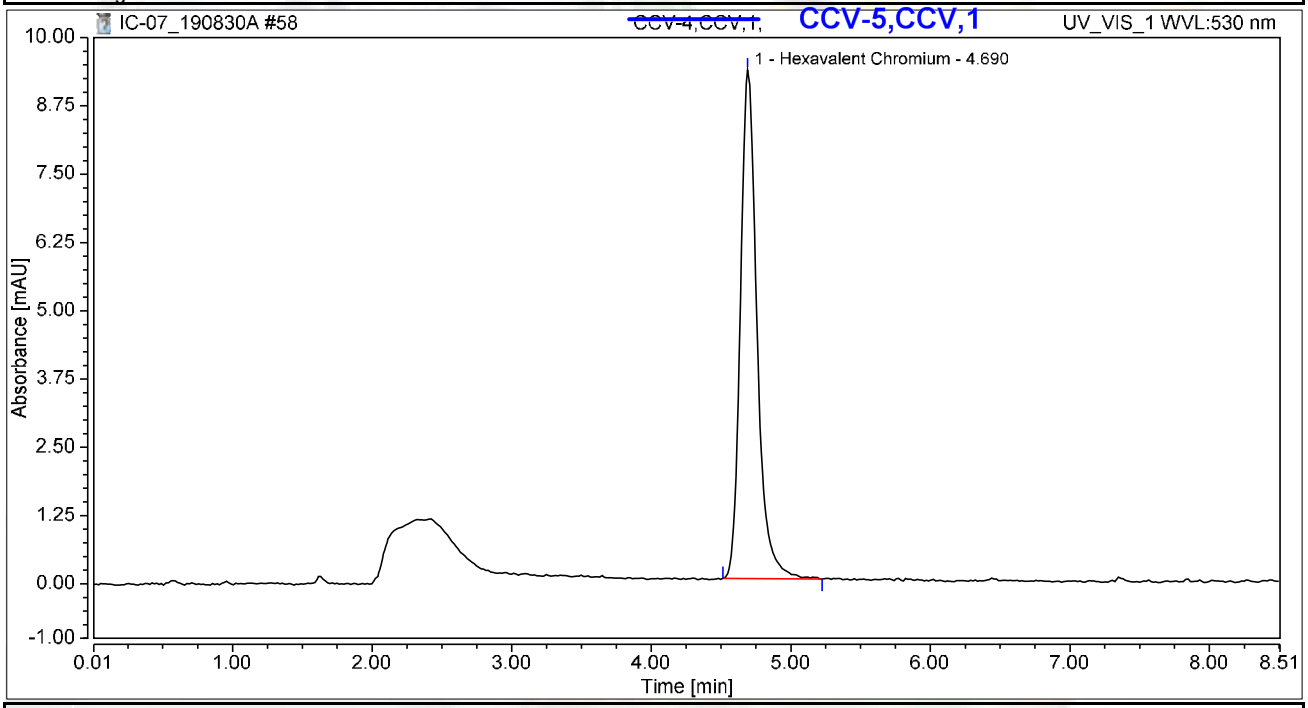
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.318	2.333	100.00	100.00	1.2249
Total:			**0.318**	**2.333**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	~~CCV-4,CCV,1,~~ CCV-5,CCV,1	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.287	9.316	100.00	100.00	4.9601
Total:			**1.287**	**9.316**	**100.00**	**100.00**	

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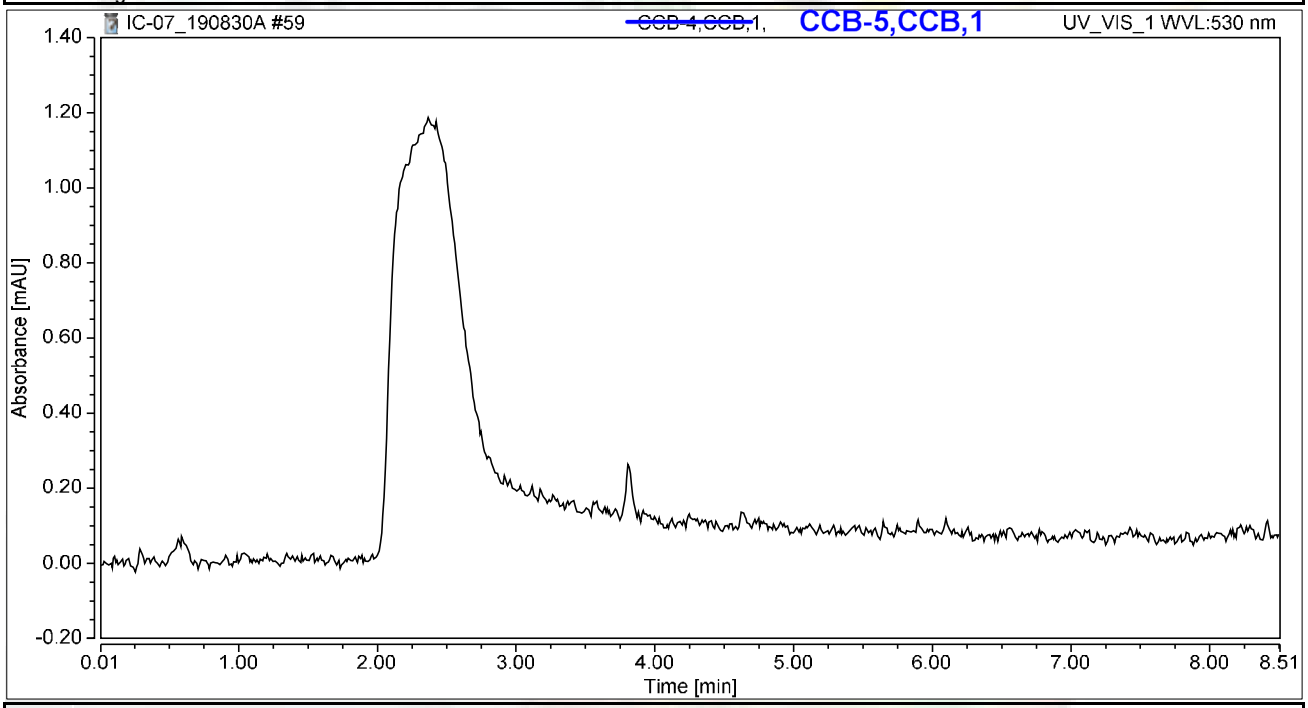
Chromatogram and Results

Injection Details

Injection Name:	~~CCB-4,CCB,~~1, CCB-5,CCB,1	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Aug/19 18:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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My first report/Integration

Chro eon (c) Dionex
sion 7.1.1.1127

RAW DATA

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 10:48 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/03/19 10:59 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/03/19 11:08 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/03/19 11:18 AM	Reported
13	MB-R136330	MBLK	1	Hexavalent Chromium	09/03/19 11:27 AM	Reported
14	LCS-R136330	LCS	1	Hexavalent Chromium	09/03/19 11:37 AM	Reported
15	N037145-002AMS	MS	1	Hexavalent Chromium	09/03/19 11:46 AM	Not Reported
16	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 11:56 AM	Not Reported
17	N037176-005AMS	MS	1	Hexavalent Chromium	09/03/19 12:05 PM	Reported
18	N037176-006AMS	MS	1	Hexavalent Chromium	09/03/19 12:14 PM	Reported
19	N037181-001AMS	MS	1	Hexavalent Chromium	09/03/19 12:24 PM	Not Reported
20	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 12:33 PM	Not Reported
21	N037145-002A	SAMP	50	Hexavalent Chromium	09/03/19 12:43 PM	Reported
22	N037147-003A	SAMP	1	Hexavalent Chromium	09/03/19 1:47 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/03/19 1:58 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/03/19 2:08 PM	Reported
25	N037176-005AMSD	MSD	1	Hexavalent Chromium	09/03/19 2:17 PM	Reported
26	N037176-005A	SAMP	1	Hexavalent Chromium	09/03/19 2:27 PM	Reported
27	N037176-005ADUP	DUP	1	Hexavalent Chromium	09/03/19 2:36 PM	Reported
28	N037176-006A	SAMP	1	Hexavalent Chromium	09/03/19 2:46 PM	Reported
29	N037181-001AMS	MS	100	Hexavalent Chromium	09/03/19 2:55 PM	Not Reported
30	N037181-001A	SAMP	100	Hexavalent Chromium	09/03/19 3:05 PM	Not Reported
31	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 3:14 PM	Reported
32	N037148-001AMS	MS	1	Hexavalent Chromium	09/03/19 3:23 PM	Reported
33	N037148-002AMS	MS	1	Hexavalent Chromium	09/03/19 3:33 PM	Reported
34	N037148-003AMS	MS	1	Hexavalent Chromium	09/03/19 3:42 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/03/19 3:52 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/03/19 4:01 PM	Reported
37	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 4:11 PM	Not Reported
38	N037148-005AMS	MS	1	Hexavalent Chromium	09/03/19 4:20 PM	Reported
39	N037148-006AMS	MS	1	Hexavalent Chromium	09/03/19 4:30 PM	Reported
40	N037148-007AMS	MS	1	Hexavalent Chromium	09/03/19 4:39 PM	Reported
41	N037148-008AMS	MS	1	Hexavalent Chromium	09/03/19 4:56 PM	Reported
42	N037148-009AMS	MS	1	Hexavalent Chromium	09/03/19 5:07 PM	Reported

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037148-010AMS	MS	1	Hexavalent Chromium	09/03/19 5:16 PM	Reported
44	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 5:26 PM	Reported
45	N037181-001AMS	MS	200	Hexavalent Chromium	09/03/19 5:35 PM	Reported
46	N037181-001A	SAMP	200	Hexavalent Chromium	09/03/19 5:45 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	09/03/19 5:54 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	09/03/19 6:04 PM	Reported
49	N037148-001A	SAMP	1	Hexavalent Chromium	09/03/19 6:13 PM	Reported
50	N037148-002A	SAMP	1	Hexavalent Chromium	09/03/19 6:23 PM	Reported
51	N037148-003A	SAMP	1	Hexavalent Chromium	09/03/19 6:32 PM	Reported
52	N037148-004A	SAMP	1	Hexavalent Chromium	09/03/19 6:42 PM	Reported
53	N037148-005A	SAMP	1	Hexavalent Chromium	09/03/19 6:51 PM	Reported
54	N037148-006A	SAMP	1	Hexavalent Chromium	09/03/19 7:01 PM	Reported
55	N037148-007A	SAMP	1	Hexavalent Chromium	09/03/19 7:10 PM	Reported
56	N037148-008A	SAMP	1	Hexavalent Chromium	09/03/19 7:19 PM	Reported
57	N037148-009A	SAMP	1	Hexavalent Chromium	09/03/19 7:29 PM	Reported
58	N037148-010A	SAMP	1	Hexavalent Chromium	09/03/19 7:38 PM	Reported
59	CCV-5	CCV	1	Hexavalent Chromium	09/03/19 7:48 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	09/03/19 7:57 PM	Reported
61	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 8:07 PM	Reported
62	N037148-011AMS	MS	1	Hexavalent Chromium	09/03/19 8:16 PM	Not Reported
63	N037148-011A	SAMP	1	Hexavalent Chromium	09/03/19 8:26 PM	Not Reported
64	N037148-012AMS	MS	1	Hexavalent Chromium	09/03/19 8:35 PM	Reported
65	N037148-012A	SAMP	1	Hexavalent Chromium	09/03/19 8:45 PM	Reported
66	N037148-013AMS	MS	1	Hexavalent Chromium	09/03/19 8:54 PM	Reported
67	N037148-013A	SAMP	1	Hexavalent Chromium	09/03/19 9:04 PM	Reported
68	CCV-6	CCV1	1	Hexavalent Chromium	09/03/19 9:13 PM	Reported
69	CCB-6	CCB	1	Hexavalent Chromium	09/03/19 9:22 PM	Reported
70	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 9:32 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190903A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/Sep/19 09:44:10**
No. of Injections:	**73**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/03/2019 10:48	Finished	BLANK
10	~~CCV1~~CCV,1,	2	1000	Unknown		09/03/2019 10:59	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/03/2019 11:08	Finished	PQL @ 0.2ppb
12	~~CCB~~1,CCB,1,	4	1000	Unknown		09/03/2019 11:18	Finished	CCB R190701
13	MB-H2O,MBLK,1,	5	1000	Unknown		09/03/2019 11:27	Finished	MB R190701
14	LCS-H2O,LCS,1,	6	1000	Unknown		09/03/2019 11:37	Finished	LCS @5ppb, IWST-190702B
15	N037145-002AMS,MS	8	1000	Unknown		09/03/2019 11:46	Finished	MS (1ppb), IWST-190702B,10
16	N037147-003AMS,MS	9	1000	Unknown		09/03/2019 11:56	Finished	MS (1ppb), IWST-190702B,10
17	N037176-005AMS,MS	10	1000	Unknown		09/03/2019 12:05	Finished	MS (1ppb), IWST-190702B,10
18	N037176-006AMS,MS	11	1000	Unknown		09/03/2019 12:14	Finished	MS (1ppb), IWST-190702B,10
19	N037181-001AMS,MS	12	1000	Unknown		09/03/2019 12:24	Finished	MS (1ppb), IWST-190702B,10
20	N037145-002AMS,MS	13	1000	Unknown		09/03/2019 12:33	Finished	MS (5ppb), IWST-190702B,0.2
21	N037145-002A,SAMP	14	1000	Unknown		09/03/2019 12:43	Finished	SAMP,0.2>10mL
22	N037147-003A,SAMP	15	1000	Unknown		09/03/2019 13:47	Finished	SAMP,10mL
23	CCV-2,CCV1,1,	16	1000	Unknown		09/03/2019 13:58	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	17	1000	Unknown		09/03/2019 14:08	Finished	CCB R190617C
25	N037176-005AMSD,M	18	1000	Unknown		09/03/2019 14:17	Finished	MSD (1ppb), IWST-190702B,10
26	N037176-005A,SAMP	19	1000	Unknown		09/03/2019 14:27	Finished	SAMP,10mL
27	N037176-005ADUP,D	20	1000	Unknown		09/03/2019 14:36	Finished	SAMP,10mL
28	N037176-006A,SAMP	21	1000	Unknown		09/03/2019 14:46	Finished	MS (1ppb), IWST-190702B,10
29	N037181-001AMS,MS	22	1000	Unknown		09/03/2019 14:55	Finished	MS (5ppb), IWST-190702B,0.1
30	N037181-001A,SAMP	23	1000	Unknown		09/03/2019 15:05	Finished	SAMP,0.1>10mL
31	N037145-002AMS,MS	24	1000	Unknown		09/03/2019 15:14	Finished	MS (5ppb), IWST-190702B,0.2
32	N037148-001AMS,MS	25	1000	Unknown		09/03/2019 15:23	Finished	MS (1ppb), IWST-190702B,10
33	N037148-002AMS,MS	26	1000	Unknown		09/03/2019 15:33	Finished	MS (1ppb), IWST-190702B,10
34	N037148-003AMS,MS	27	1000	Unknown		09/03/2019 15:42	Finished	MS (1ppb), IWST-190702B,10
35	CCV-3,CCV,1,	28	1000	Unknown		09/03/2019 15:52	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	29	1000	Unknown		09/03/2019 16:01	Finished	CCB R190617C
37	N037148-004AMS,MS	30	1000	Unknown		09/03/2019 16:11	Finished	MS (1ppb), IWST-190702B,10
38	N037148-005AMS,MS	31	1000	Unknown		09/03/2019 16:20	Finished	MS (1ppb), IWST-190702B,10
39	N037148-006AMS,MS	32	1000	Unknown		09/03/2019 16:30	Finished	MS (1ppb), IWST-190702B,10
40	N037148-007AMS,MS	33	1000	Unknown		09/03/2019 16:39	Finished	MS (1ppb), IWST-190702B,10
41	N037148-008AMS,MS	1	1000	Unknown		09/03/2019 16:56	Finished	MS (1ppb), IWST-190702B,10
42	N037148-009AMS,MS	2	1000	Unknown		09/03/2019 17:07	Finished	MS (1ppb), IWST-190702B,10
43	N037148-010AMS,MS	3	1000	Unknown		09/03/2019 17:16	Finished	MS (1ppb), IWST-190702B,10
44	N037147-003AMS,MS	4	1000	Unknown		09/03/2019 17:26	Finished	MS (1ppb), IWST-190702B,10
45	N037181-001AMS,MS	5	1000	Unknown		09/03/2019 17:35	Finished	MS (5ppb), IWST-190702B,0.0
46	N037181-001A,SAMP	6	1000	Unknown		09/03/2019 17:45	Finished	SAMP,0.05>10mL
47	CCV-4,CCV1,1,	7	1000	Unknown		09/03/2019 17:54	Finished	CCV @10ppb, IWST-190702A
48	CCB-4,CCB,1,	8	1000	Unknown		09/03/2019 18:04	Finished	CCB R190617C
49	N037148-001A,SAMP	9	1000	Unknown		09/03/2019 18:13	Finished	SAMP,10mL
50	N037148-002A,SAMP	10	1000	Unknown		09/03/2019 18:23	Finished	SAMP,10mL
51	N037148-003A,SAMP	11	1000	Unknown		09/03/2019 18:32	Finished	SAMP,10mL
52	N037148-004A,SAMP	12	1000	Unknown		09/03/2019 18:42	Finished	SAMP,10mL
53	N037148-005A,SAMP	13	1000	Unknown		09/03/2019 18:51	Finished	SAMP,10mL
54	N037148-006A,SAMP	14	1000	Unknown		09/03/2019 19:01	Finished	SAMP,10mL
55	N037148-007A,SAMP	15	1000	Unknown		09/03/2019 19:10	Finished	SAMP,10mL
56	N037148-008A,SAMP	16	1000	Unknown		09/03/2019 19:19	Finished	SAMP,10mL
57	N037148-009A,SAMP	17	1000	Unknown		09/03/2019 19:29	Finished	SAMP,10mL
58	N037148-010A,SAMP	18	1000	Unknown		09/03/2019 19:38	Finished	SAMP,10mL
59	CCV-5,CCV,1,	19	1000	Unknown		09/03/2019 19:48	Finished	CCV @5ppb, IWST-190702A
60	CCB-5,CCB,1,	20	1000	Unknown		09/03/2019 19:57	Finished	CCB R190617C

CCV-1

CCB-1

61	N037148-004AMS,MS	21	1000	Unknown		09/03/2019 20:07	Finished	MS (1ppb), IWST-190702B,10
62	N037148-011AMS,MS	22	1000	Unknown		09/03/2019 20:16	Finished	MS (1ppb), IWST-190702B,10
63	N037148-011A,SAMP	23	1000	Unknown		09/03/2019 20:26	Finished	SAMP,10mL
64	N037148-012AMS,MS	24	1000	Unknown		09/03/2019 20:35	Finished	MS (1ppb), IWST-190702B,10
65	N037148-012A,SAMP	25	1000	Unknown		09/03/2019 20:45	Finished	SAMP,10mL
66	N037148-013AMS,MS	26	1000	Unknown		09/03/2019 20:54	Finished	MS (1ppb), IWST-190702B,10
67	N037148-013A,SAMP	27	1000	Unknown		09/03/2019 21:04	Finished	SAMP,10mL
68	CCV-6,CCV1,1,	28	1000	Unknown		09/03/2019 21:13	Finished	CCV @10ppb, IWST-190702A
69	CCB-6,CCB,1,	29	1000	Unknown		09/03/2019 21:22	Finished	CCB R190617C
70	BLANK	30	1000	Unknown		09/03/2019 21:32	Finished	BLANK
71	SHUTDOWN	31	1000	Unknown		09/03/2019 21:41	Finished	
72	Eluent: R190903A	32	1000	Unknown		n.a.	Finished	Eluent
73	PCR: R190903B	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

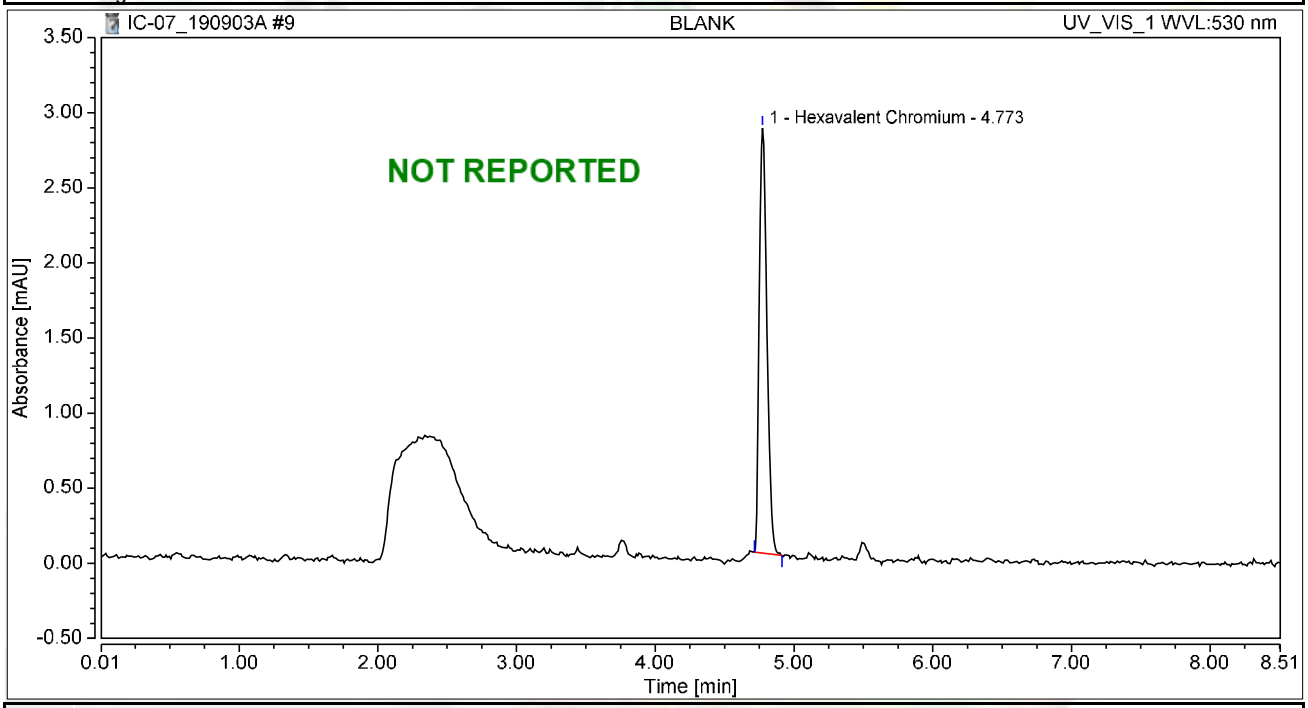
09/10/19

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 10:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

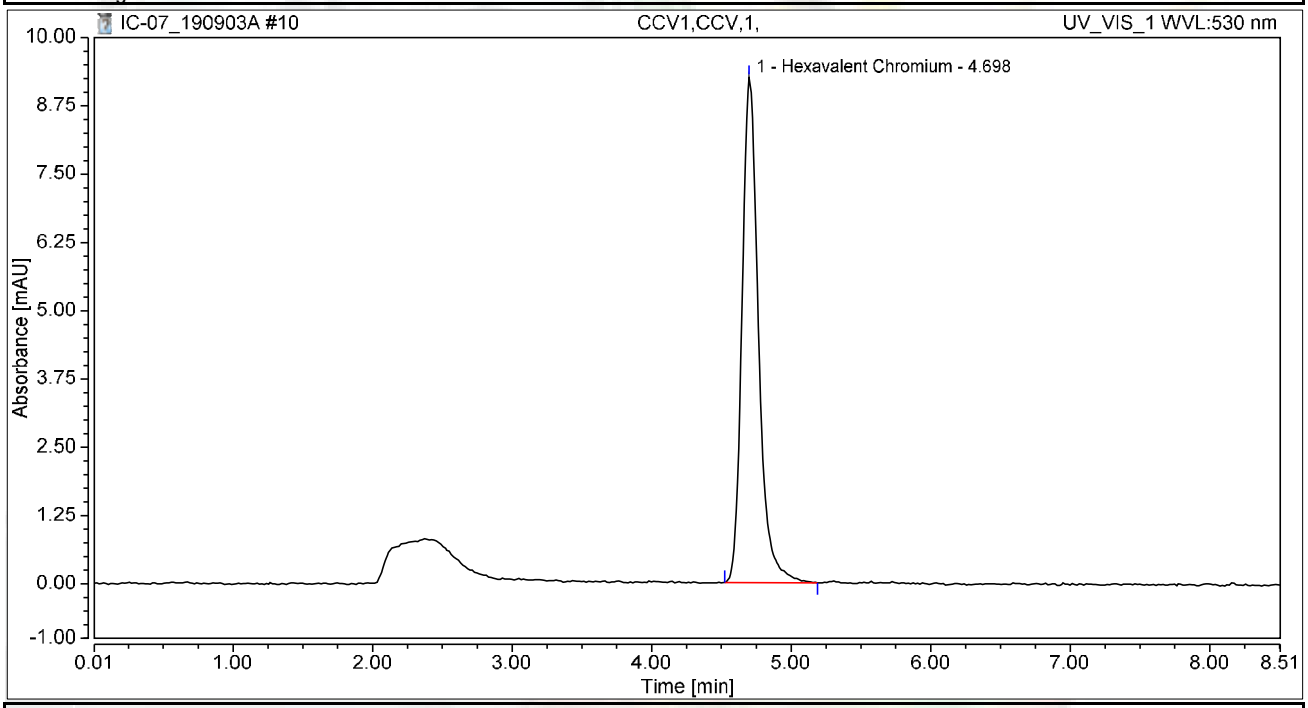
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.183	2.830	100.00	100.00	0.7044
Total:			**0.183**	**2.830**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 10:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

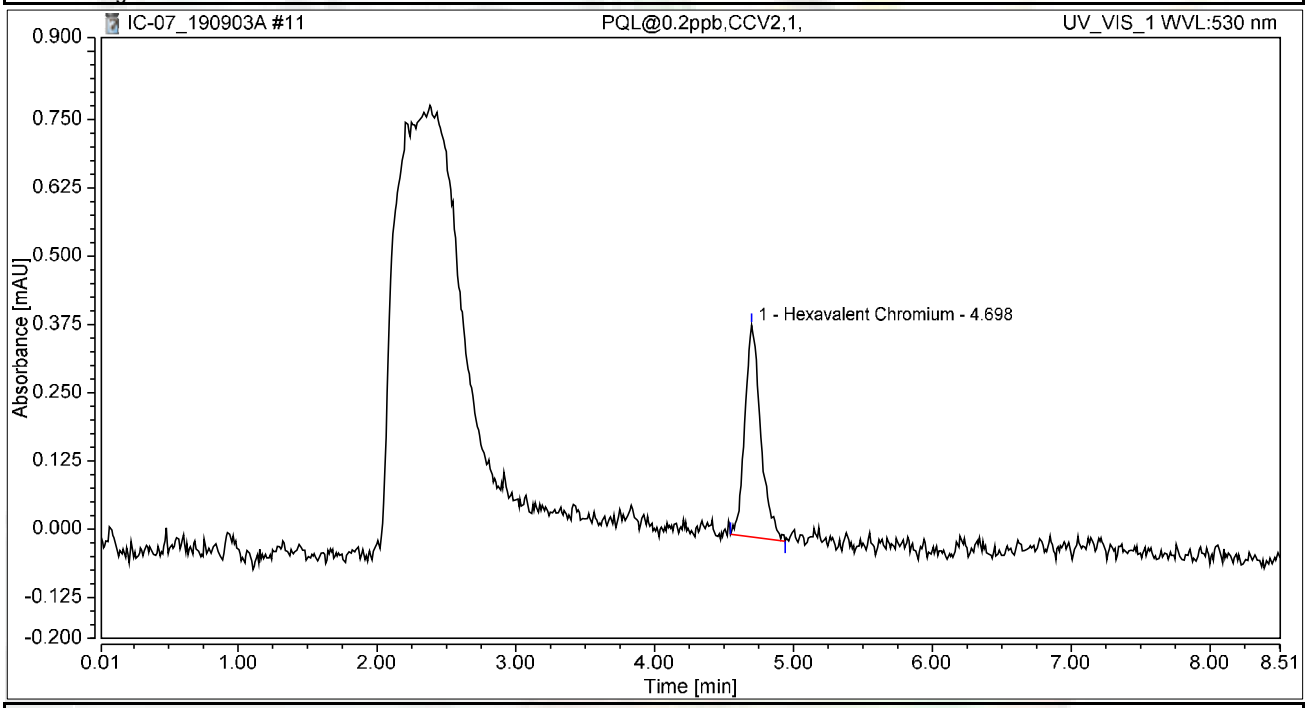
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.268	9.244	100.00	100.00	4.8848
Total:			**1.268**	**9.244**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

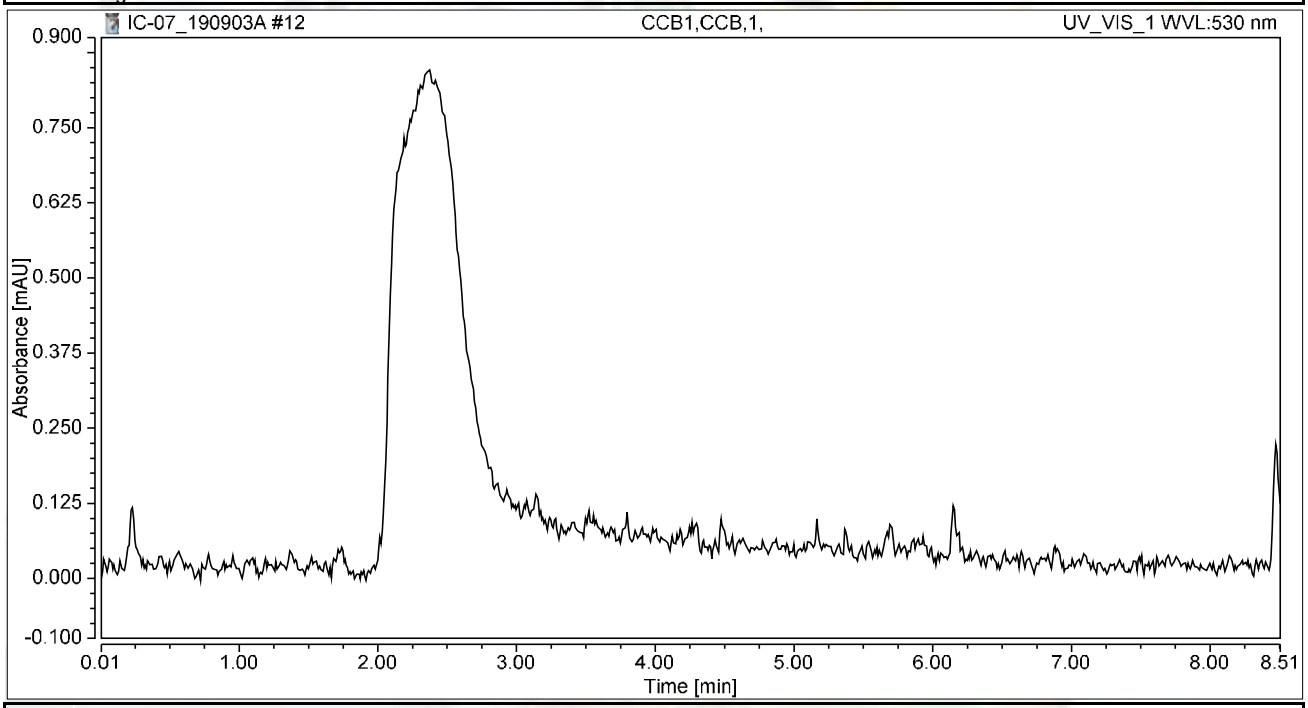
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.051	0.387	100.00	100.00	0.1984
Total:			**0.051**	**0.387**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

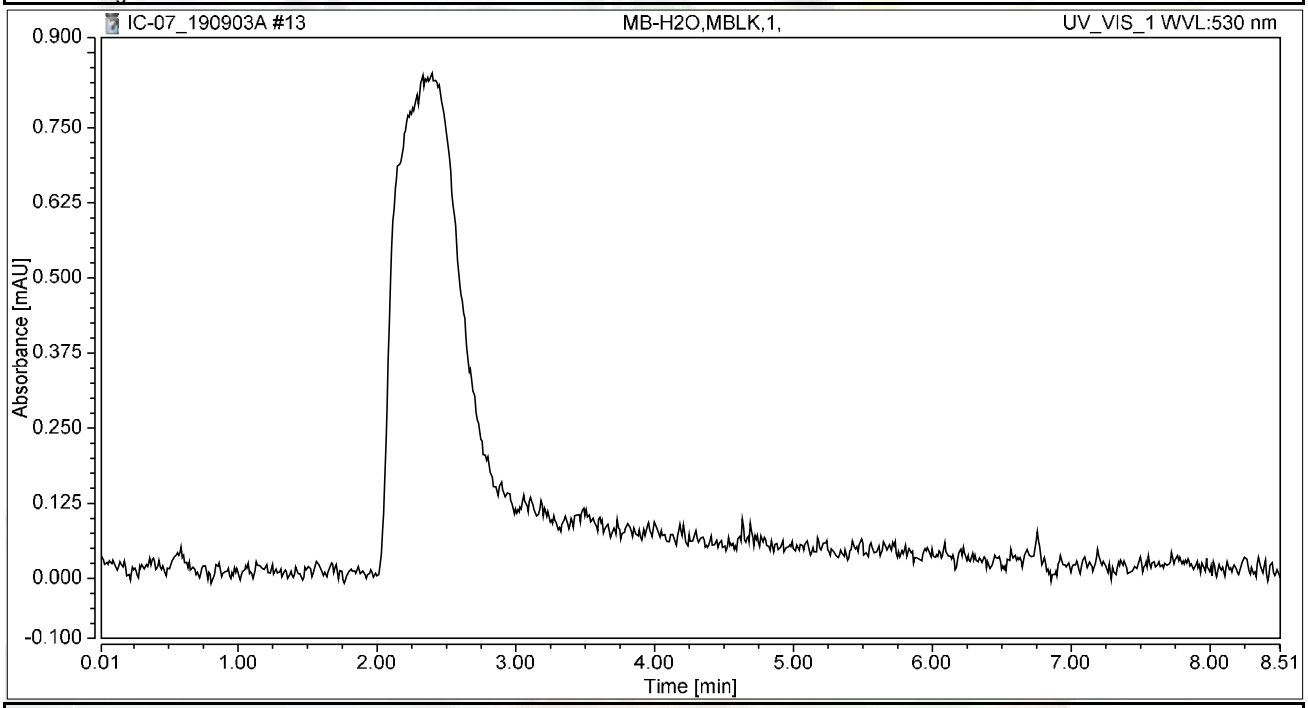
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

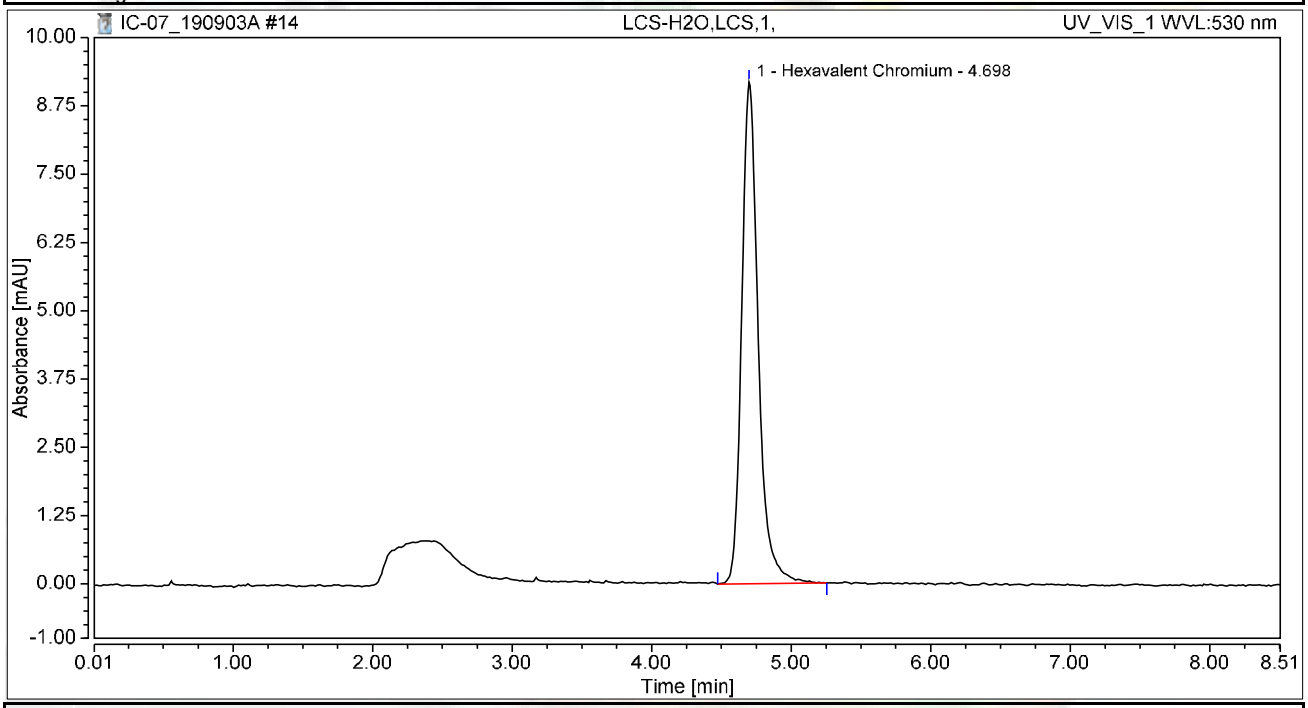
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

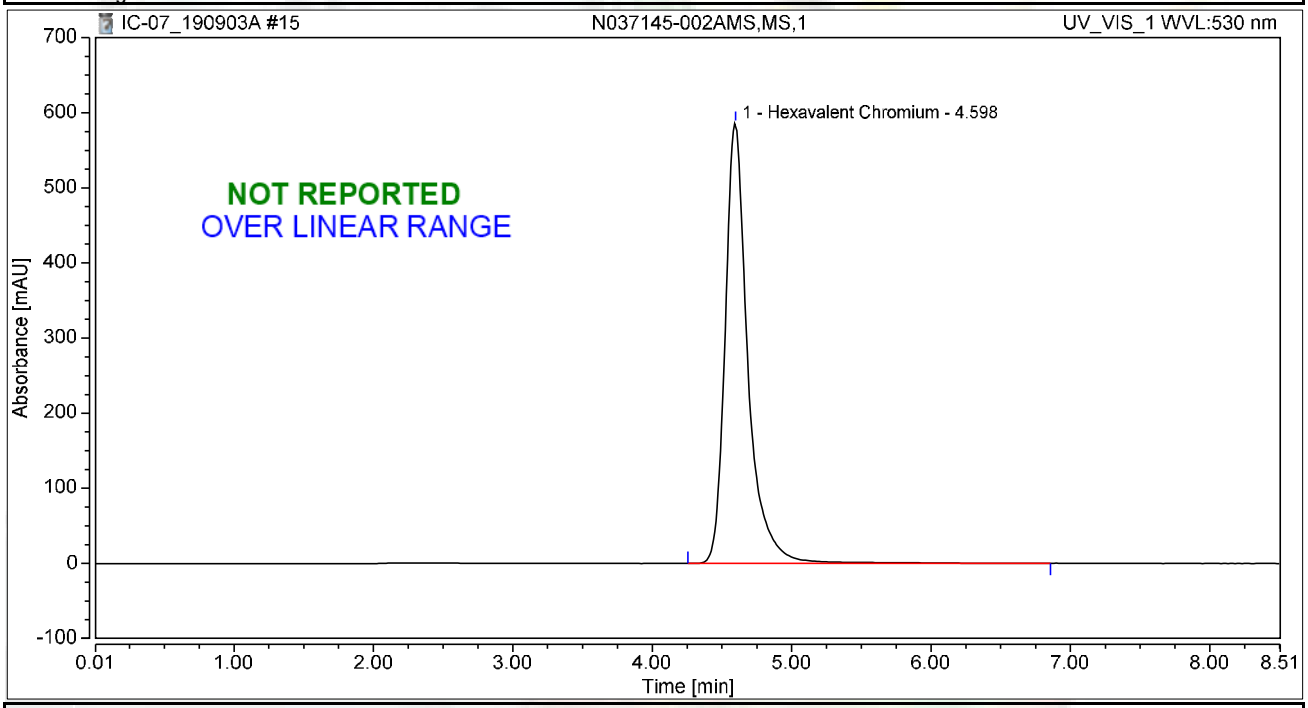
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.265	9.189	100.00	100.00	4.8732
Total:			**1.265**	**9.189**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

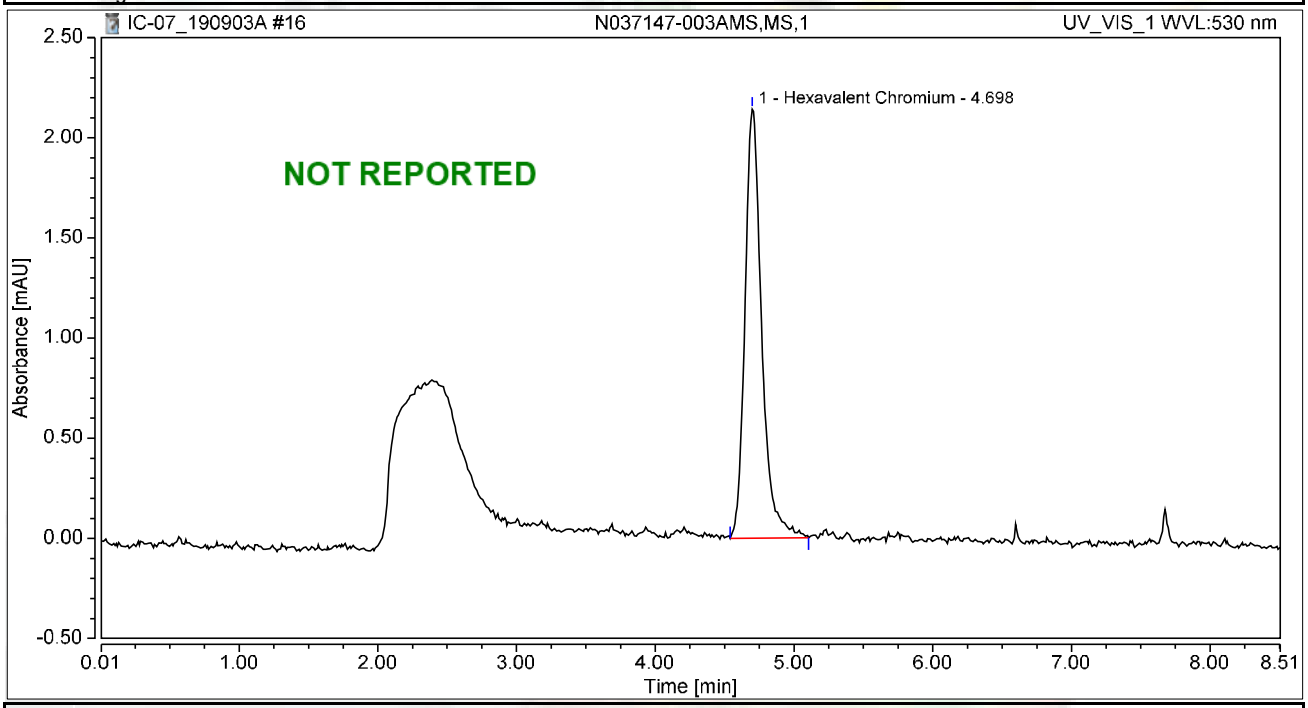
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	110.927	585.723	100.00	100.00	427.4791
Total:			**110.927**	**585.723**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037147-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

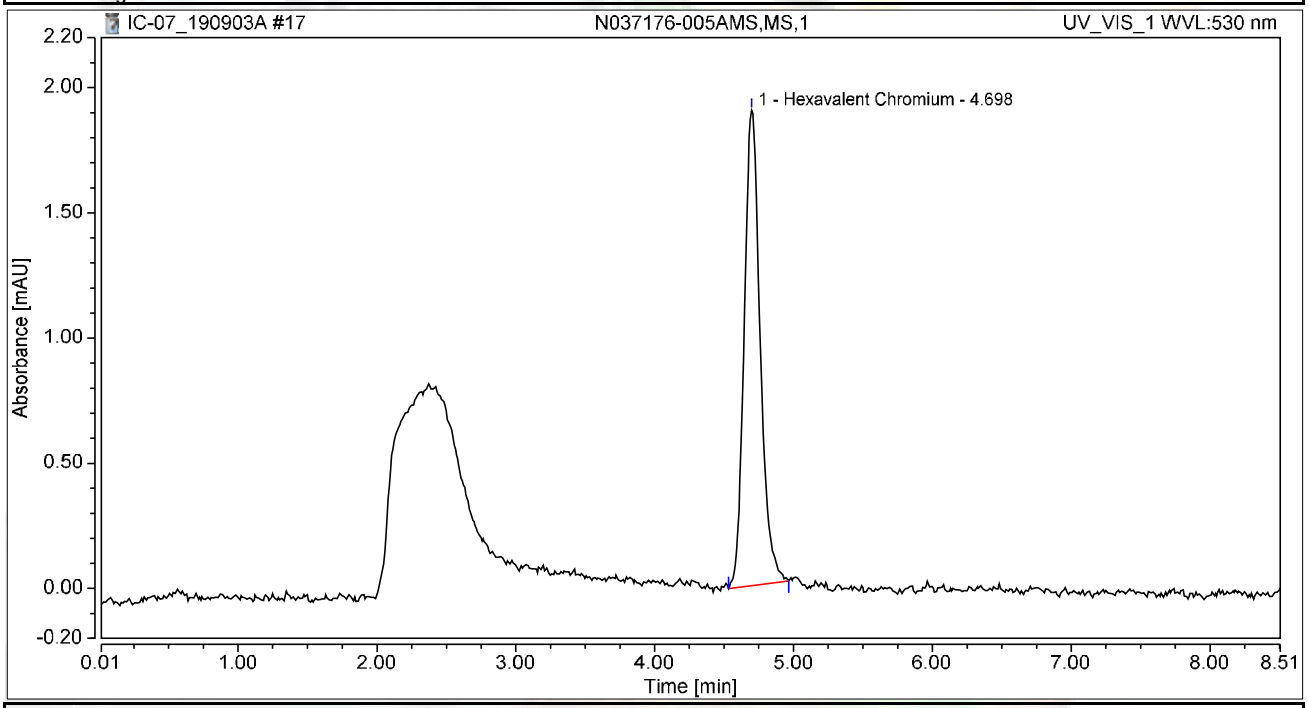
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.301	2.143	100.00	100.00	1.1583
Total:			**0.301**	**2.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

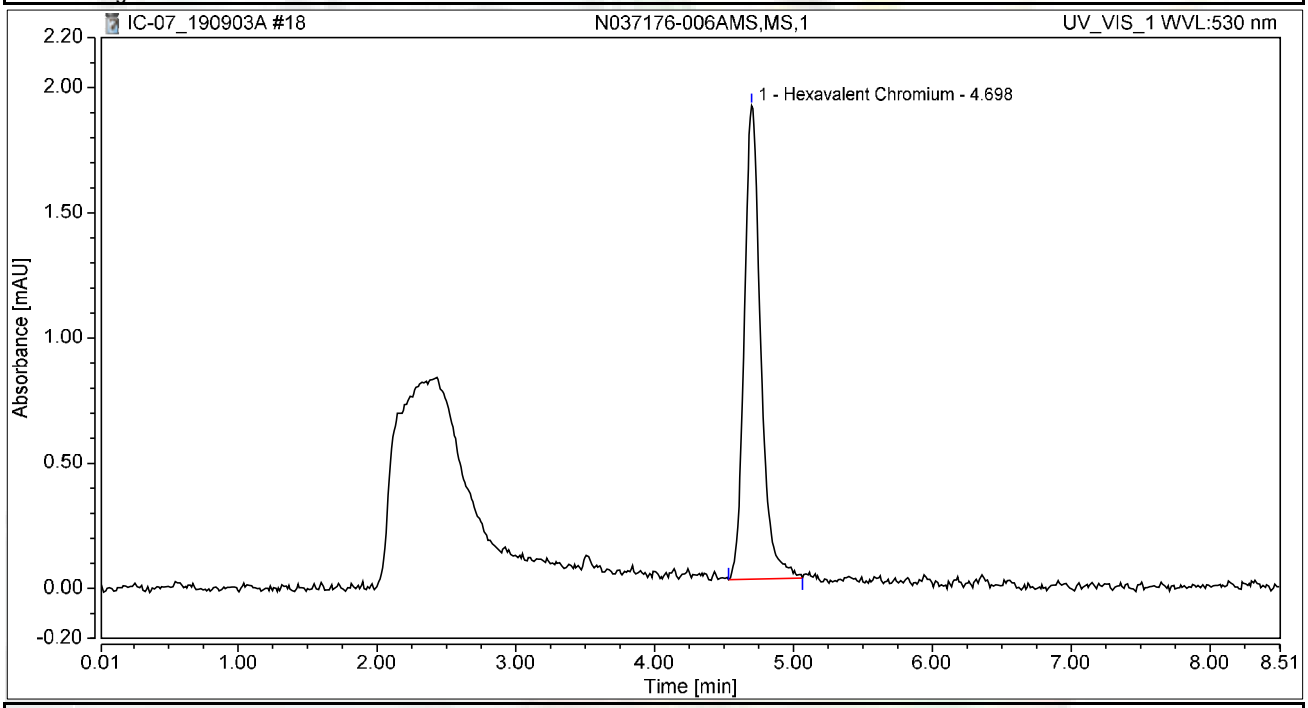
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.254	1.898	100.00	100.00	0.9784
Total:			**0.254**	**1.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-006AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

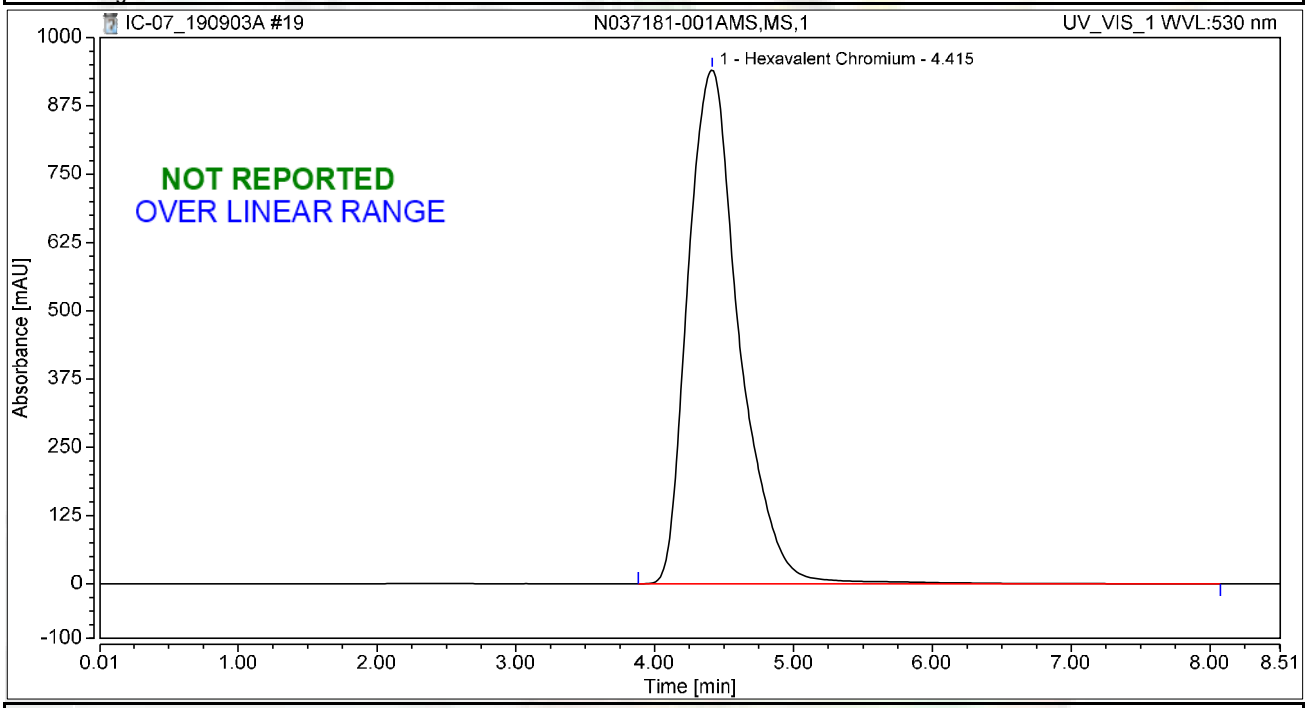
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.260	1.891	100.00	100.00	1.0029
Total:			**0.260**	**1.891**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

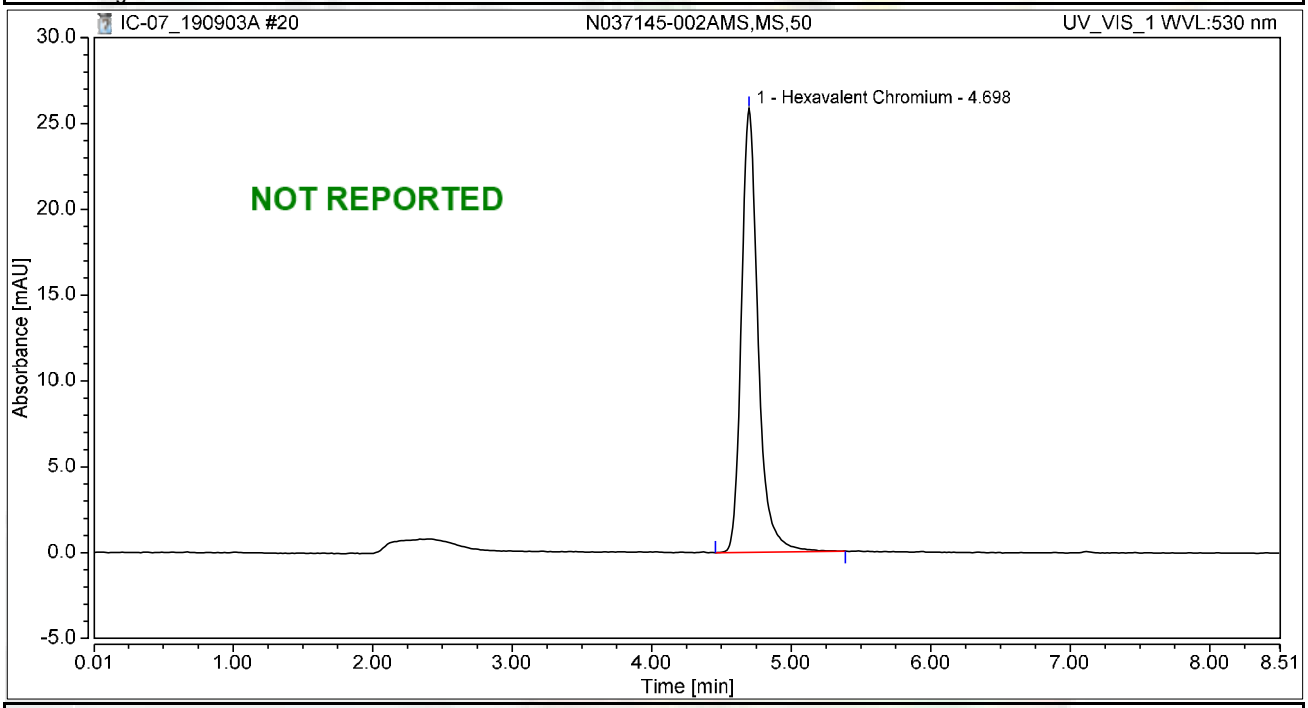
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.415	402.405	941.170	100.00	100.00	1550.7467
Total:			**402.405**	**941.170**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

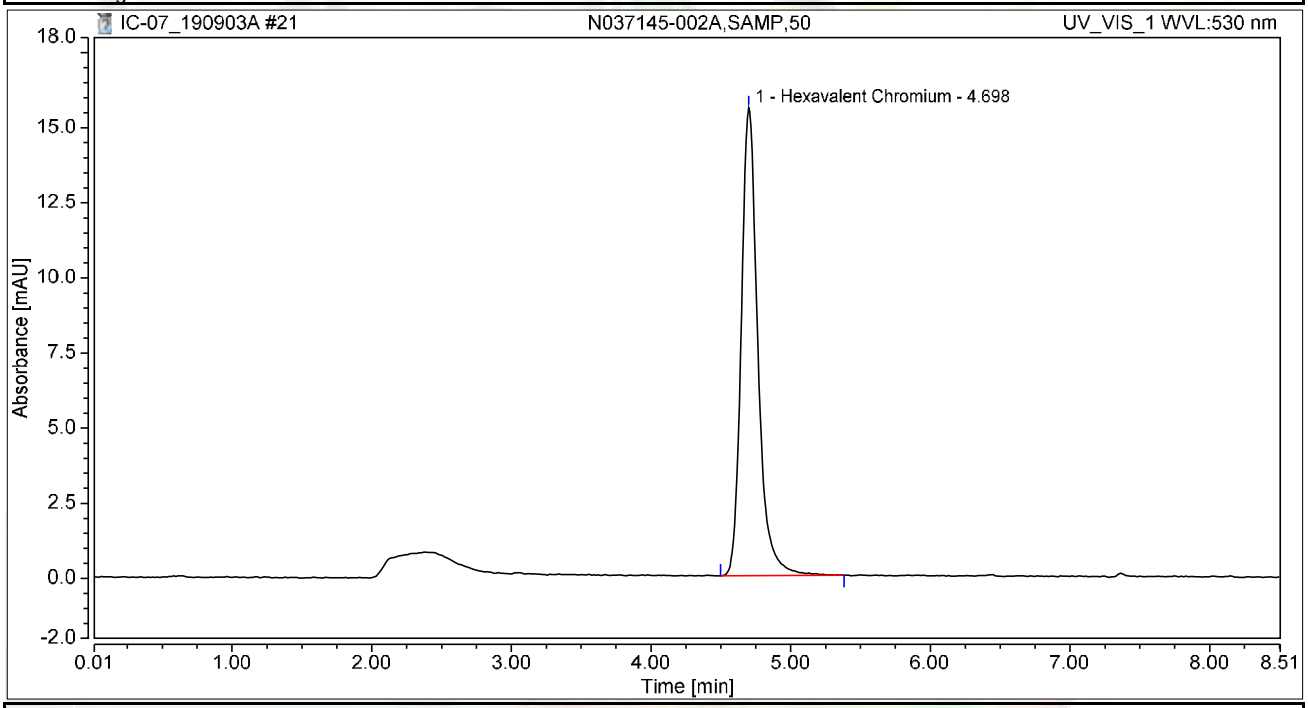
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	3.591	25.854	100.00	100.00	13.8384
Total:			**3.591**	**25.854**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

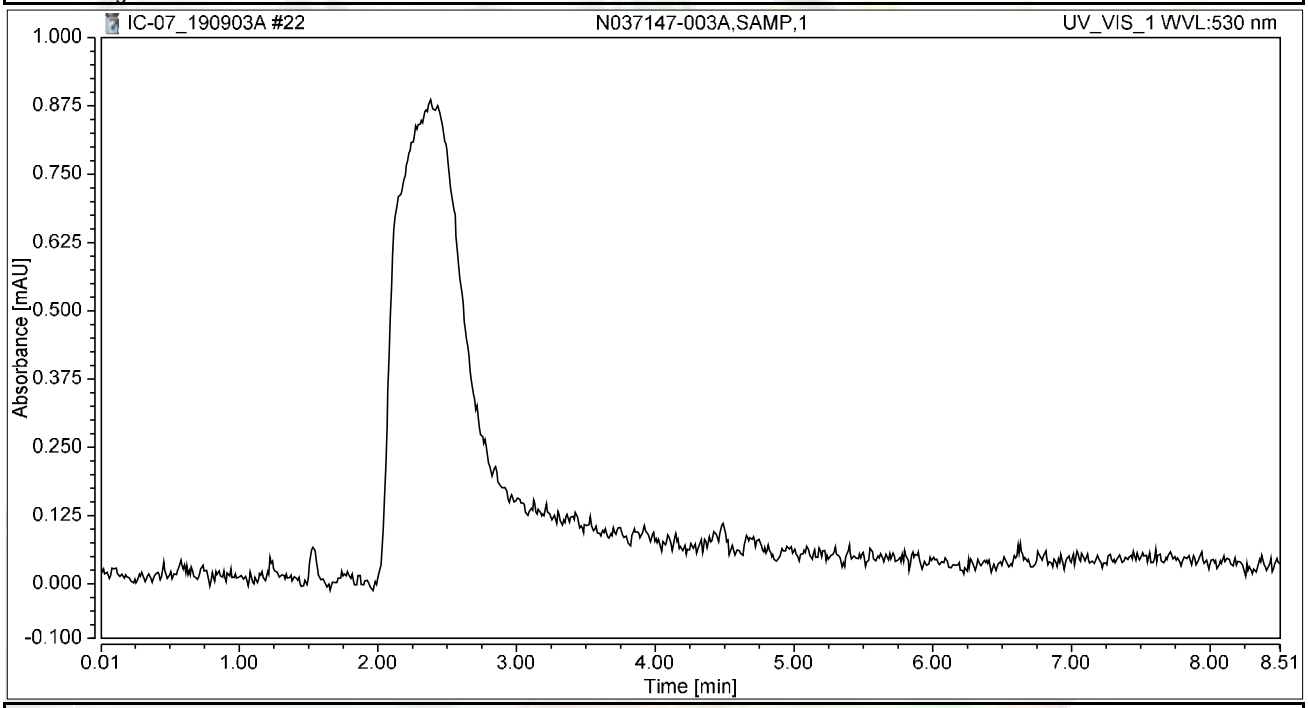
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.151	15.581	100.00	100.00	8.2904
Total:			**2.151**	**15.581**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037147-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

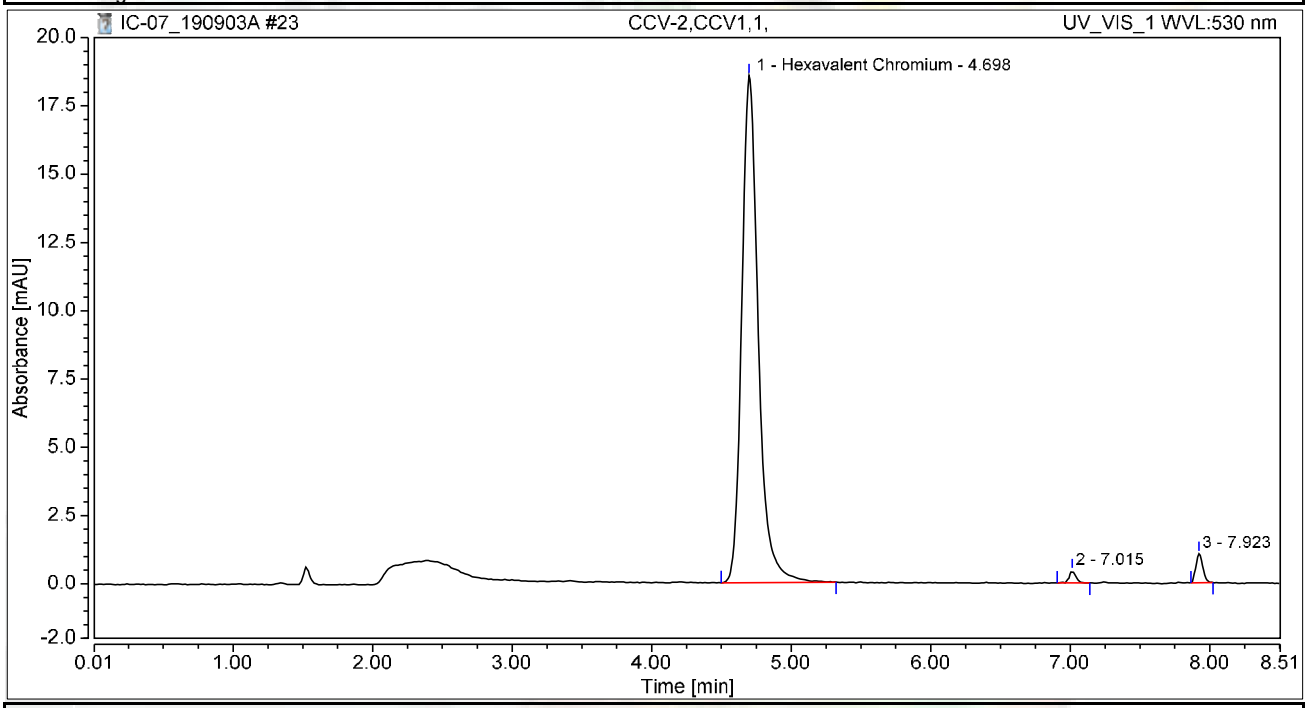
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 13:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

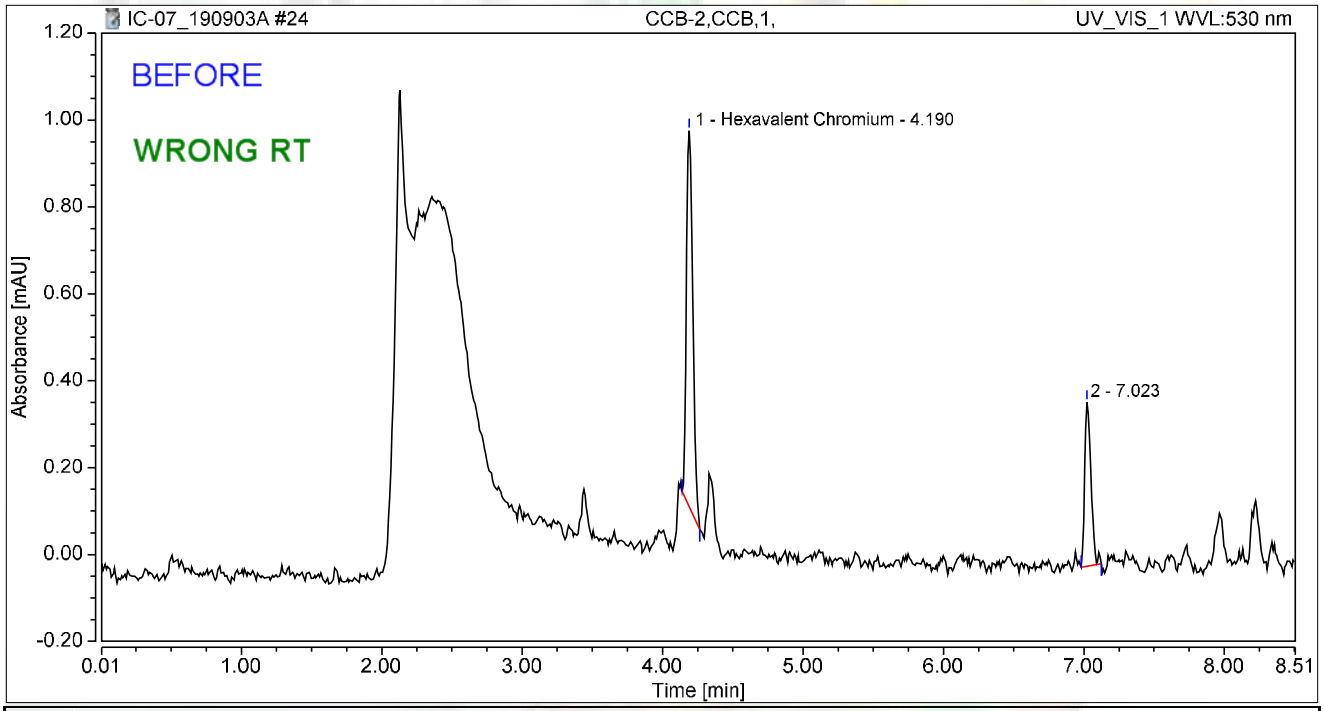
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.559	18.558	96.70	92.42	9.8602
2		7.015	0.027	0.456	1.01	2.27	n.a.
3		7.923	0.061	1.065	2.29	5.30	n.a.
Total:			**2.646**	**20.079**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

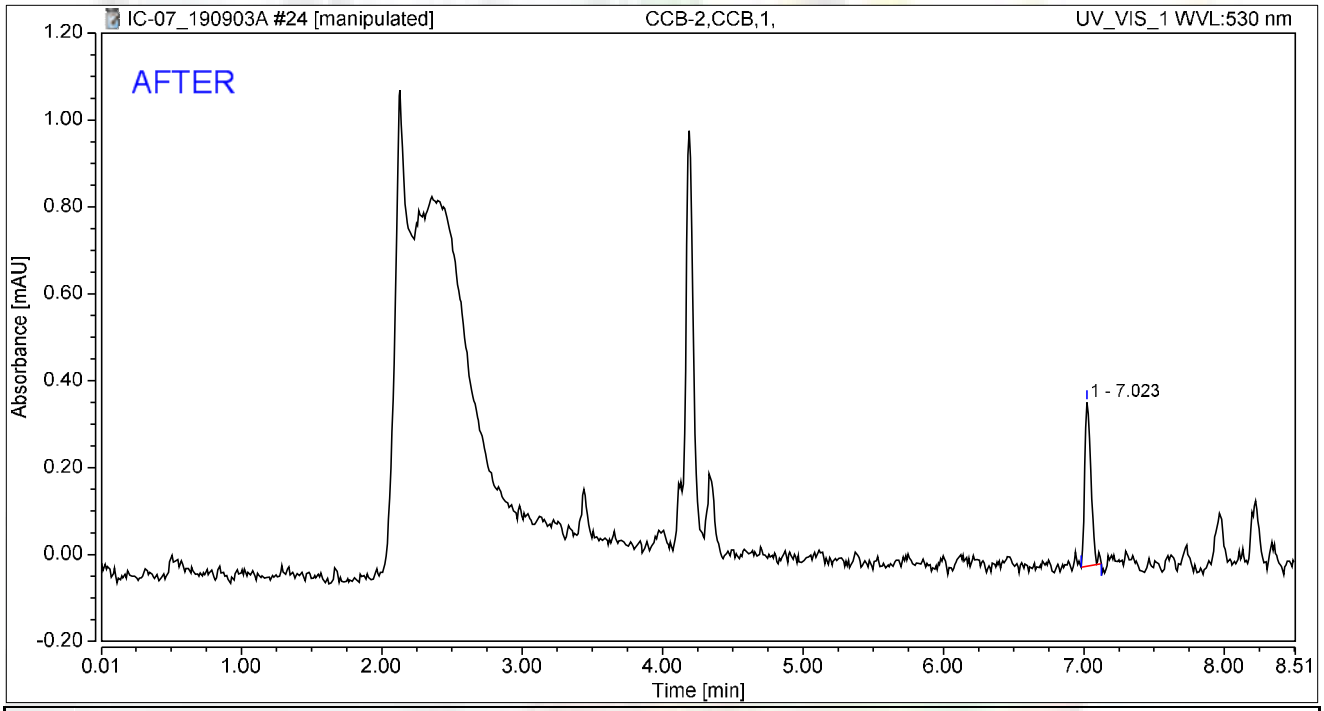
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.045	0.865	69.81	69.62	0.1735
2		7.023	0.019	0.377	30.19	30.38	n.a.
Total:			**0.064**	**1.242**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

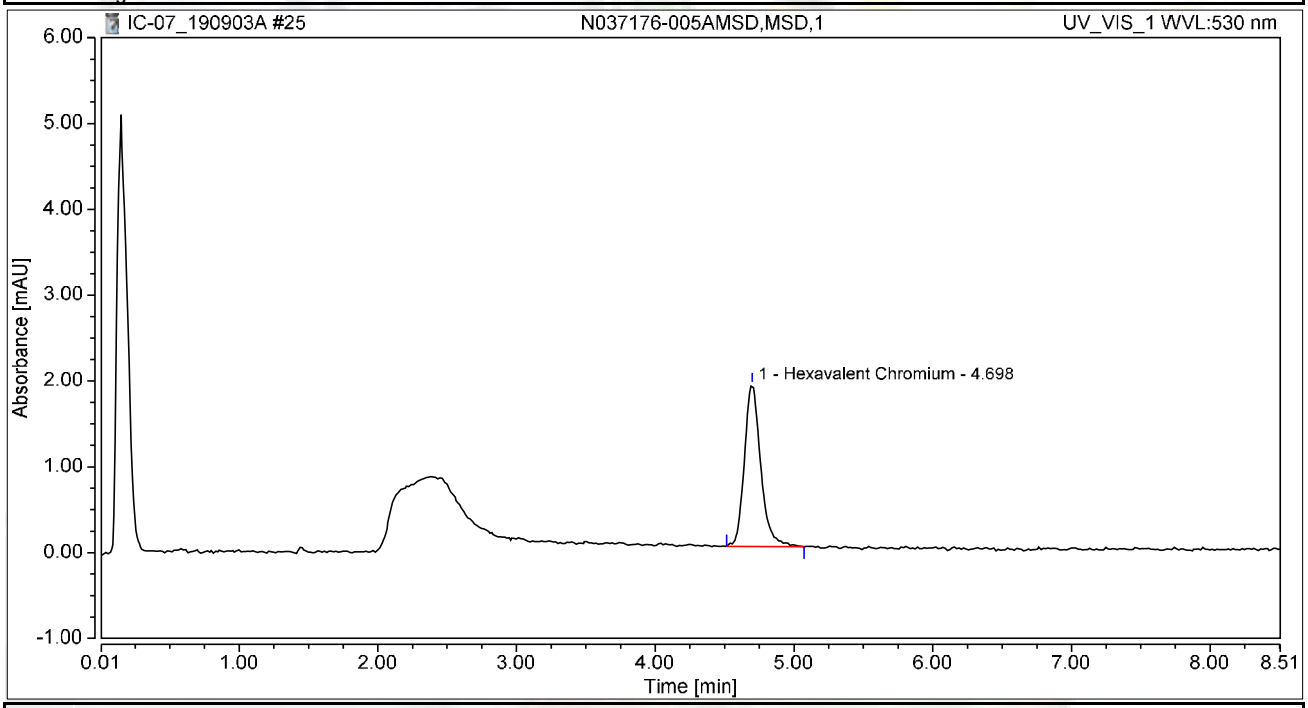
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.023	0.019	0.377	100.00	100.00	n.a.
Total:			**0.019**	**0.377**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005AMSD,MSD,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

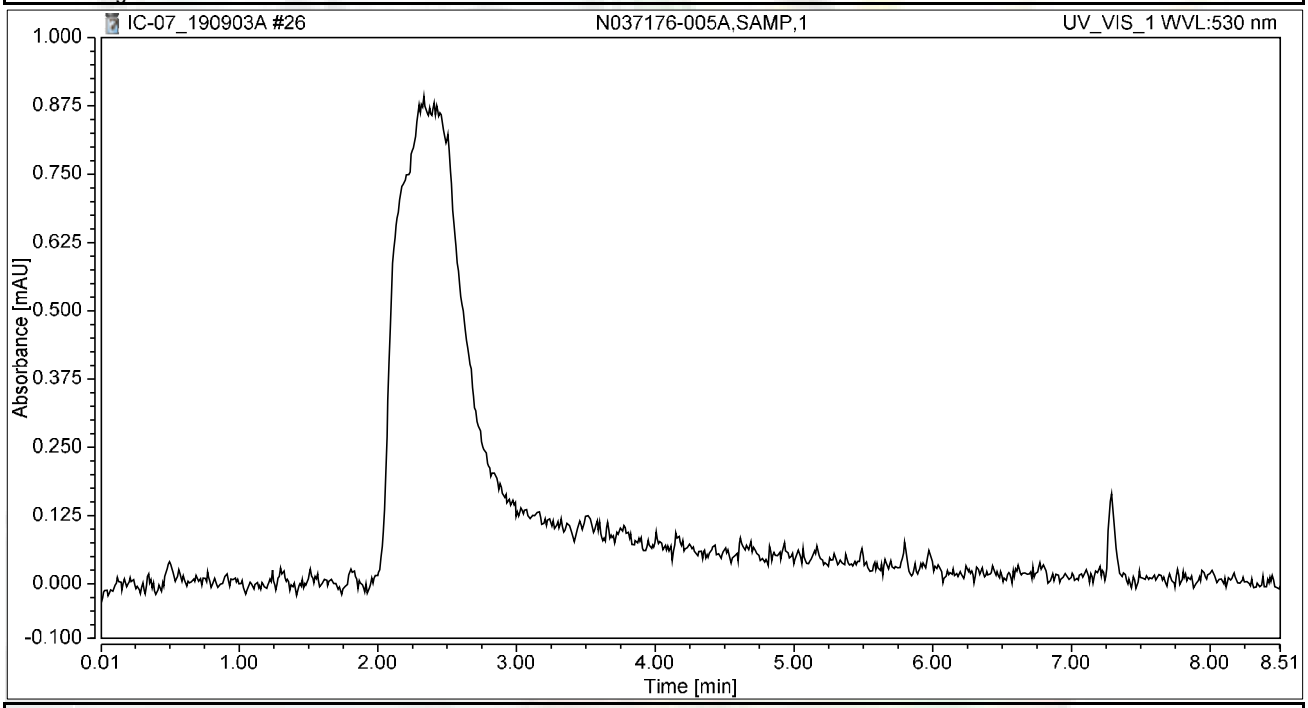
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.260	1.884	100.00	100.00	1.0007
Total:			**0.260**	**1.884**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

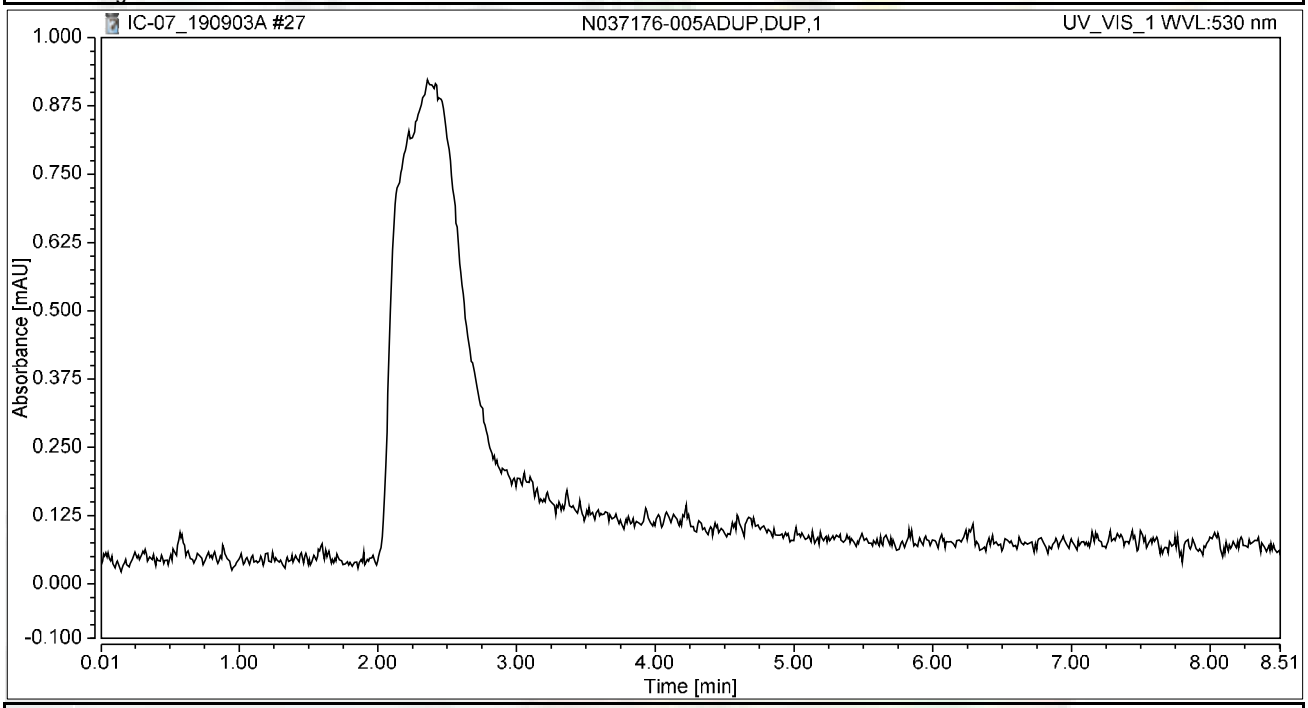
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

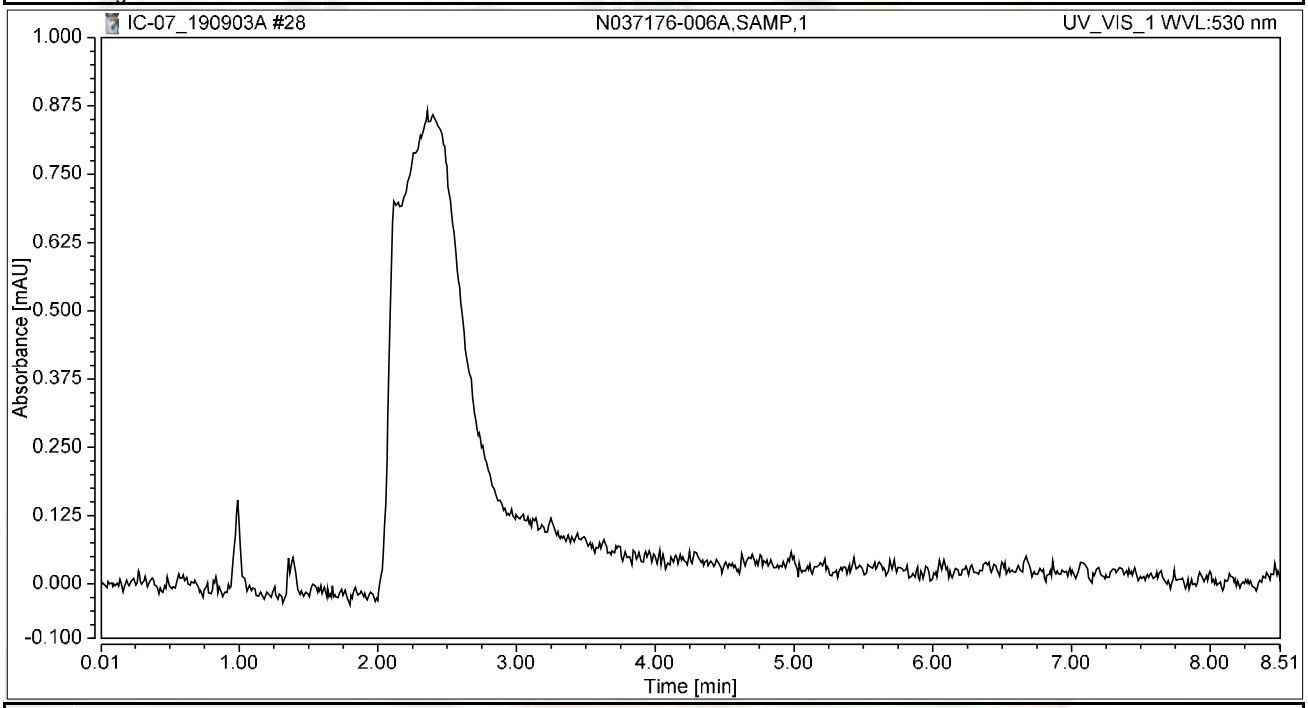
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

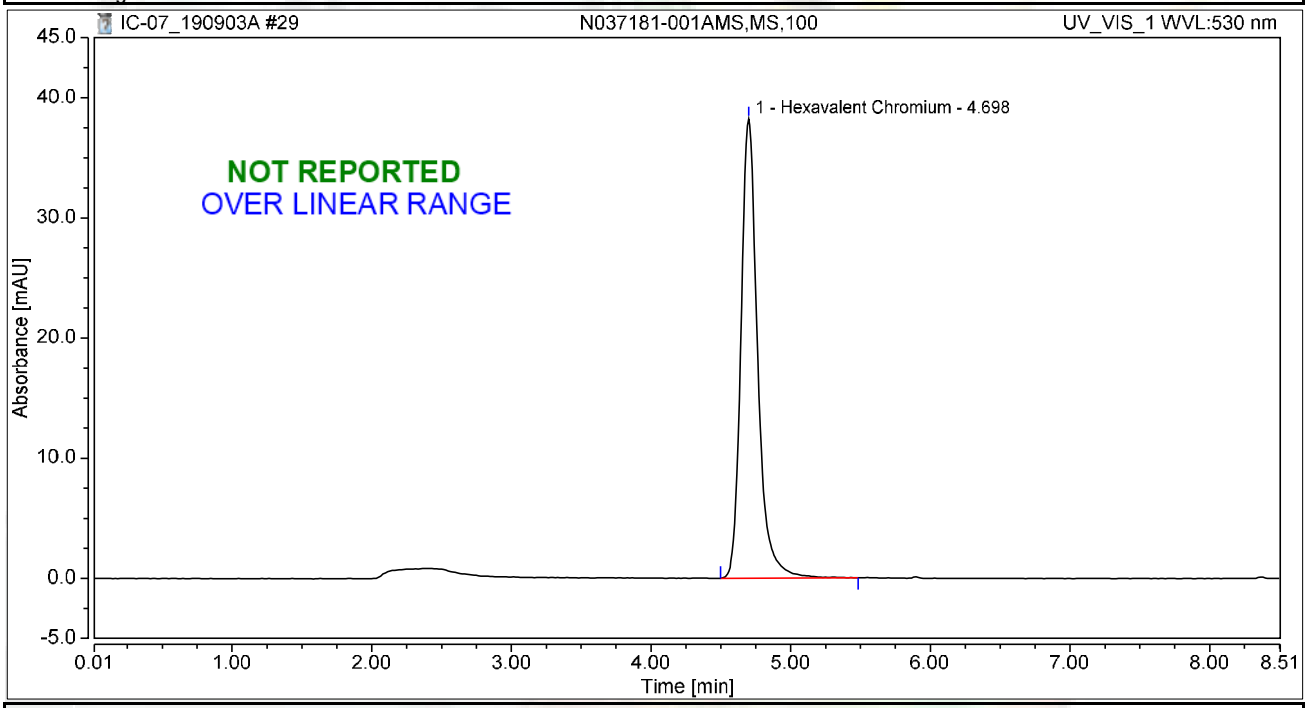
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001AMS,MS,100**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

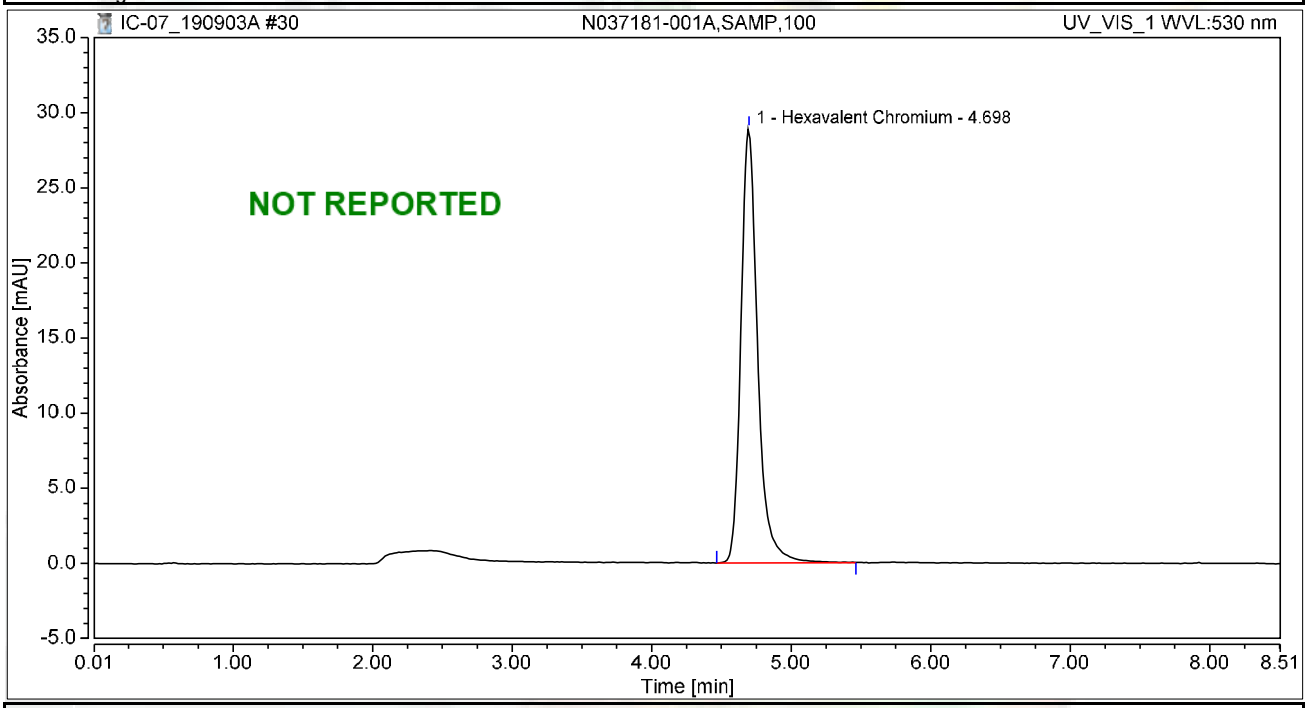
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.291	38.224	100.00	100.00	20.3903
Total:			**5.291**	**38.224**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

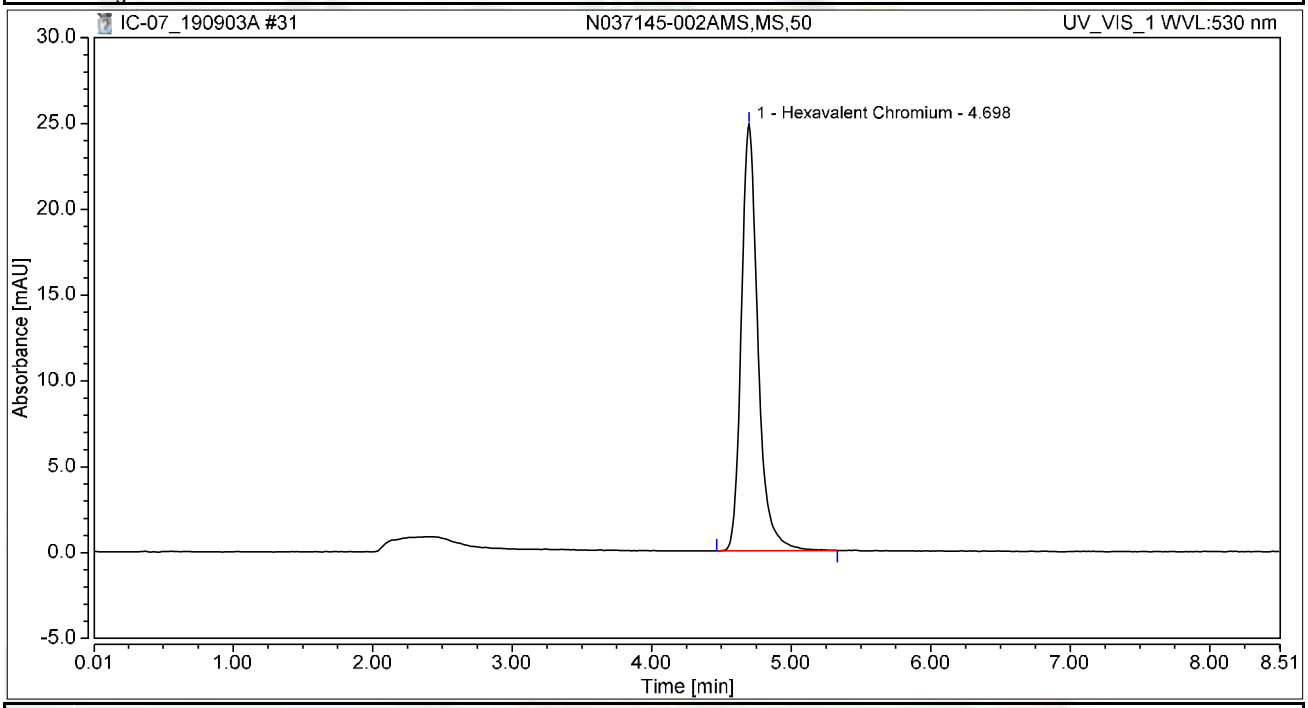
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	4.022	28.932	100.00	100.00	15.5001
Total:			**4.022**	**28.932**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

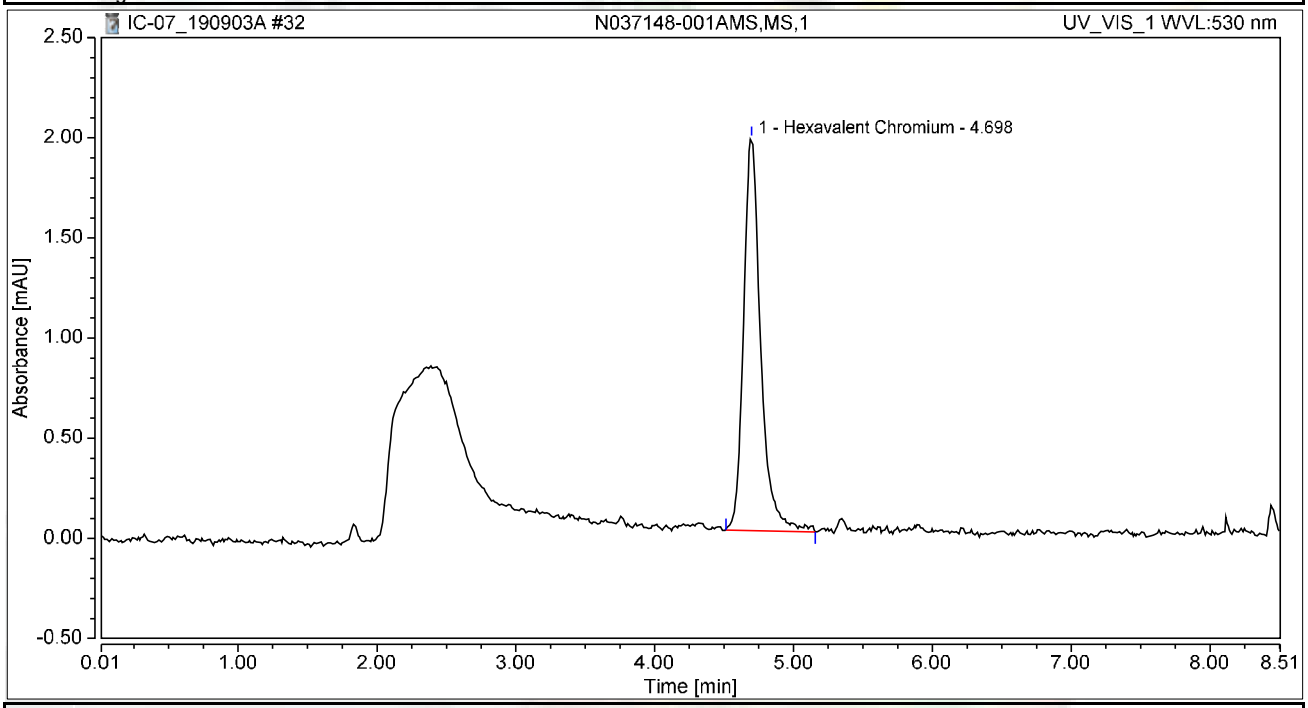
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	3.428	24.856	100.00	100.00	13.2108
Total:			**3.428**	**24.856**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

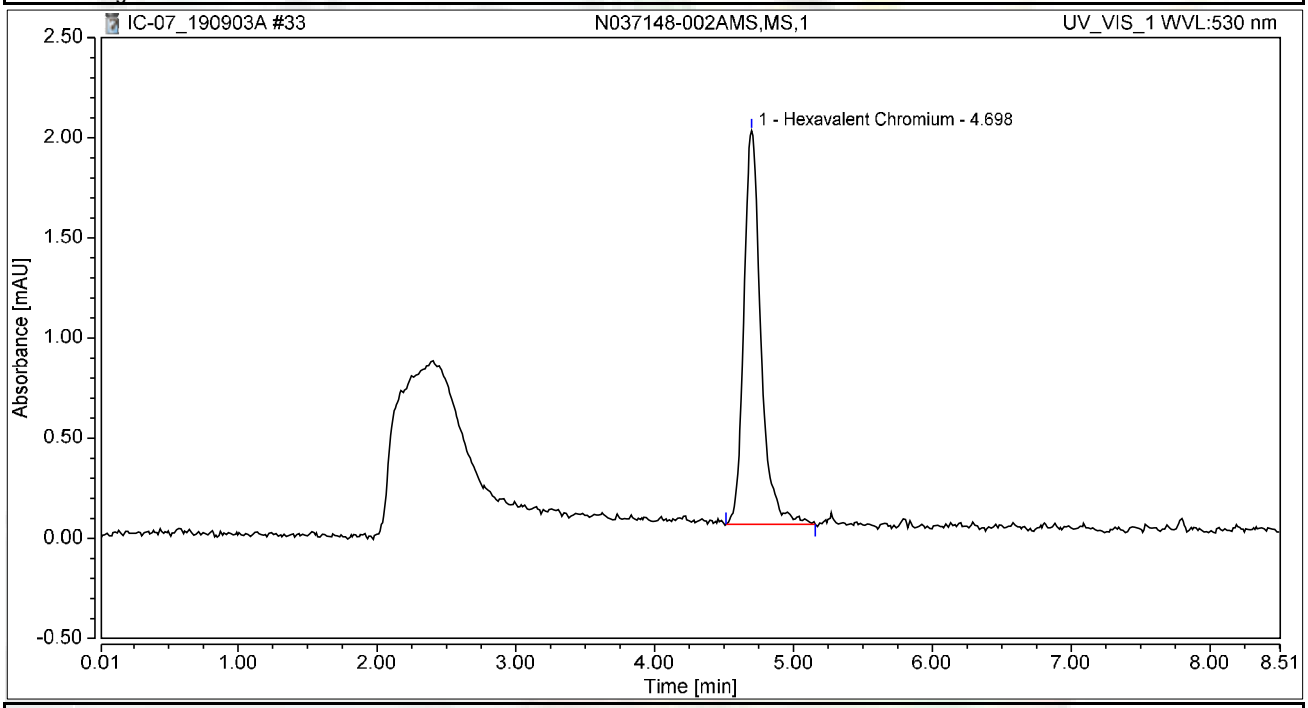
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.280	1.958	100.00	100.00	1.0791
Total:			**0.280**	**1.958**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

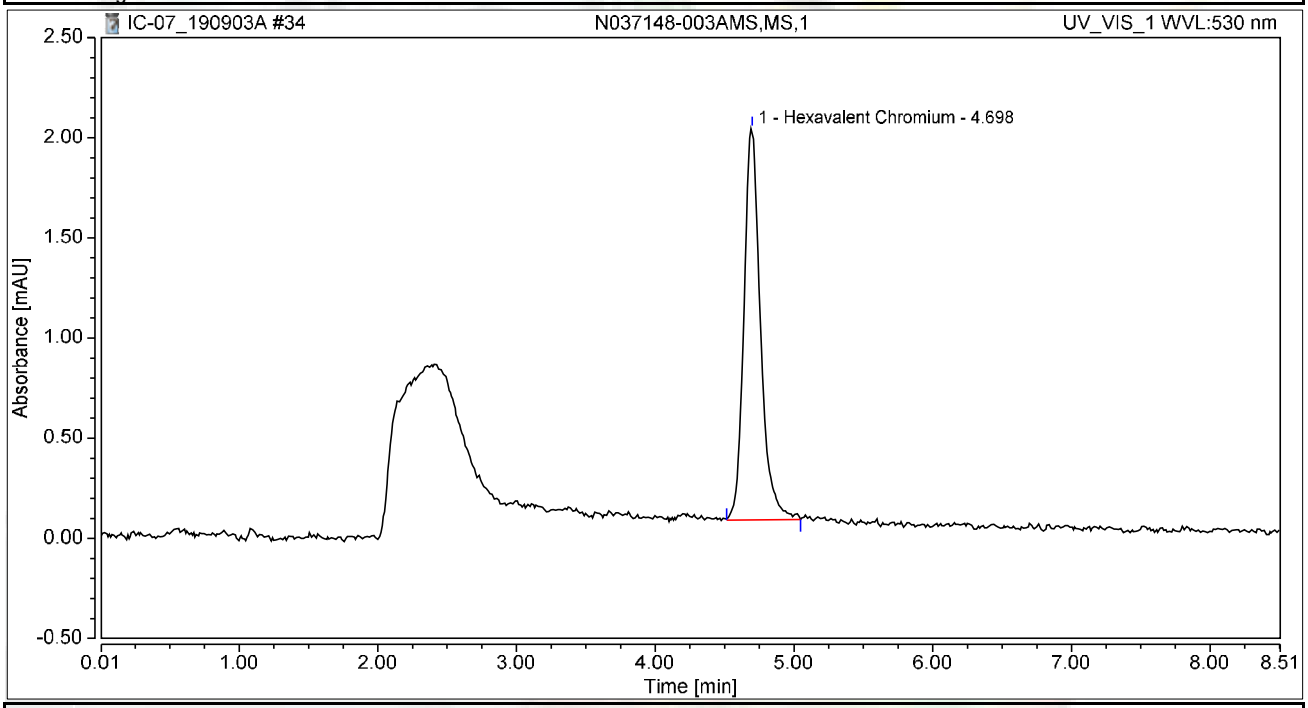
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.280	1.966	100.00	100.00	1.0790
Total:			**0.280**	**1.966**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

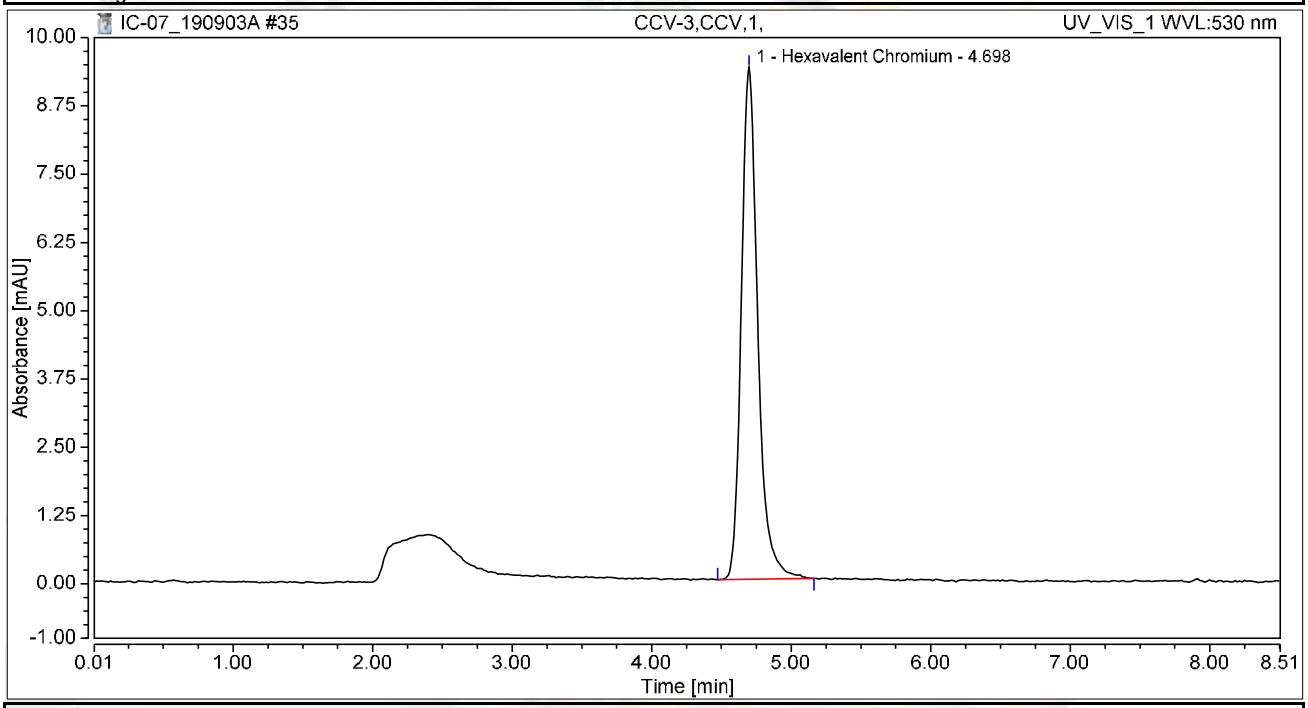
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.272	1.954	100.00	100.00	1.0483
Total:			**0.272**	**1.954**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

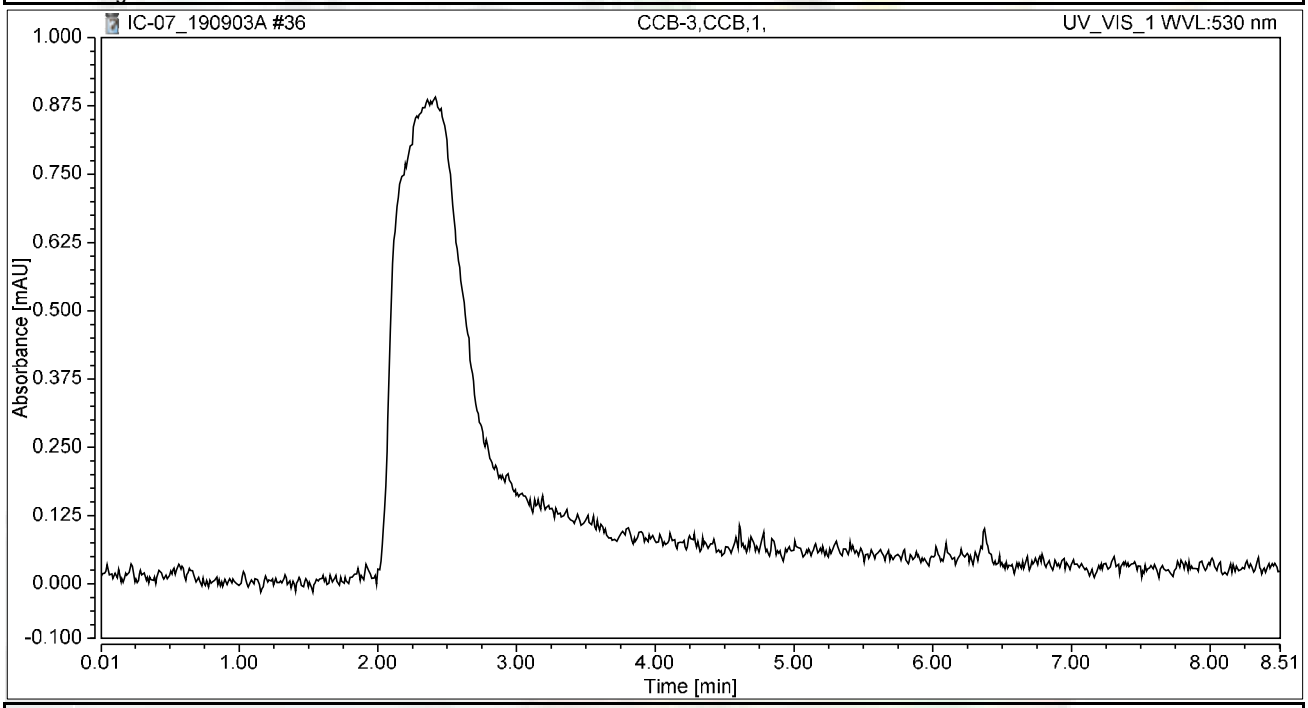
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.285	9.373	100.00	100.00	4.9533
Total:			**1.285**	**9.373**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

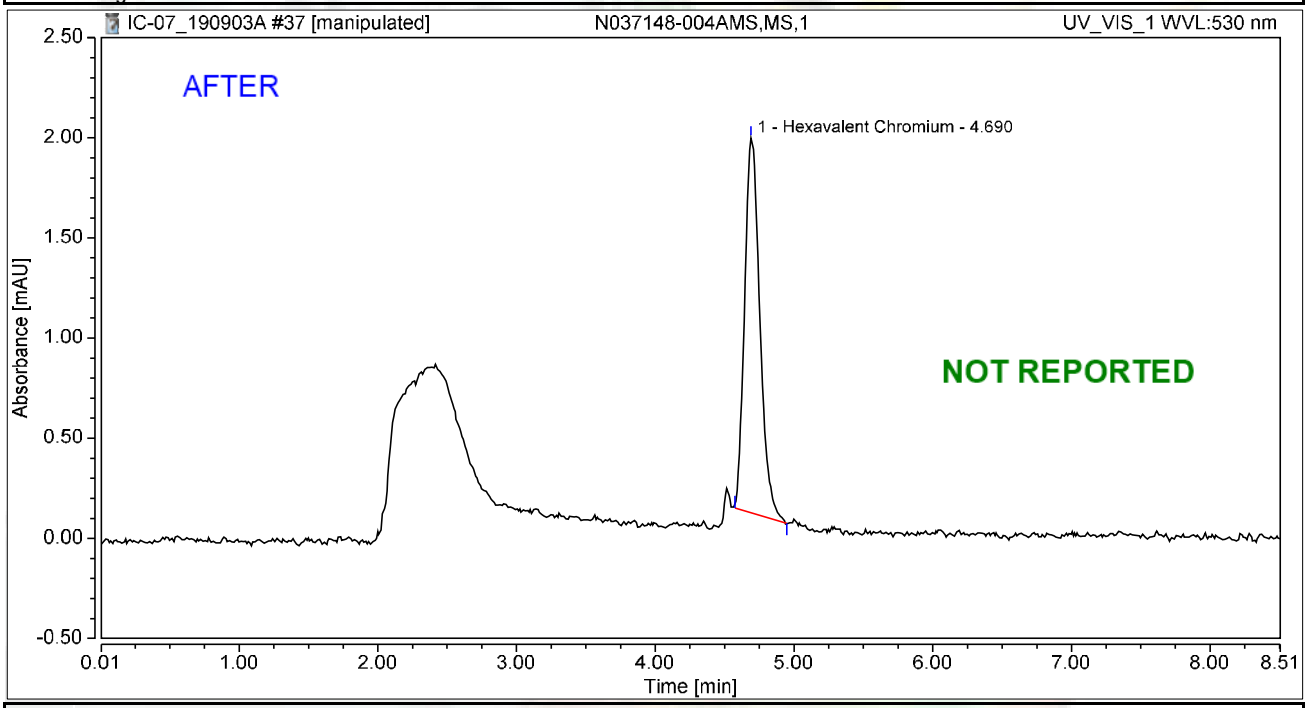
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.240	1.870	100.00	100.00	0.9231
Total:			**0.240**	**1.870**	**100.00**	**100.00**	

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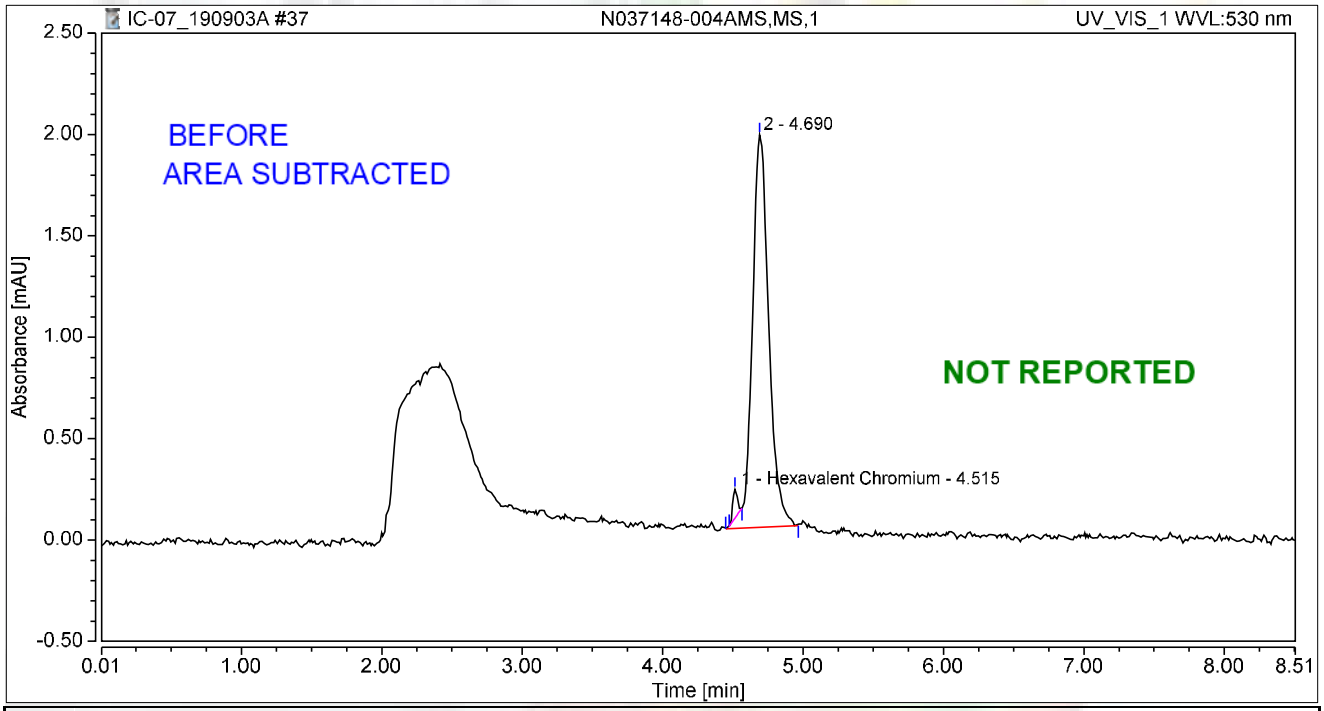
Chromatogram and Results

Injection Details

Injection Name:	**N037148-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.515	0.006	0.142	2.08	6.81	0.0216
2		4.690	0.264	1.935	97.92	93.19	n.a.
Total:			**0.269**	**2.077**	**100.00**	**100.00**	

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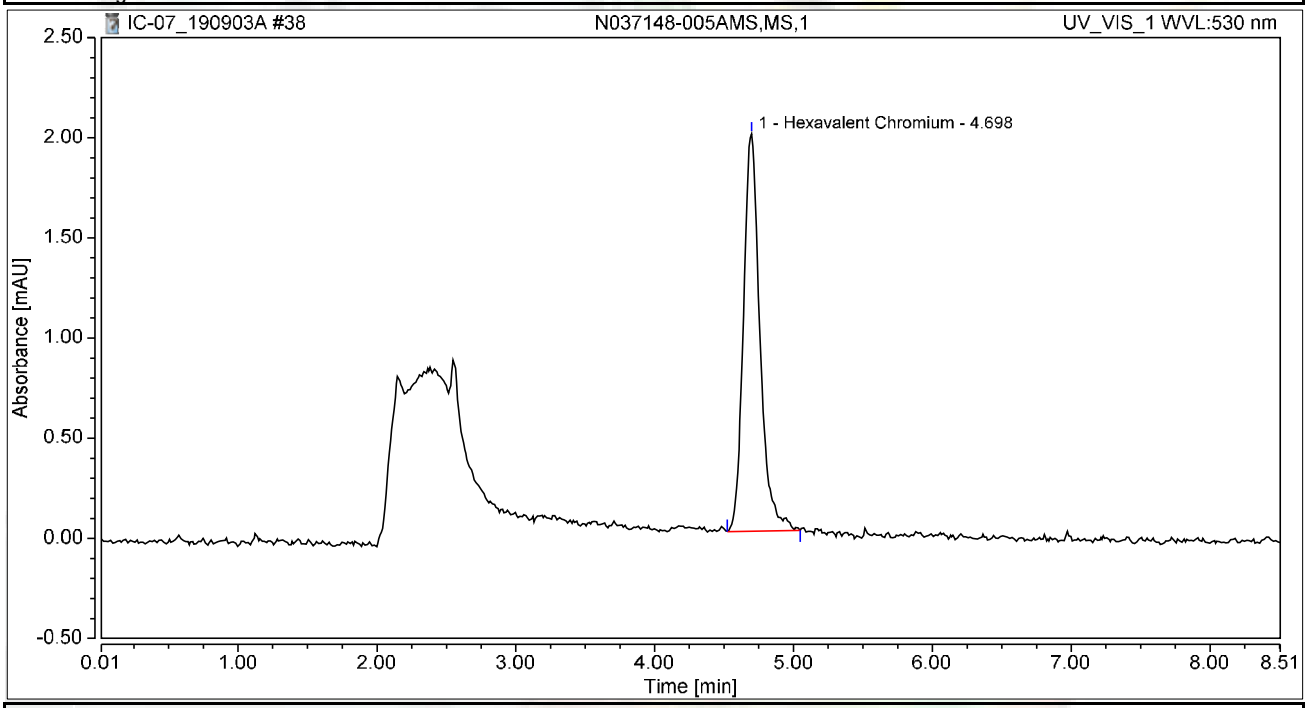
Chromatogram and Results

Injection Details

Injection Name:	**N037148-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

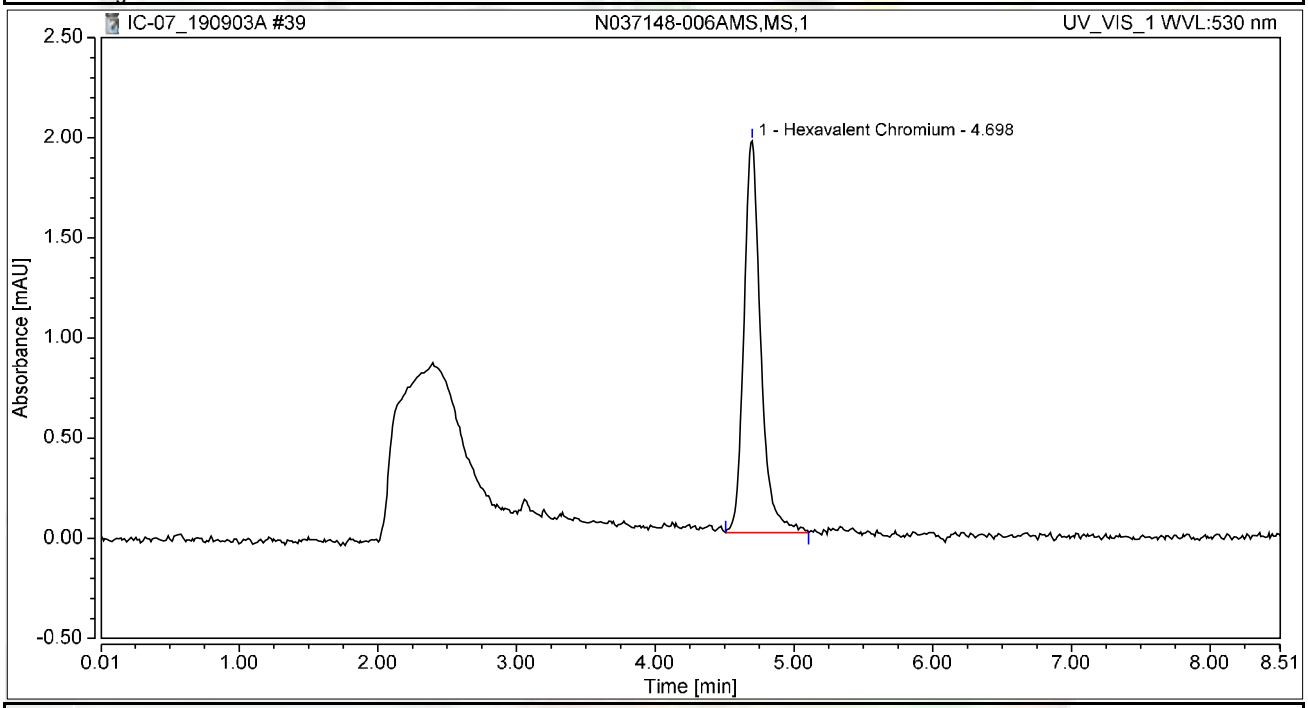
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.273	1.983	100.00	100.00	1.0537
Total:			**0.273**	**1.983**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

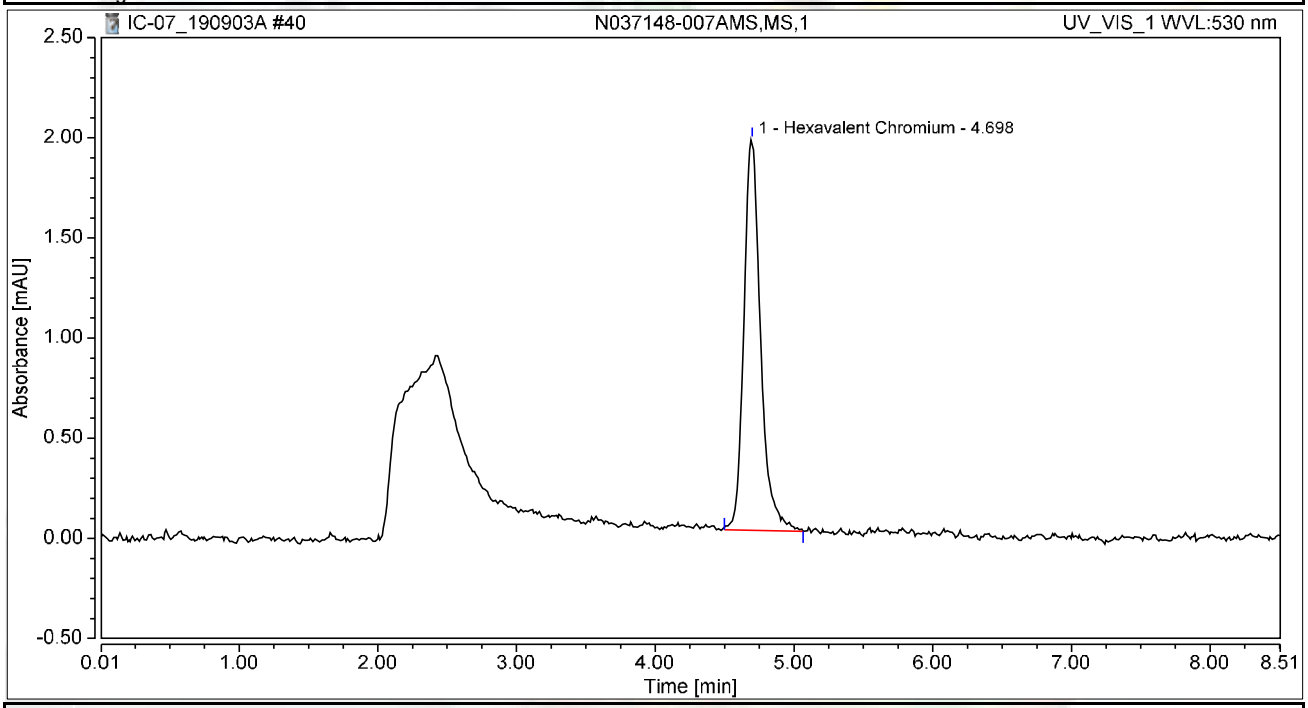
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.275	1.956	100.00	100.00	1.0593
Total:			**0.275**	**1.956**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

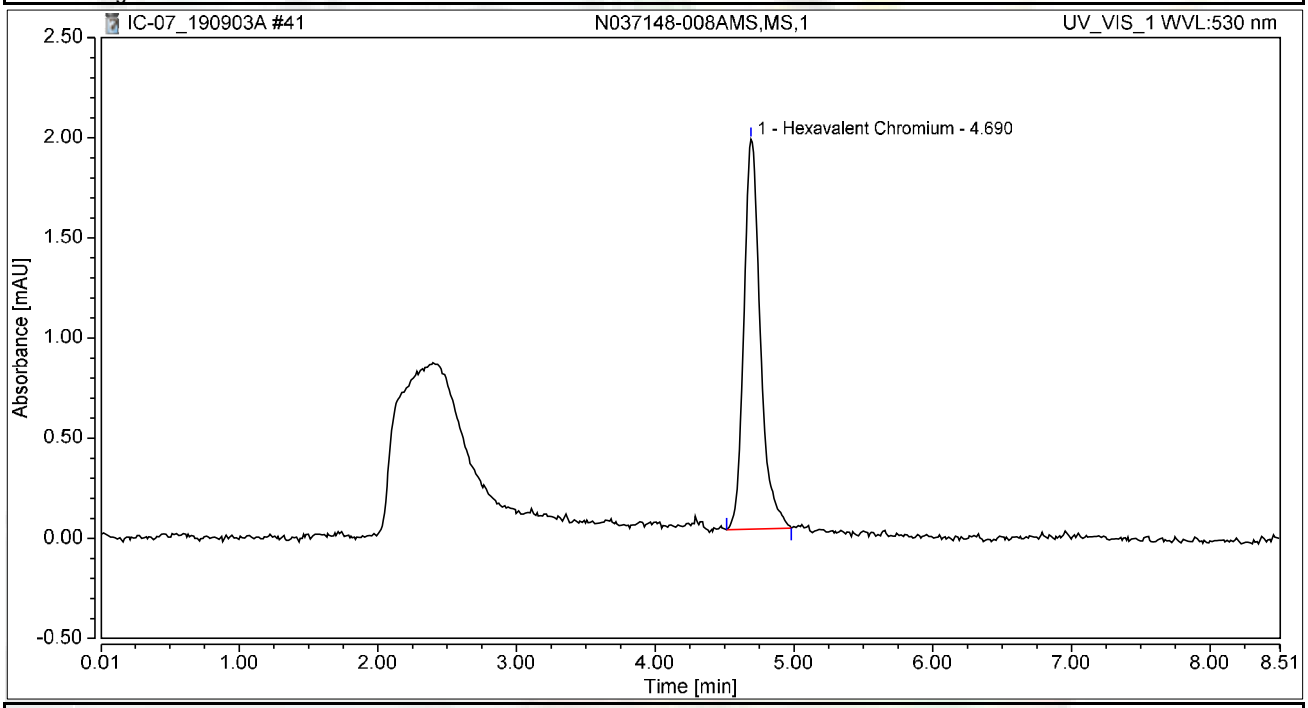
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.273	1.952	100.00	100.00	1.0519
Total:			**0.273**	**1.952**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

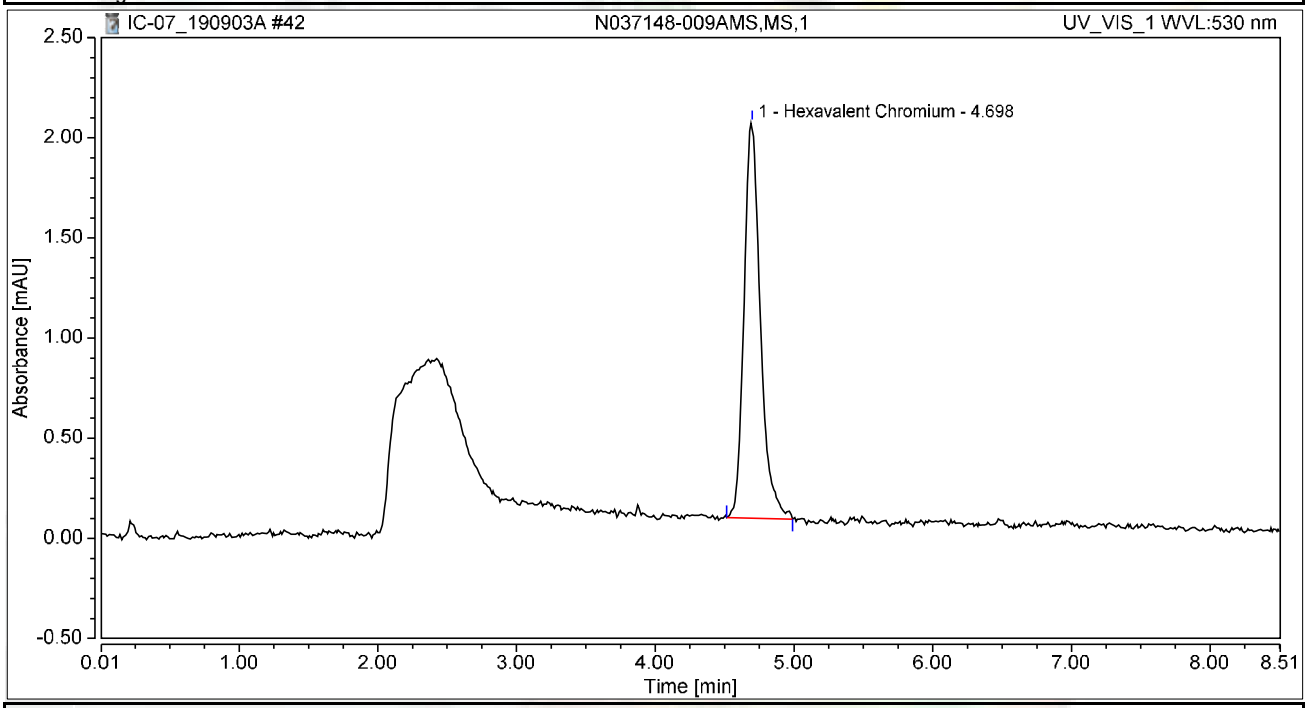
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.269	1.946	100.00	100.00	1.0385
Total:			**0.269**	**1.946**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

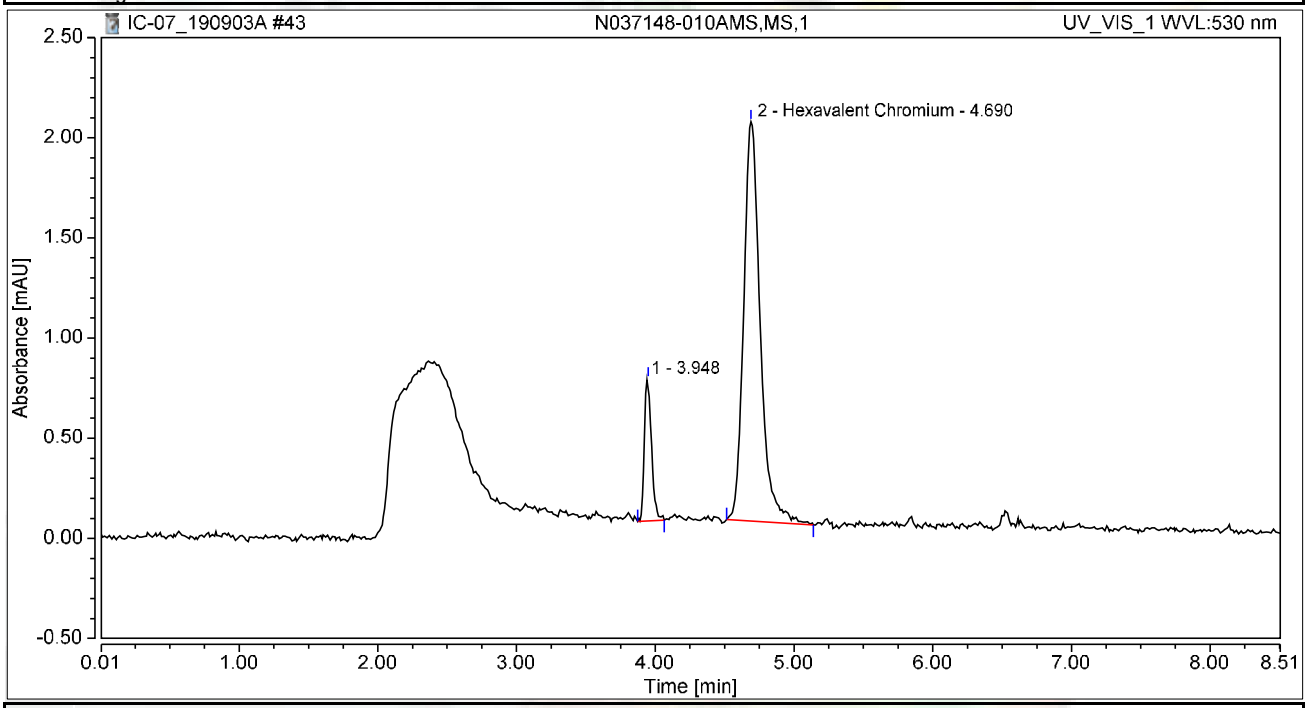
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.272	1.975	100.00	100.00	1.0465
Total:			**0.272**	**1.975**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

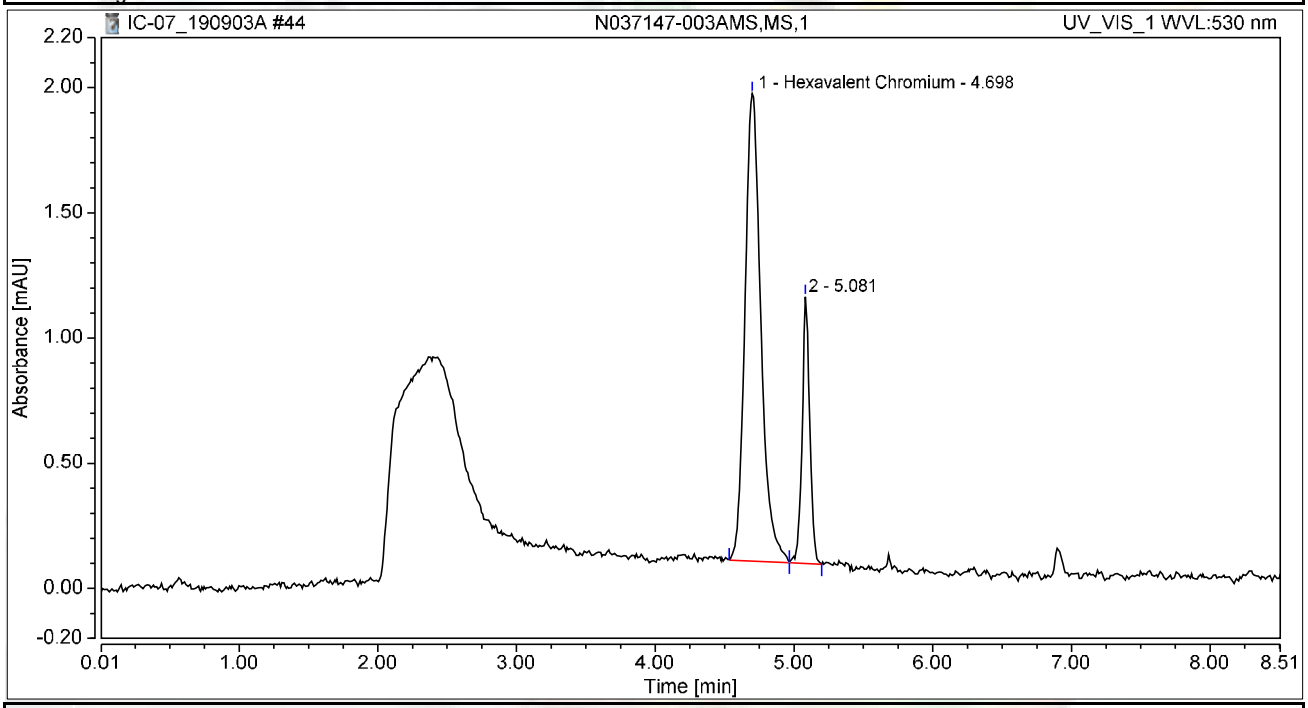
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.948	0.043	0.710	13.34	26.25	n.a.
2	Hexavalent Chromium	4.690	0.276	1.994	86.66	73.75	1.0654
Total:			**0.319**	**2.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037147-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

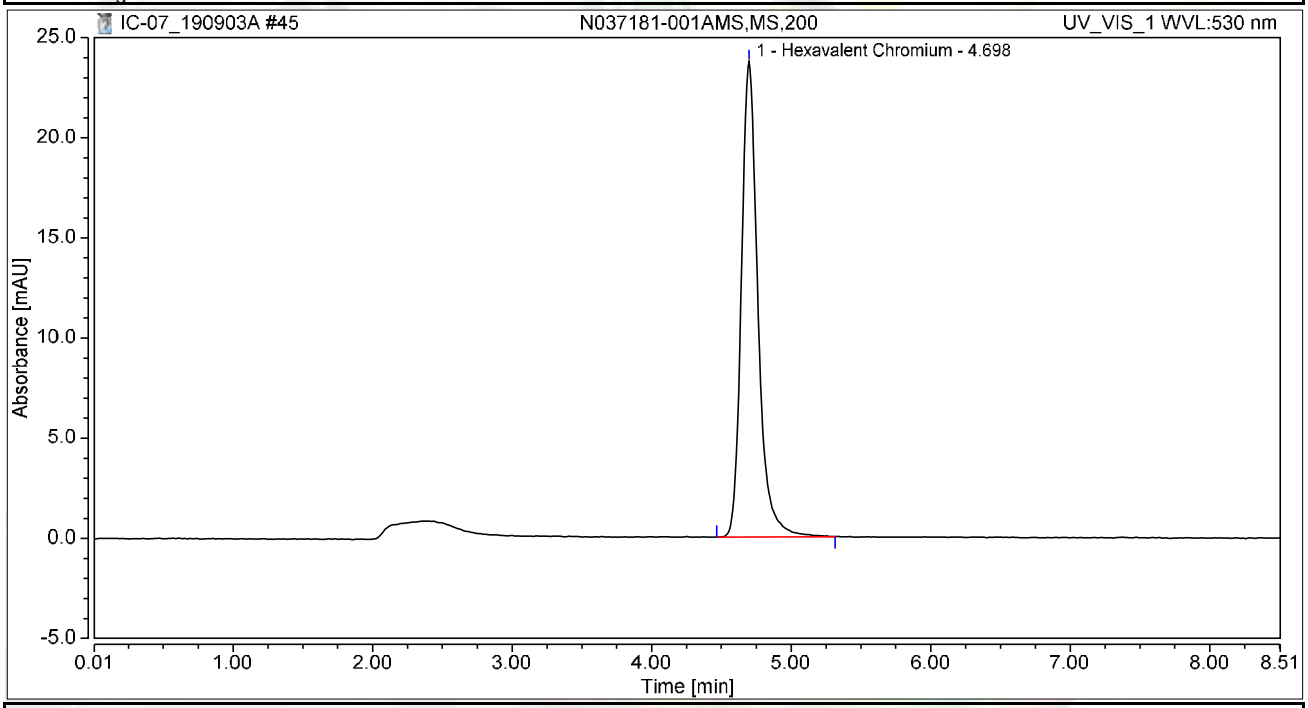
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.249	1.867	78.54	63.68	0.9606
2		5.081	0.068	1.065	21.46	36.32	n.a.
Total:			**0.317**	**2.932**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

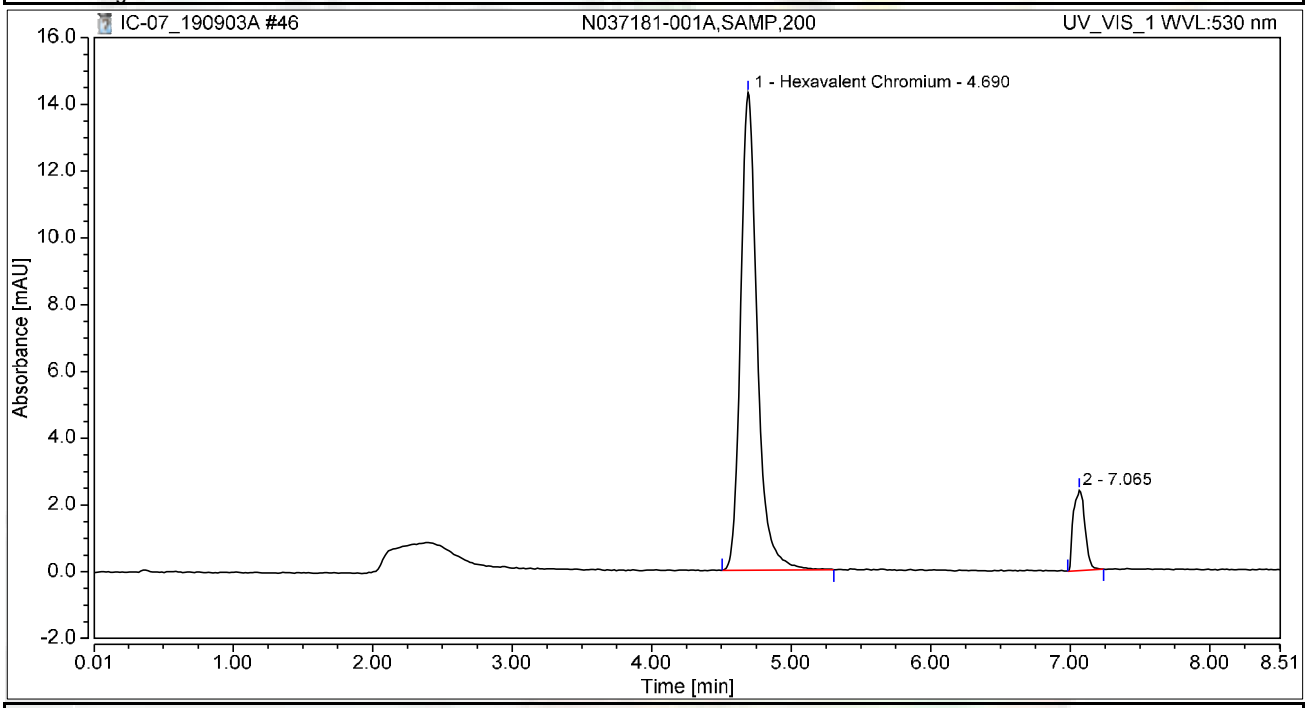
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	3.268	23.744	100.00	100.00	12.5928
Total:			**3.268**	**23.744**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

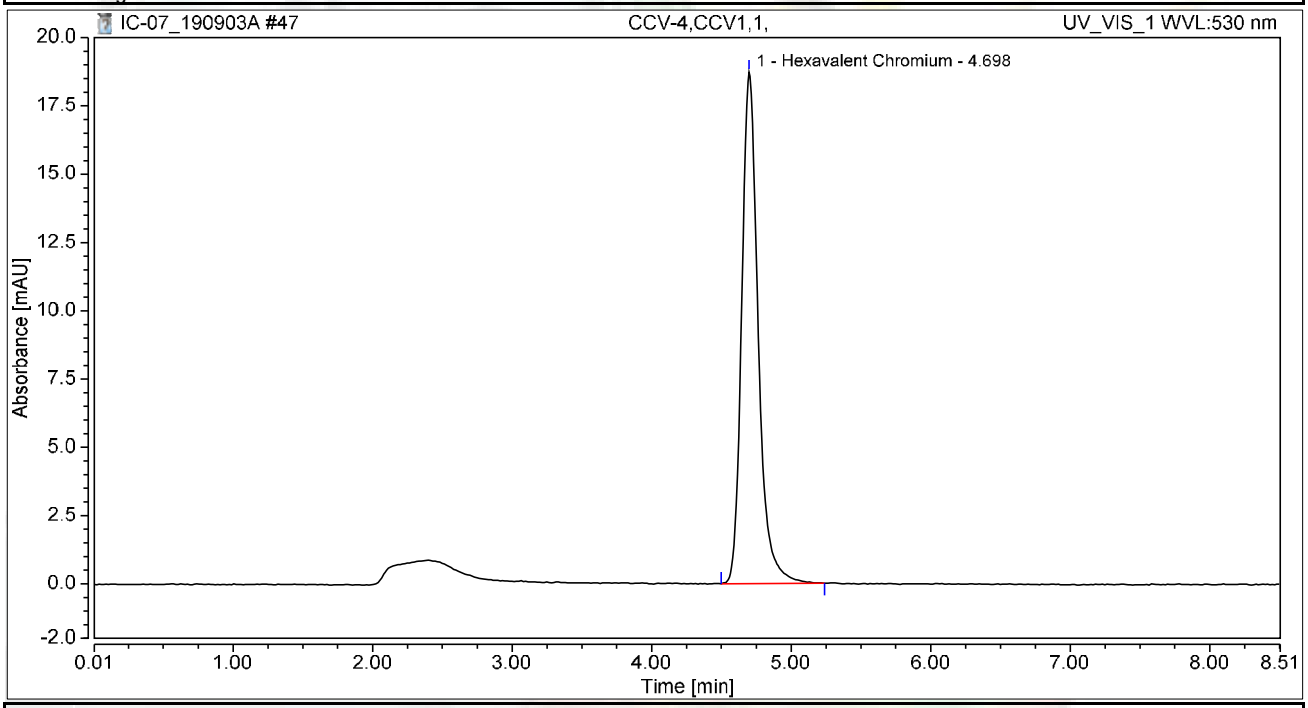
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.980	14.307	89.58	85.61	7.6321
2		7.065	0.230	2.405	10.42	14.39	n.a.
Total:			**2.211**	**16.713**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

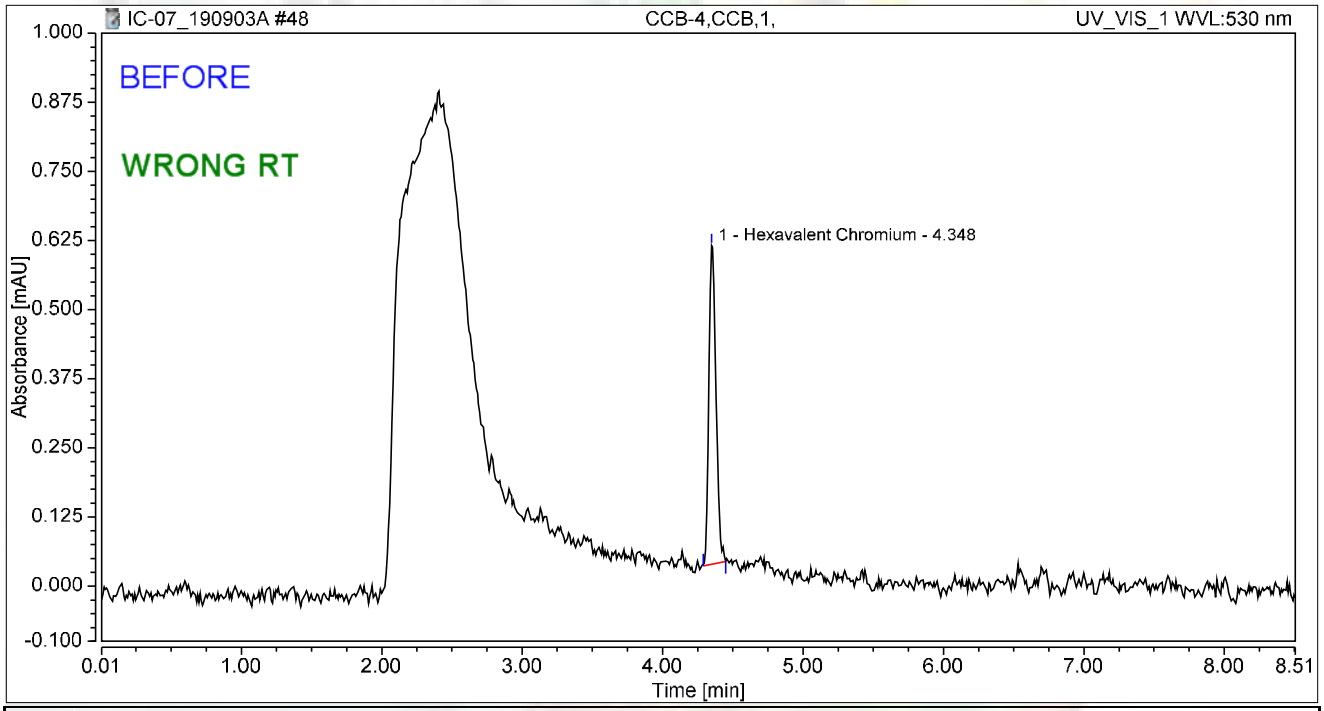
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.571	18.738	100.00	100.00	9.9063
Total:			**2.571**	**18.738**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

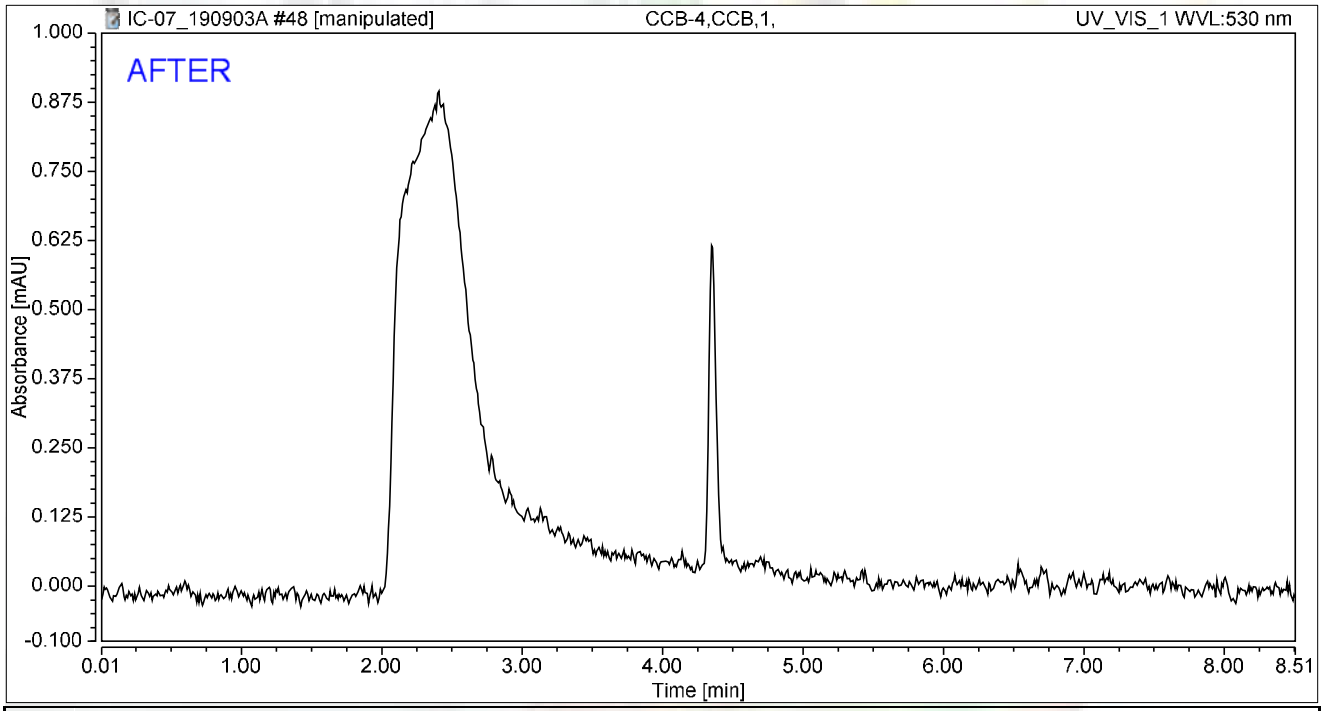
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.348	0.034	0.576	100.00	100.00	0.1308
Total:			**0.034**	**0.576**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Reviewed by: Manual Integration

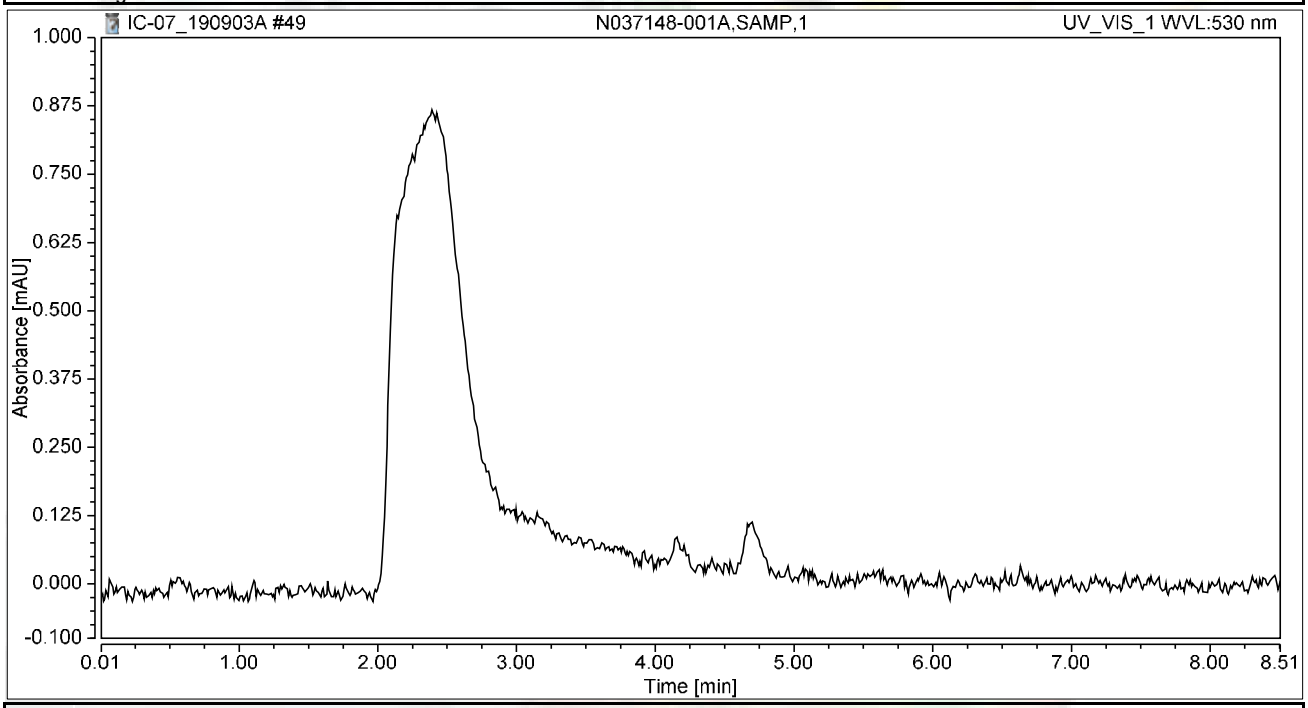
Reviewed by: Nancy 9/16/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037148-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

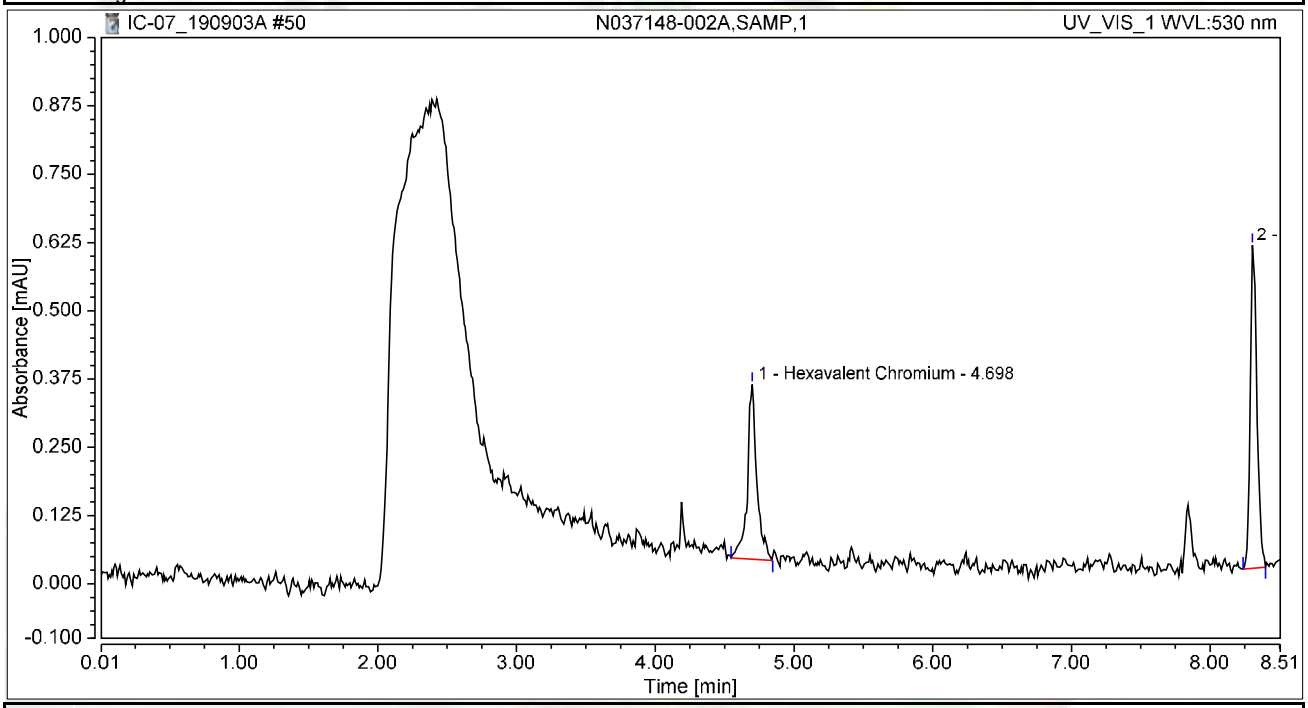
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

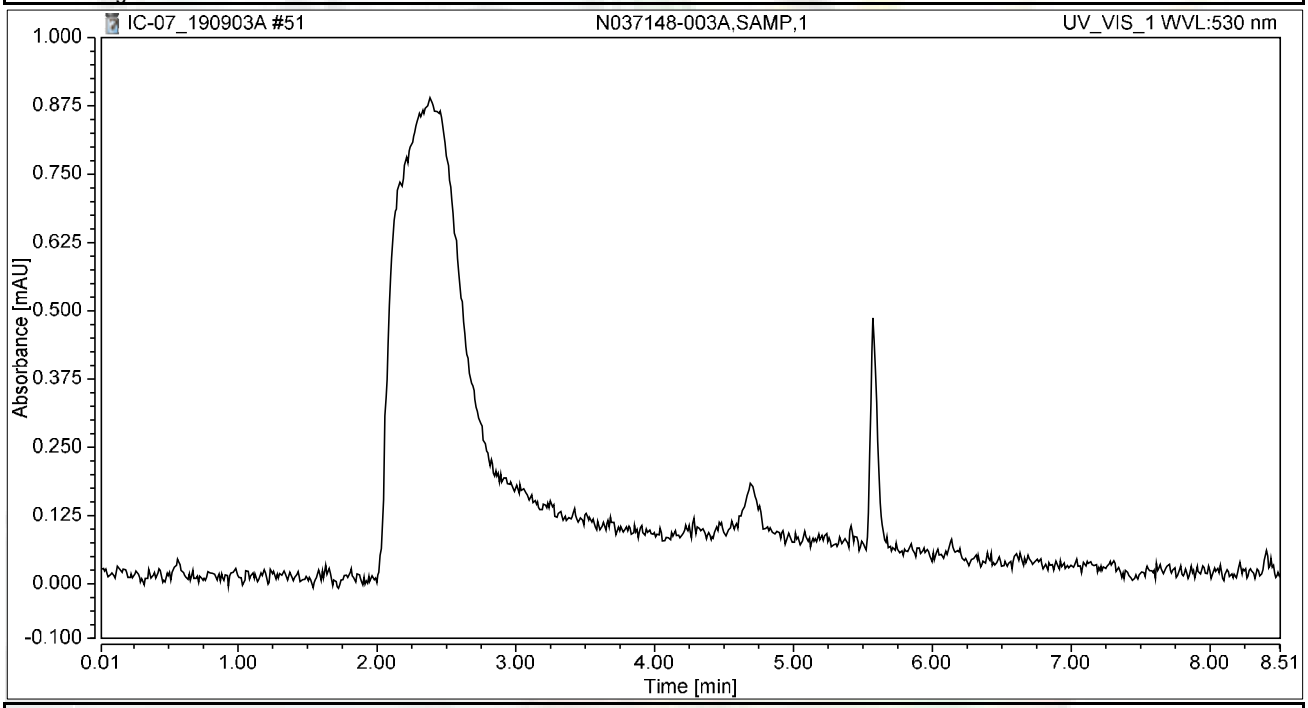
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.025	0.320	42.98	35.11	0.0972
2		8.306	0.033	0.591	57.02	64.89	n.a.
Total:			**0.059**	**0.911**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

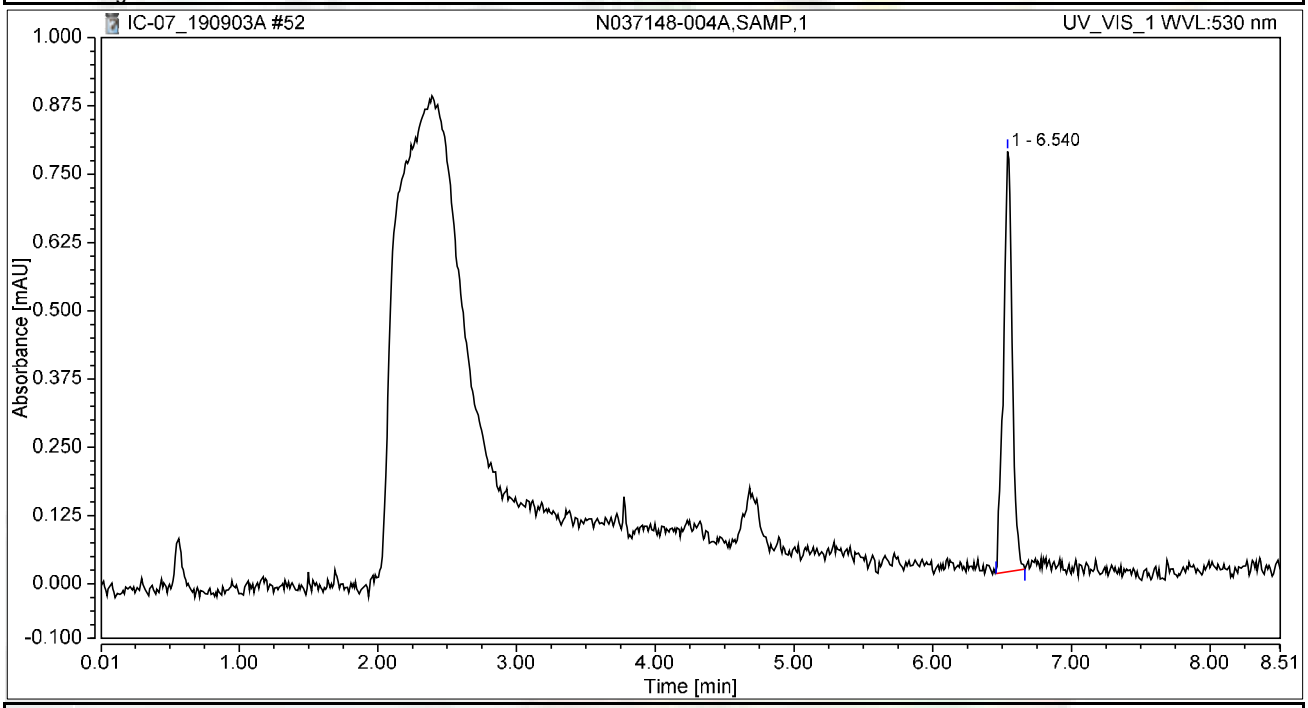
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

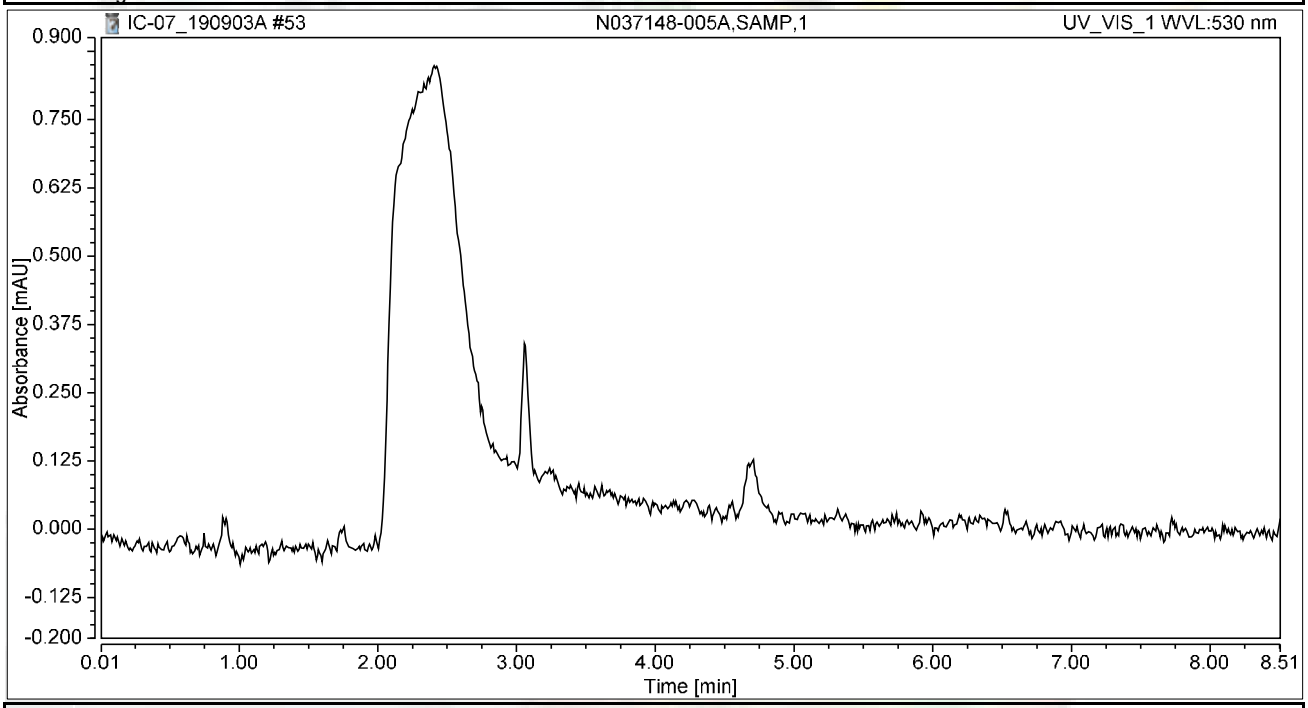
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.540	0.056	0.769	100.00	100.00	n.a.
Total:			**0.056**	**0.769**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

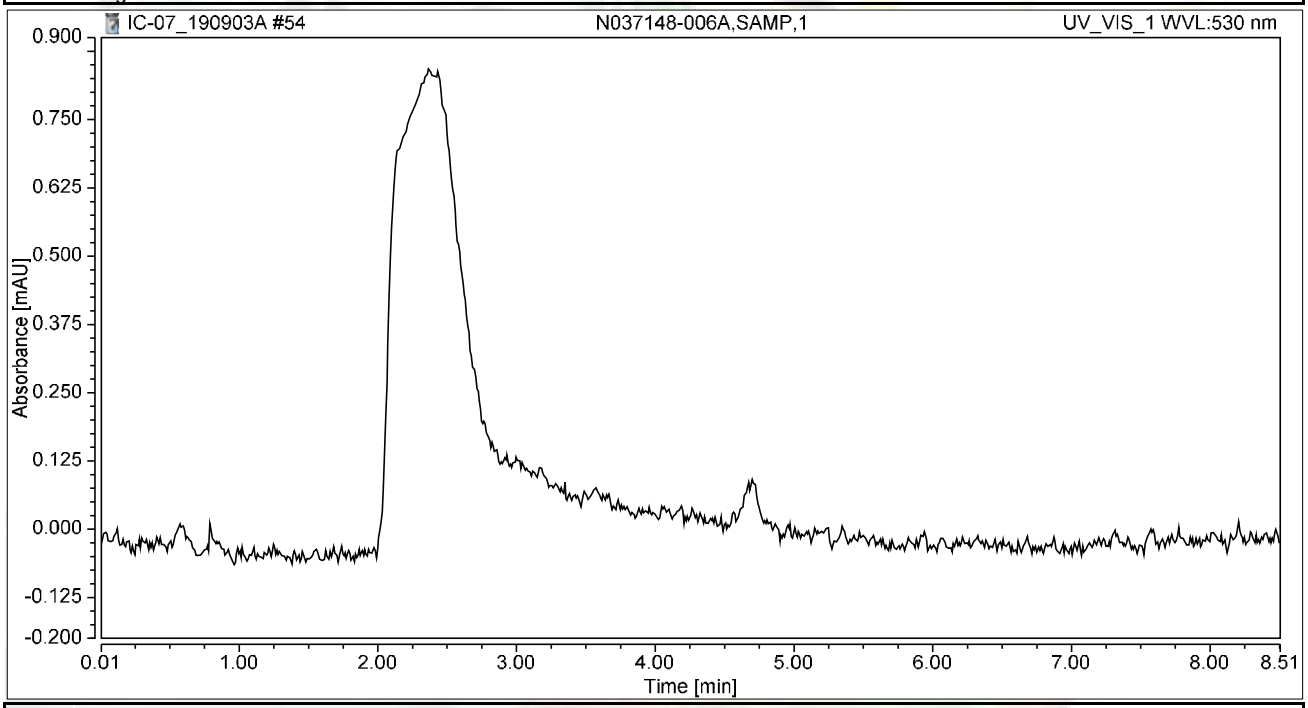
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

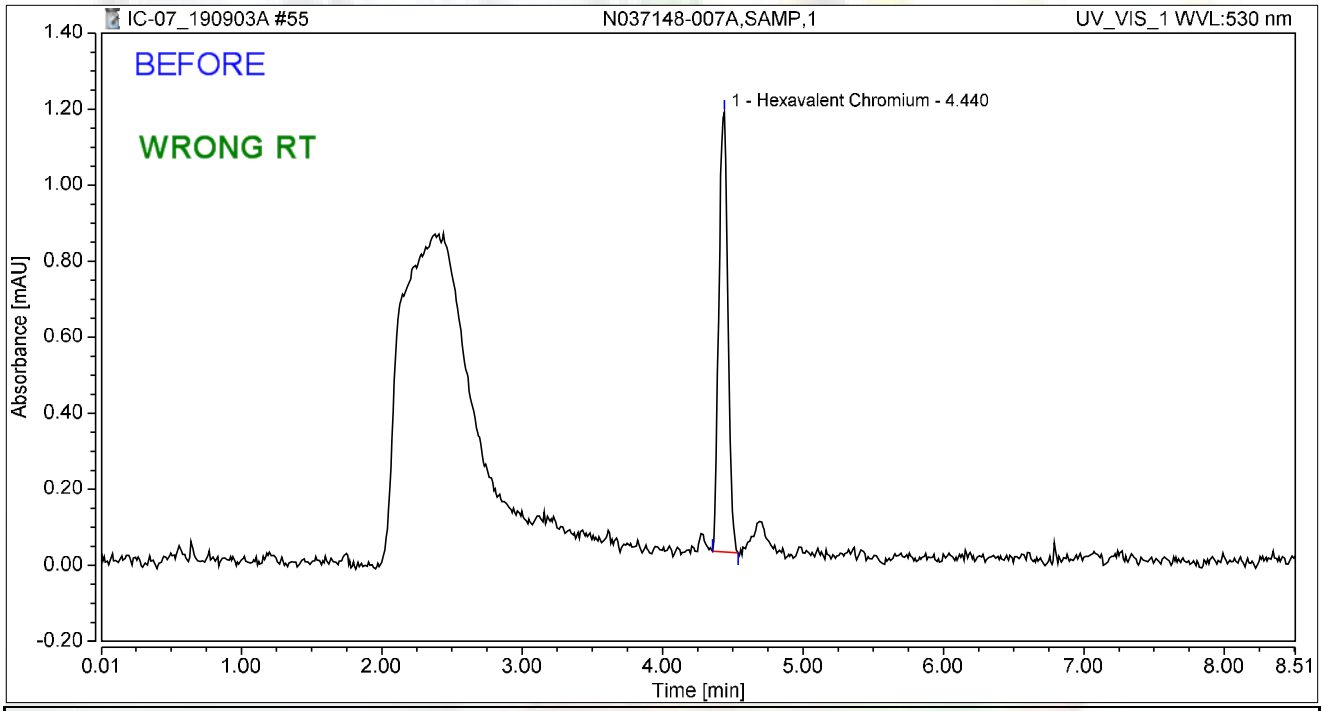
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

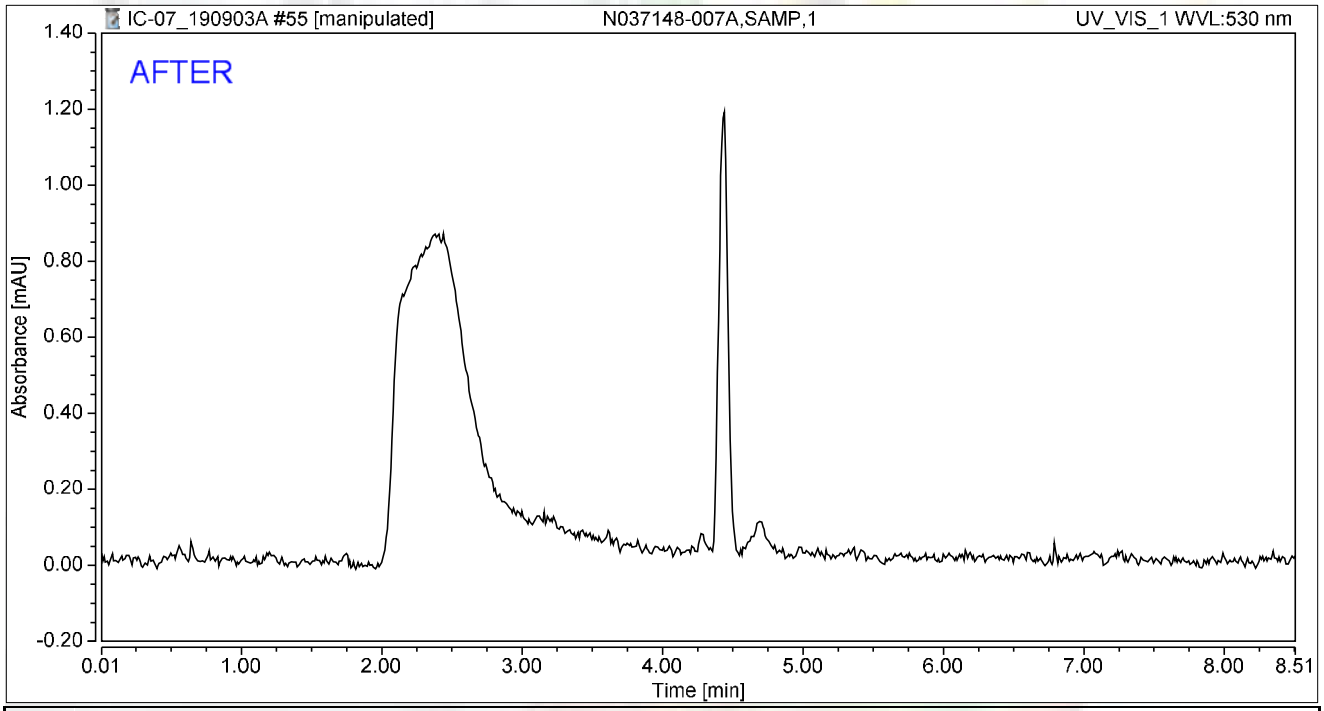
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.440	0.086	1.157	100.00	100.00	0.3308
Total:			**0.086**	**1.157**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

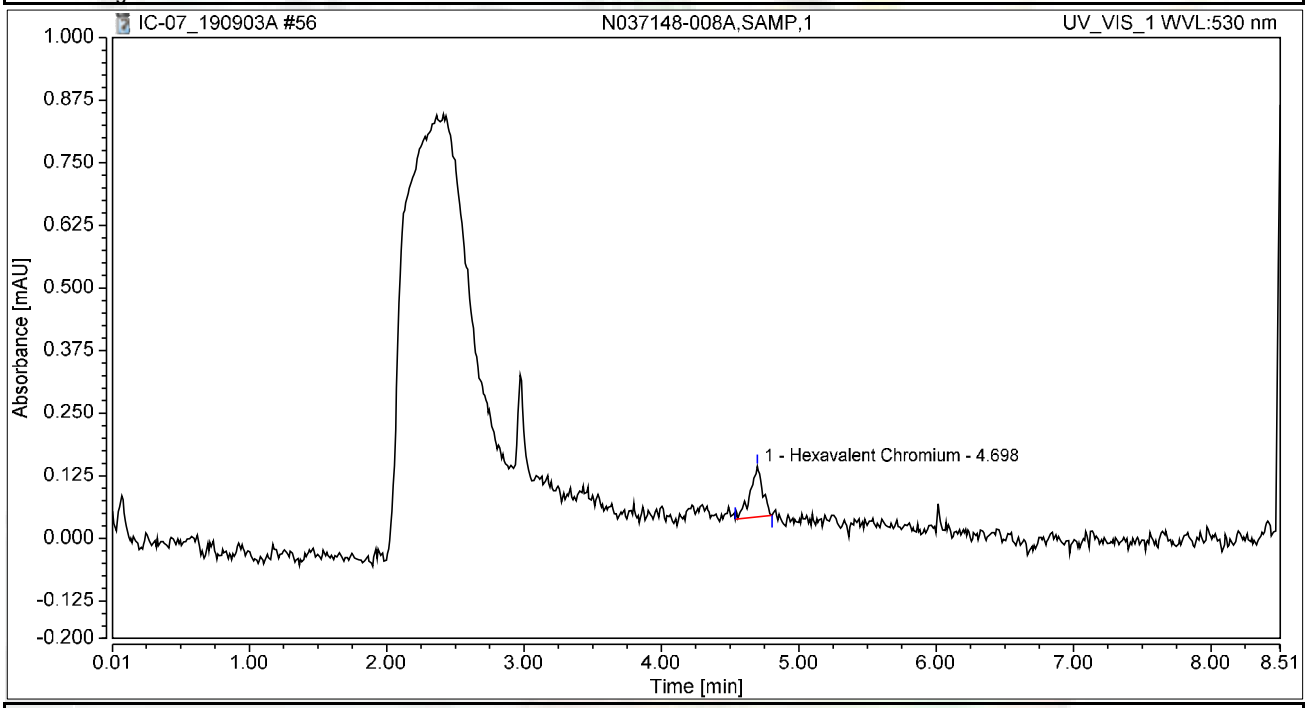
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-008A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

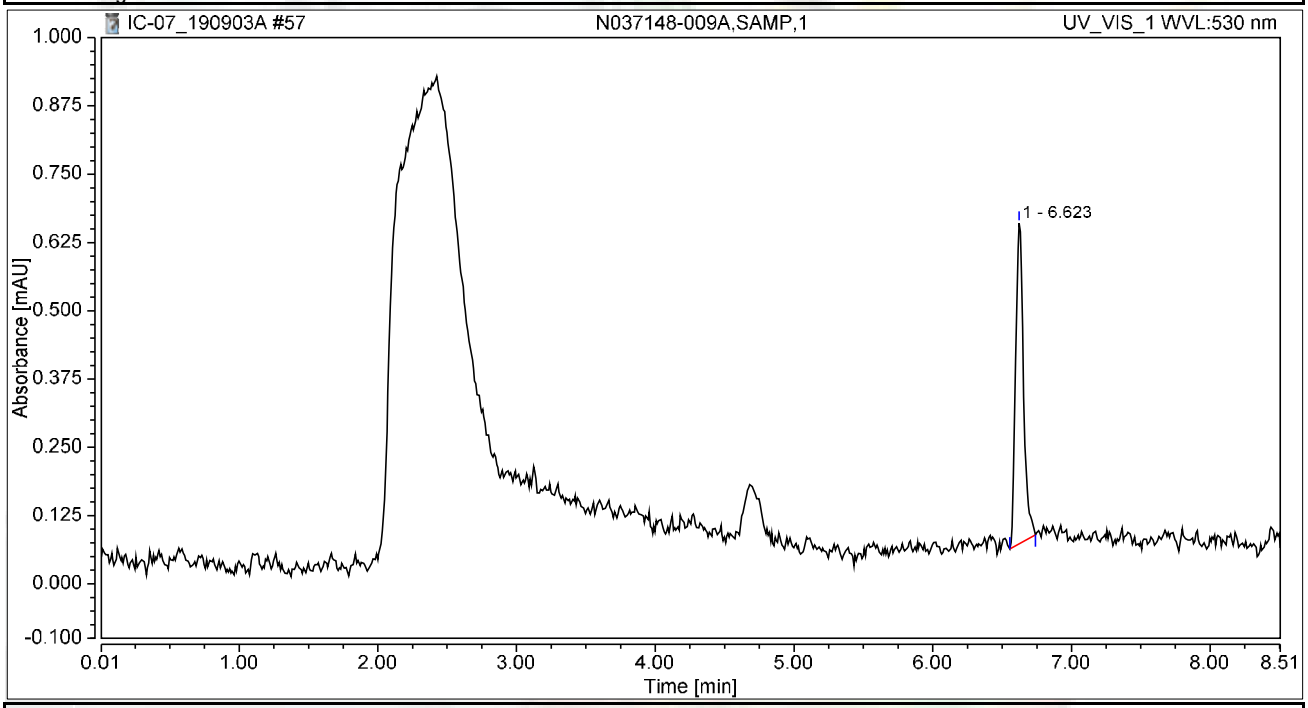
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.010	0.101	100.00	100.00	0.0402
Total:			**0.010**	**0.101**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

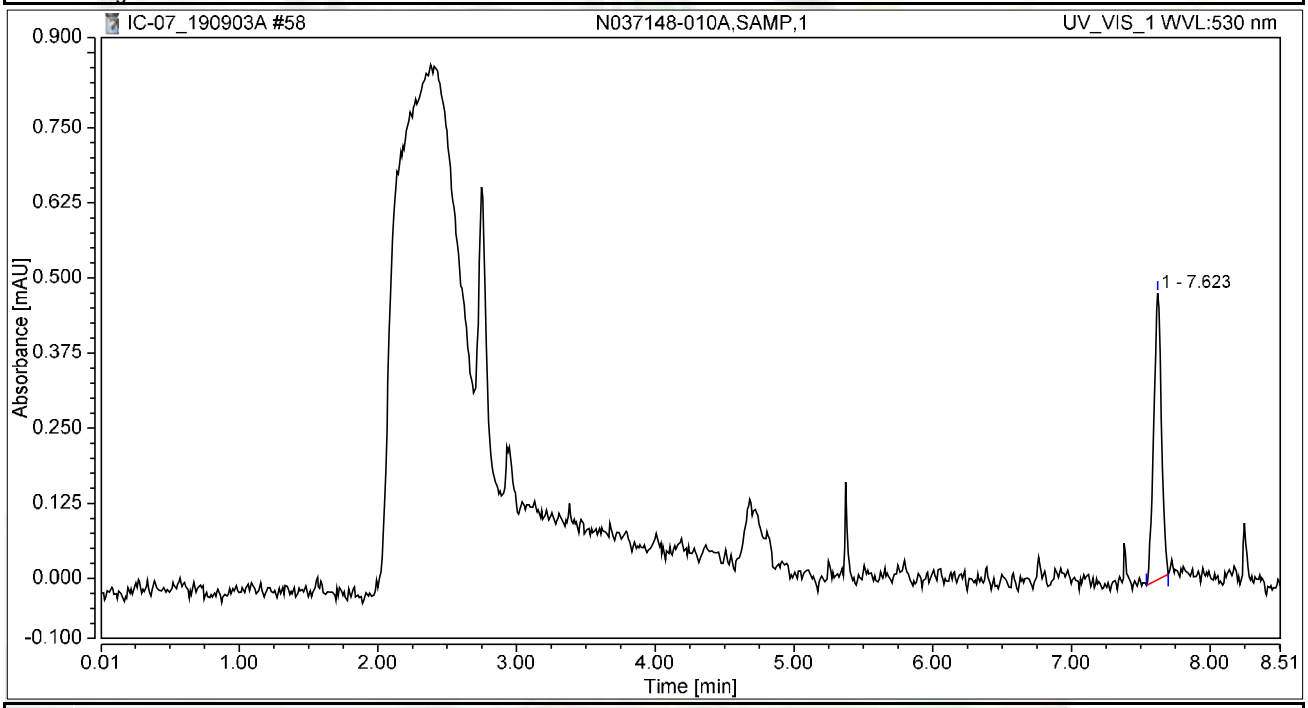
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.623	0.039	0.587	100.00	100.00	n.a.
Total:			**0.039**	**0.587**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

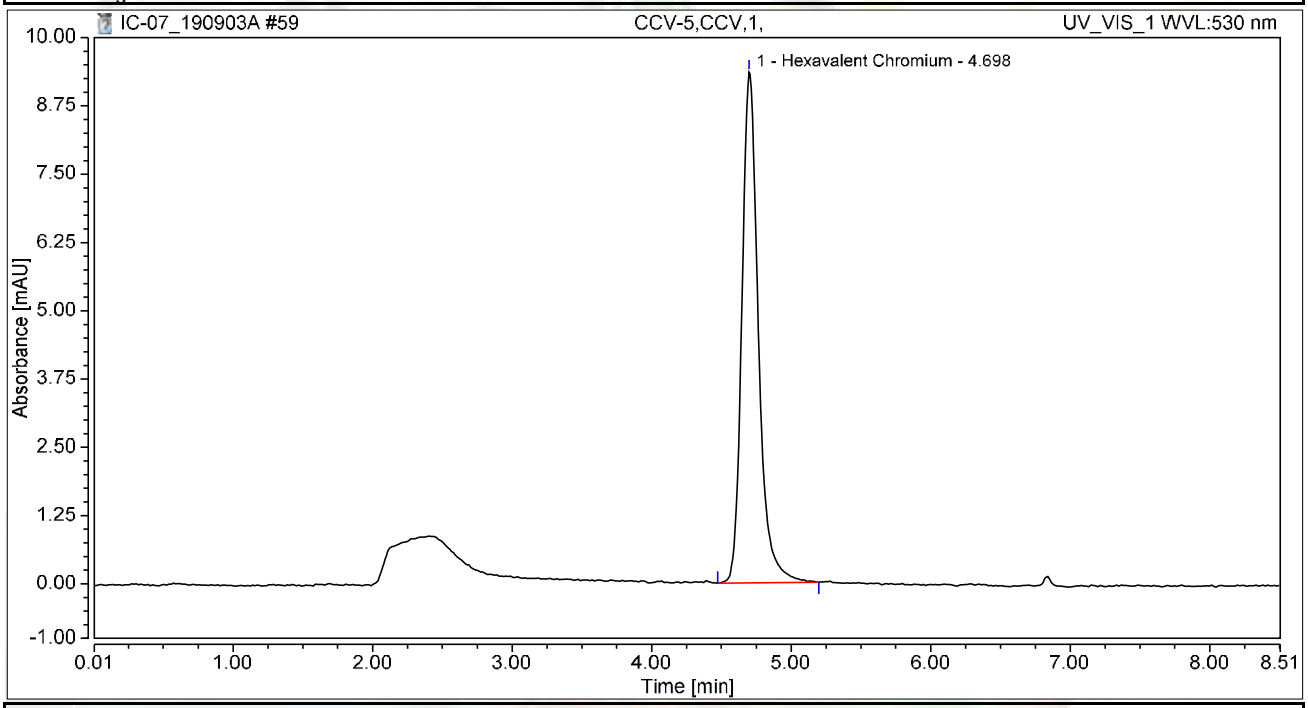
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.623	0.031	0.476	100.00	100.00	n.a.
Total:			**0.031**	**0.476**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

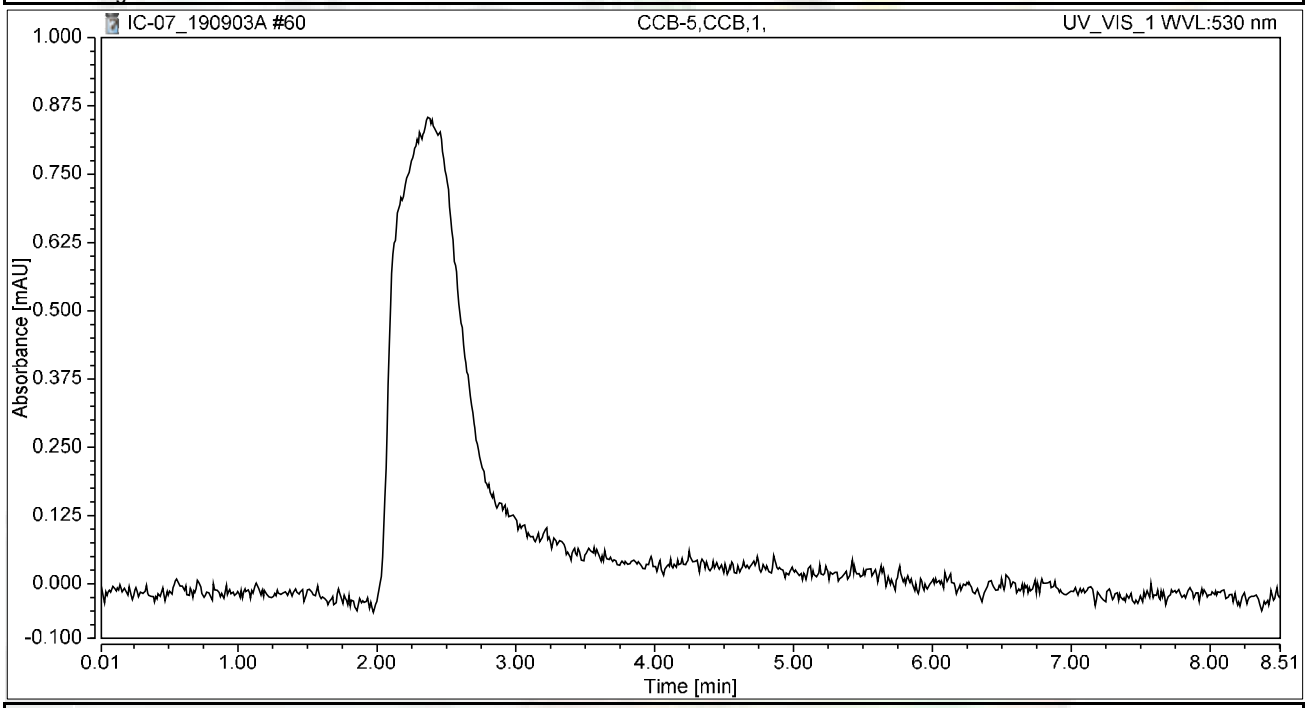
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.284	9.353	100.00	100.00	4.9470
Total:			**1.284**	**9.353**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

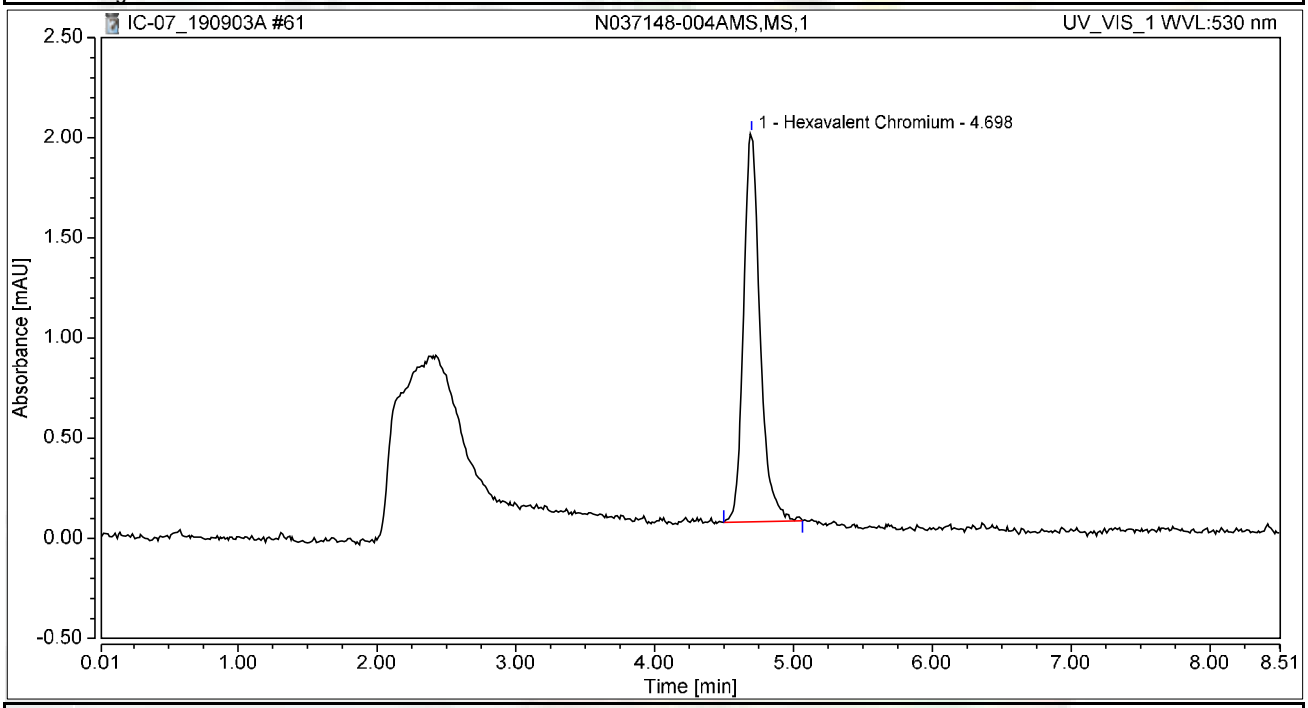
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

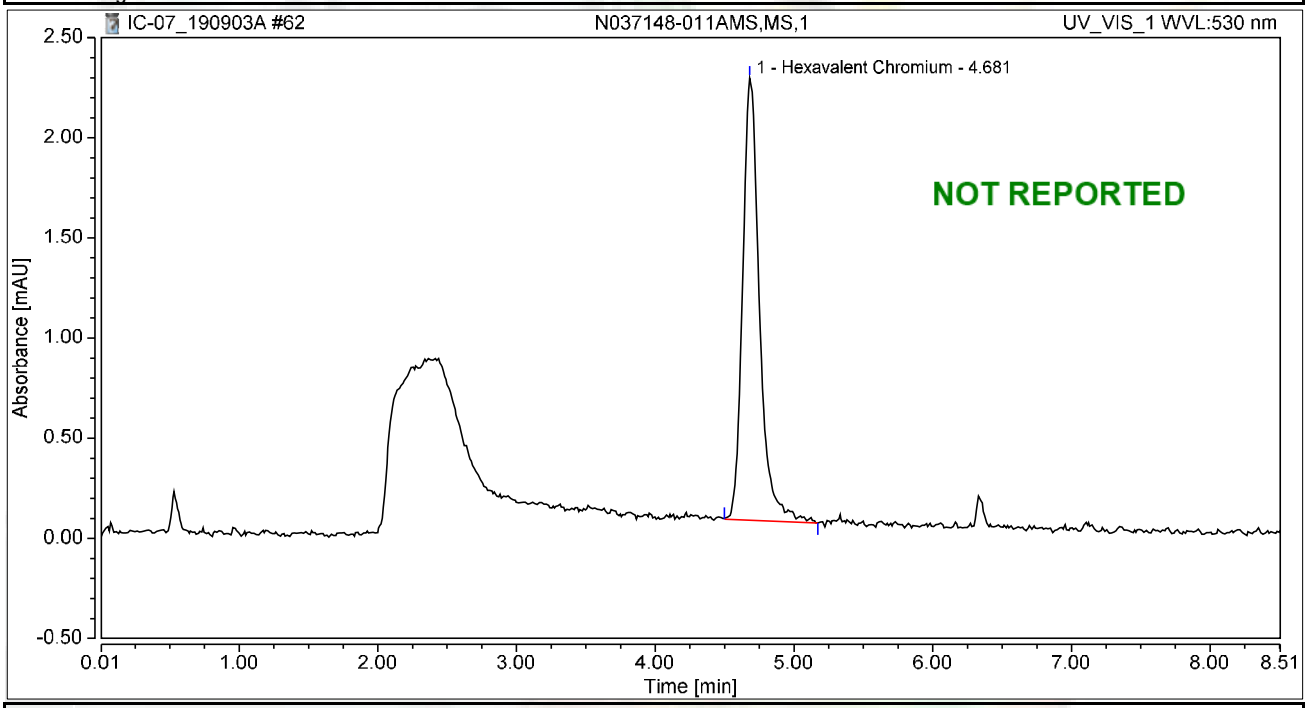
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.268	1.940	100.00	100.00	1.0337
Total:			**0.268**	**1.940**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-011AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

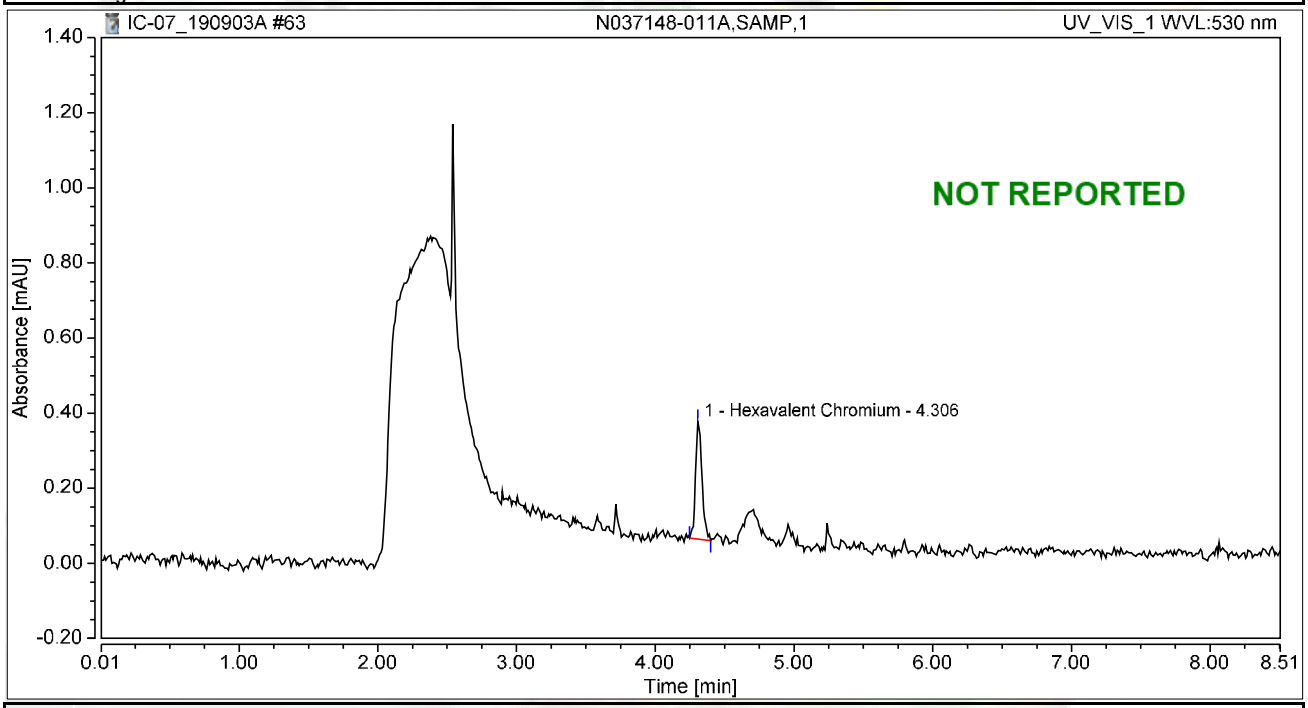
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.313	2.208	100.00	100.00	1.2045
Total:			**0.313**	**2.208**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-011A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

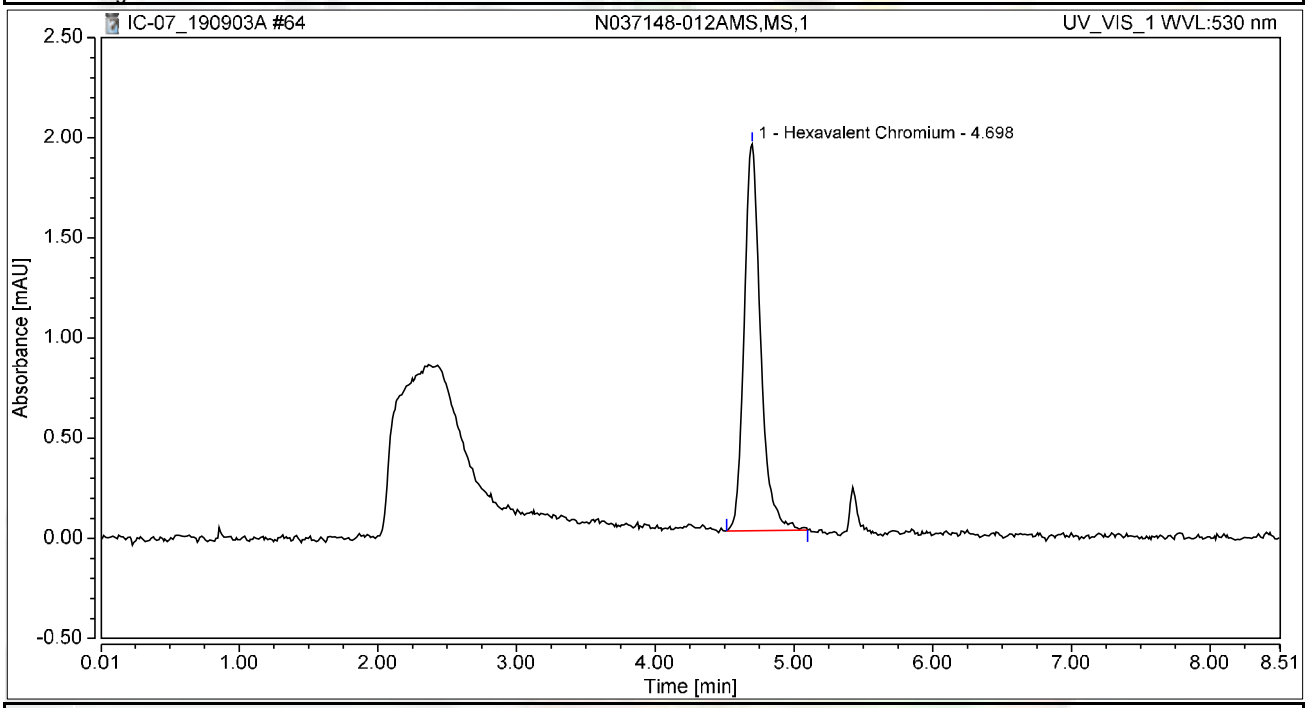
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.017	0.313	100.00	100.00	0.0640
Total:			**0.017**	**0.313**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

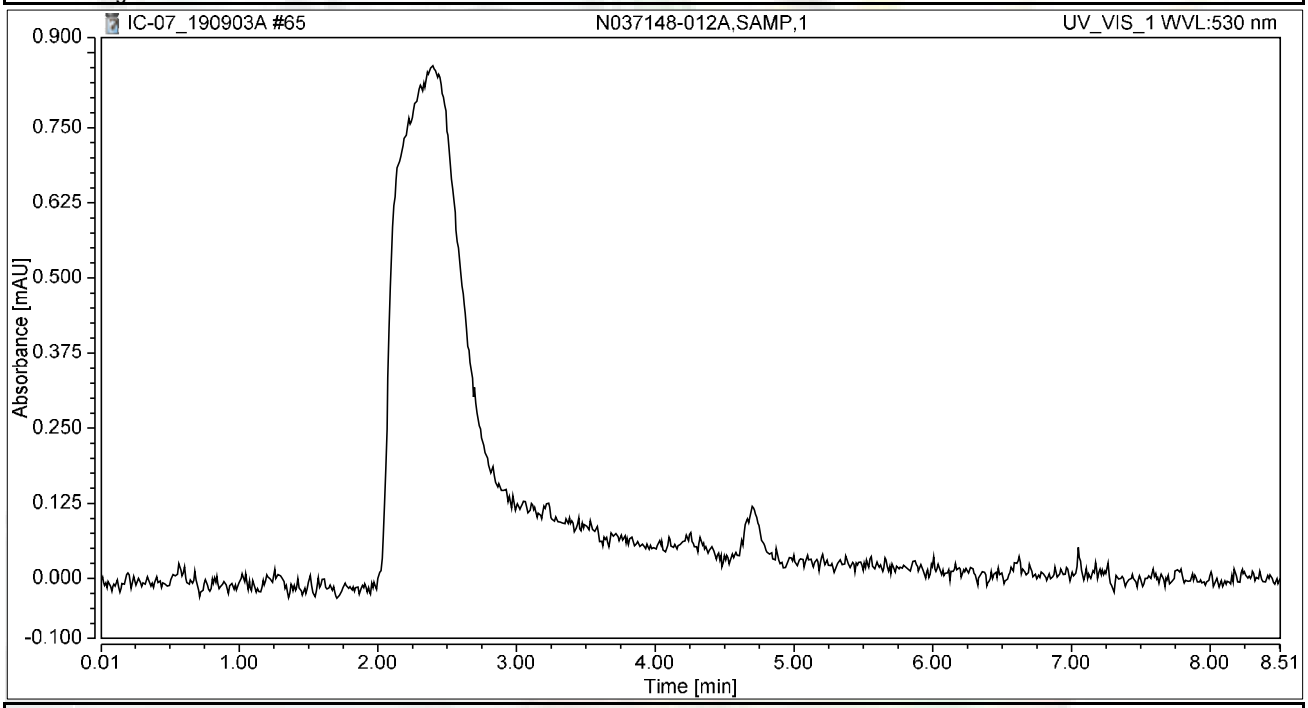
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.266	1.931	100.00	100.00	1.0247
Total:			**0.266**	**1.931**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

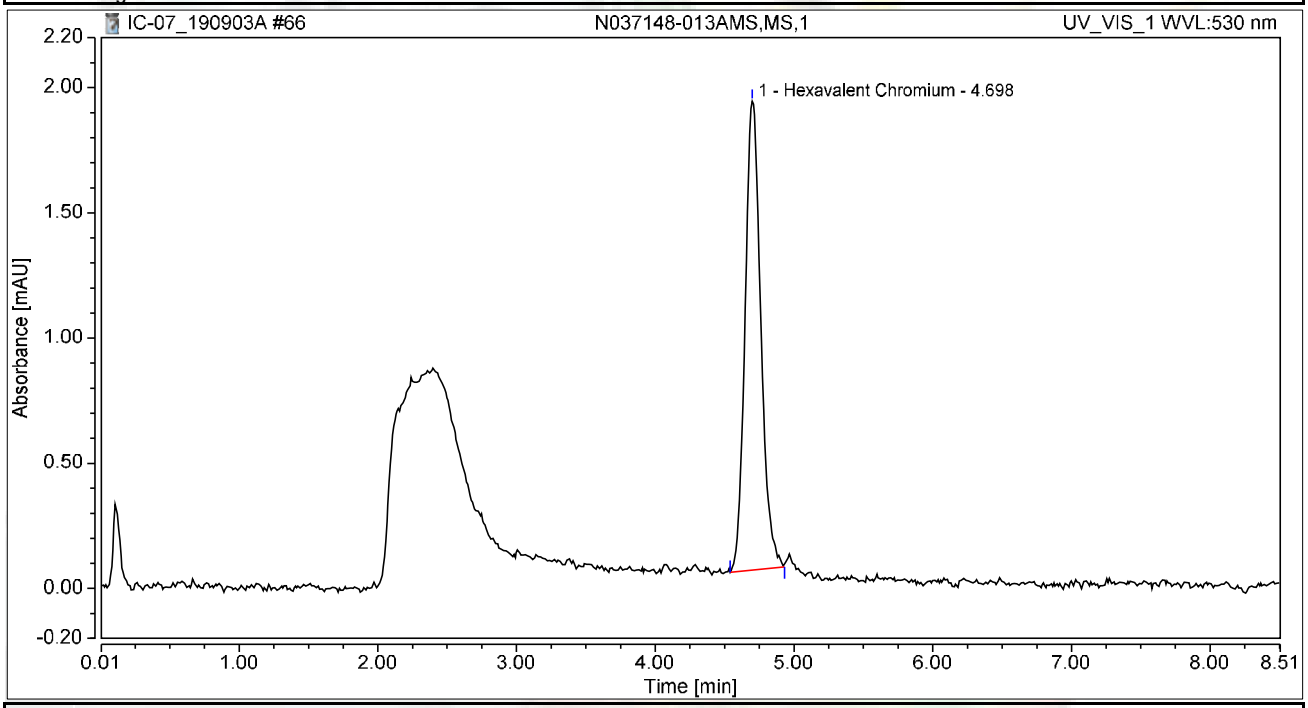
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

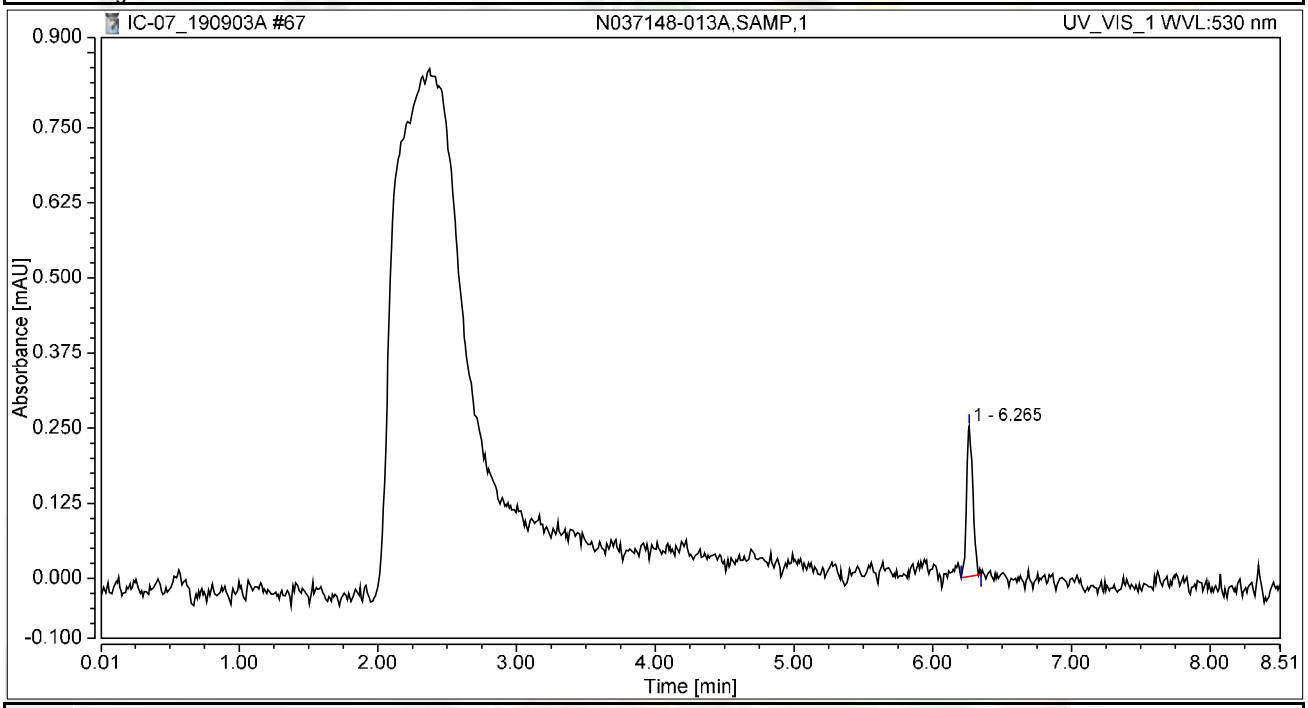
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.247	1.872	100.00	100.00	0.9529
Total:			**0.247**	**1.872**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

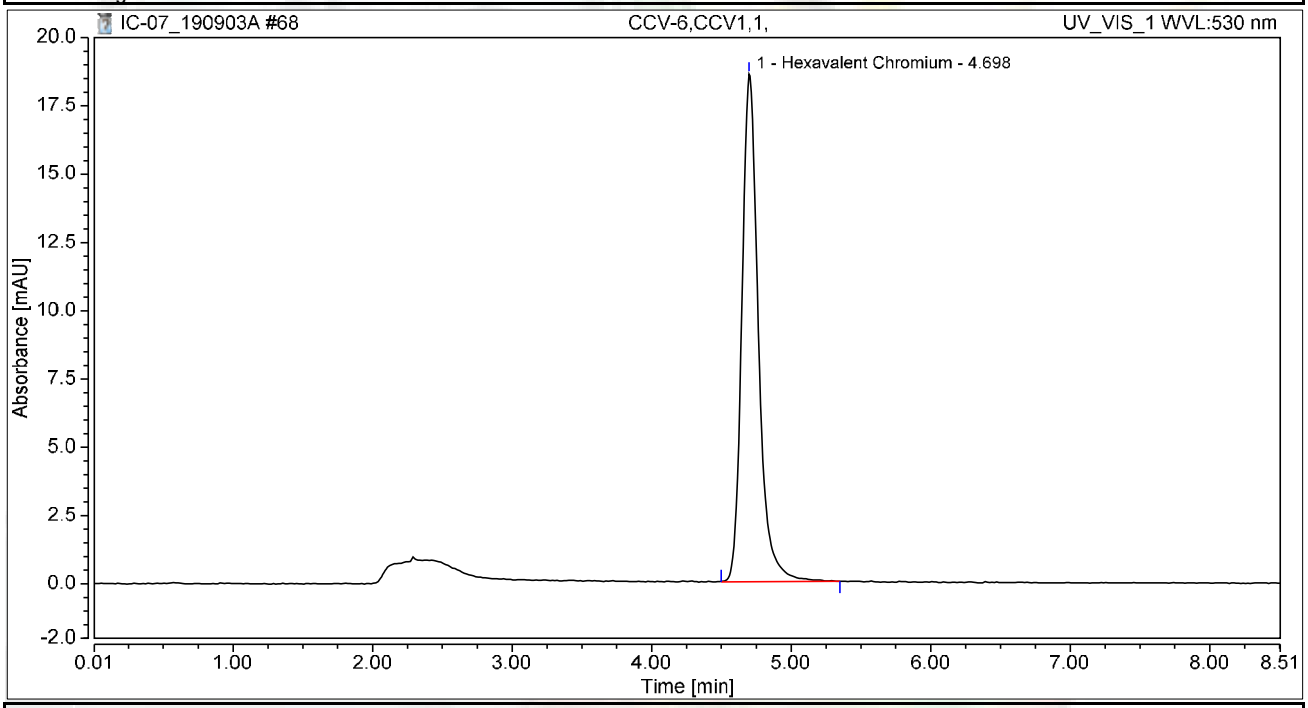
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.265	0.013	0.250	100.00	100.00	n.a.
Total:			**0.013**	**0.250**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

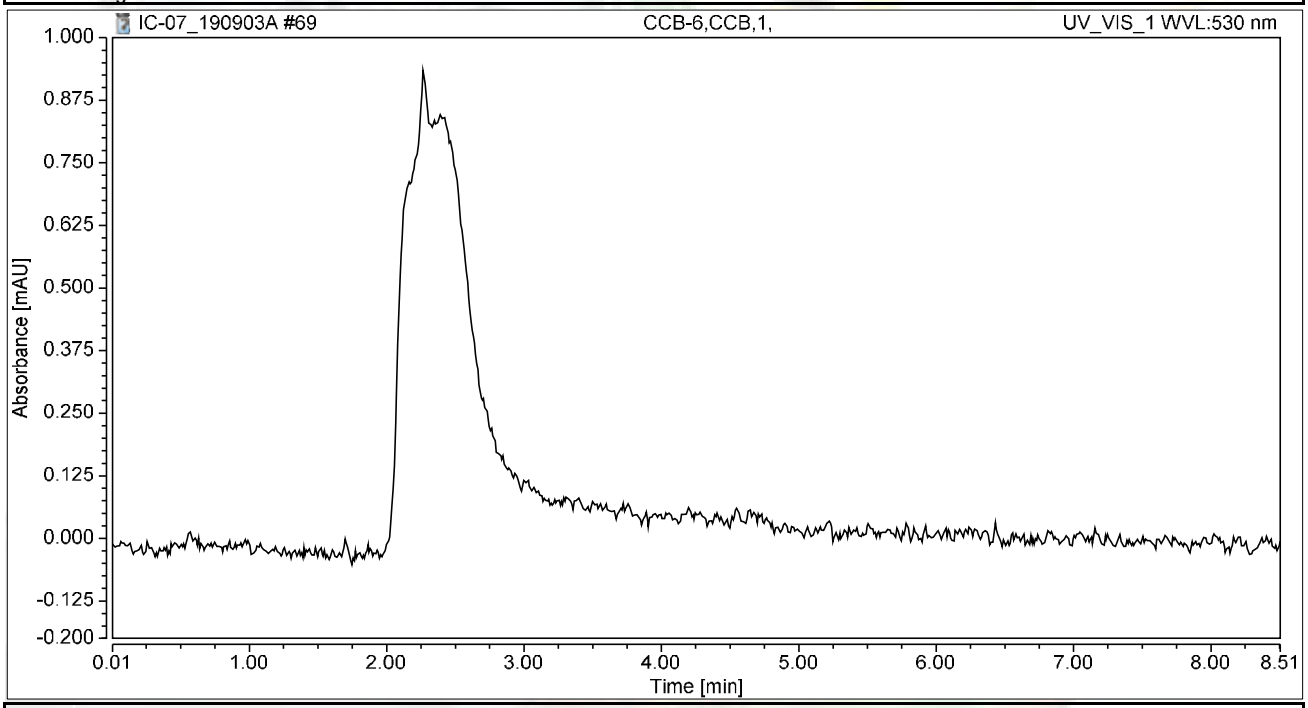
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.553	18.577	100.00	100.00	9.8367
Total:			**2.553**	**18.577**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

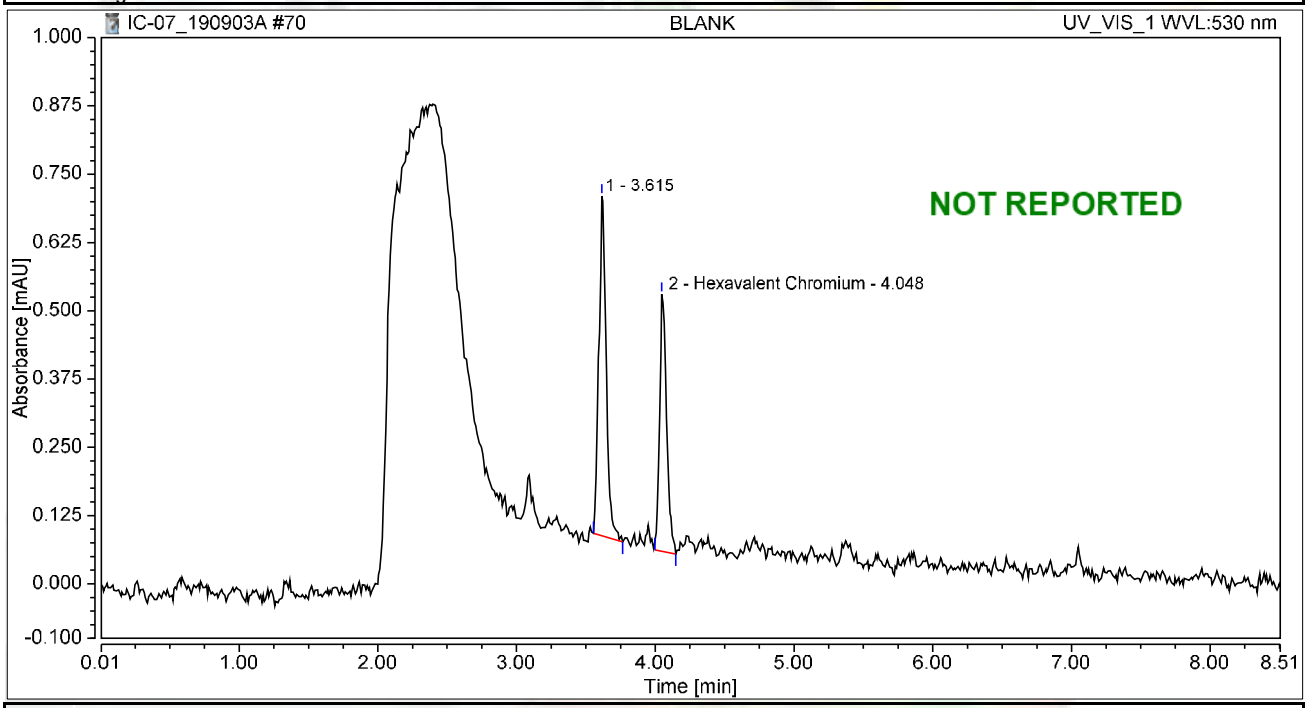
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.615	0.038	0.622	58.15	56.95	n.a.
2	Hexavalent Chromium	4.048	0.028	0.470	41.85	43.05	0.1061
Total:			**0.066**	**1.092**	**100.00**	**100.00**	

SM 2320 B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136163 **Analyst:** LSR

ASSET #: N037145 **Date Analyzed:** 28-Aug

Method: EPA 2320

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/30/2019

2nd Level Reviewer: Nancy 9/13/2019 Date: —

SAMPLE CALCULATION

Sample ID: **N037145-001C @ pH 8.08**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.60 mL)

= **0.02155 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (10.55) (0.02155 N) (1) * 1000

= 227.3525 mg**/L**

Reporting results in two significant figures,

= 230 as CaCO3

Julia Ramit 8/30/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02155 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (10.55 mL) (0.02155) (1) * 1000

= 227.3525 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 227.3525 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **230 mg/L**

Silvia Ramit 8/30/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.77	50	0.00	0.050	MBLK
LCS-1	8.25	50	0.00	4.50	LCS
N037117-001A	7.50	50	0.00	11.60	SAMP
N037117-002A	7.51	50	0.00	9.60	SAMP
N037117-003A	6.61	50	0.00	2.60	SAMP
N037117-004A	7.38	50	0.00	3.90	SAMP
N037117-005A	7.65	50	0.00	2.60	SAMP
N037117-008A	7.87	50	0.00	4.15	SAMP
N037145-001C	8.08	50	0.00	10.55	SAMP
N037145-002C	8.02	50	0.00	7.50	SAMP
N037147-001A	7.78	50	0.00	2.75	SAMP
N037147-002A	7.74	50	0.00	1.80	SAMP
N037169-001A	5.73	50	0.00	0.10	SAMP
N037170-001A	7.67	50	0.00	12.70	SAMP
N037171-001A	7.78	50	0.00	12.70	SAMP
N037172-001A	8.16	50	0.00	12.50	SAMP
N037173-001A	8.09	50	0.00	12.10	SAMP
N037174-001A	5.04	50	0.00	3.10	SAMP
N037176-001A	7.54	50	0.00	2.40	SAMP
N037176-002A	7.69	50	0.00	2.85	SAMP
N037176-003A	7.88	50	0.00	2.80	SAMP
N037176-004A	7.89	50	0.00	2.70	SAMP
N037117-001ADUP	7.78	50	0.00	11.65	DUP
N037117-003AMS	7.56	50	0.00	7.30	MS
N037117-003AMSD	7.65	50	0.00	7.30	MSD

Standardization:

Spike amt:	**5**	ml
Titrant used:	**11.600**	ml
N H2SO4	**0.02155**	Normal

Date Analyzed:	**8/28/19**
Time:	**1:45 PM**
Analyzed By:	**LSR**

Sodium Carbonate:	**CINV-161205A**
Sodium Bicarbonate:	**CINV-180510A**
Sulfuric Acid:	**R190814B**

Julia Ramit 8/30/2019

Date Analyzed:	8/28/19		Reagents:					Standardization:					P = 0
Time Started:	1:45 PM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.6	mL		P = 1/2 T
				Sulfuric Acid:		R190814B							P > 1/2 T
									N H2SO4	0.02155	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.77				0.02155	0.00	0.05	0.05	1	0.00	1.08	
LCS-1	50	8.25				0.02155	0.00	4.50	4.50	1	0.00	96.98	
N037117-001A	50	7.5				0.02155	0.00	11.60	11.60	1	0.00	250.00	
N037117-002A	50	7.51				0.02155	0.00	9.60	9.60	1	0.00	206.90	
N037117-003A	50	6.61				0.02155	0.00	2.60	2.60	1	0.00	56.03	
N037117-004A	50	7.38				0.02155	0.00	3.90	3.90	1	0.00	84.05	
N037117-005A	50	7.65				0.02155	0.00	2.60	2.60	1	0.00	56.03	
N037117-008A	50	7.87				0.02155	0.00	4.15	4.15	1	0.00	89.44	
N037145-001C	50	8.08				0.02155	0.00	10.55	10.55	1	0.00	227.37	
N037145-002C	50	8.02				0.02155	0.00	7.50	7.50	1	0.00	161.64	
N037147-001A	50	7.78				0.02155	0.00	2.75	2.75	1	0.00	59.27	
N037147-002A	50	7.74				0.02155	0.00	1.80	1.80	1	0.00	38.79	
N037169-001A	50	5.73				0.02155	0.00	0.10	0.10	1	0.00	2.16	
N037170-001A	50	7.67				0.02155	0.00	12.70	12.70	1	0.00	273.71	
N037171-001A	50	7.78				0.02155	0.00	12.70	12.70	1	0.00	273.71	
N037172-001A	50	8.16				0.02155	0.00	12.50	12.50	1	0.00	269.40	
N037173-001A	50	8.09				0.02155	0.00	12.10	12.10	1	0.00	260.78	
N037174-001A	50	5.04				0.02155	0.00	3.10	3.10	1	0.00	66.81	
N037176-001A	50	7.54				0.02155	0.00	2.40	2.40	1	0.00	51.72	
N037176-002A	50	7.69				0.02155	0.00	2.85	2.85	1	0.00	61.42	
N037176-003A	50	7.88				0.02155	0.00	2.80	2.80	1	0.00	60.34	
N037176-004A	50	7.89				0.02155	0.00	2.70	2.70	1	0.00	58.19	
N037117-001ADU	50	7.78				0.02155	0.00	11.65	11.65	1	0.00	251.08	
N037117-003AMS	50	7.56				0.02155	0.00	7.30	7.30	1	0.00	157.33	
N037117-003AMS	50	7.65				0.02155	0.00	7.30	7.30	1	0.00	157.33	

Julia Ramit 8/30/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	8/28/19
Time:	1:45 PM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.08	1.08	1.08		P = 0
LCS-1	0.00	0.00	96.98	96.98	96.98		P = 0
N037117-001A	0.00	0.00	250.00	250.00	250.00		P = 0
N037117-002A	0.00	0.00	206.90	206.90	206.90		P = 0
N037117-003A	0.00	0.00	56.03	56.03	56.03		P = 0
N037117-004A	0.00	0.00	84.05	84.05	84.05		P = 0
N037117-005A	0.00	0.00	56.03	56.03	56.03		P = 0
N037117-008A	0.00	0.00	89.44	89.44	89.44		P = 0
N037145-001C	0.00	0.00	227.37	227.37	227.37		P = 0
N037145-002C	0.00	0.00	161.64	161.64	161.64		P = 0
N037147-001A	0.00	0.00	59.27	59.27	59.27		P = 0
N037147-002A	0.00	0.00	38.79	38.79	38.79		P = 0
N037169-001A	0.00	0.00	2.16	2.16	2.16		P = 0
N037170-001A	0.00	0.00	273.71	273.71	273.71		P = 0
N037171-001A	0.00	0.00	273.71	273.71	273.71		P = 0
N037172-001A	0.00	0.00	269.40	269.40	269.40		P = 0
N037173-001A	0.00	0.00	260.78	260.78	260.78		P = 0
N037174-001A	0.00	0.00	66.81	66.81	66.81		P = 0
N037176-001A	0.00	0.00	51.72	51.72	51.72		P = 0
N037176-002A	0.00	0.00	61.42	61.42	61.42		P = 0
N037176-003A	0.00	0.00	60.34	60.34	60.34		P = 0
N037176-004A	0.00	0.00	58.19	58.19	58.19		P = 0
N037117-001ADUP	0.00	0.00	251.08	251.08	251.08		P = 0
N037117-003AMS	0.00	0.00	157.33	157.33	157.33		P = 0
N037117-003AMSD	0.00	0.00	157.33	157.33	157.33		P = 0

Lilia Ramit 8/30/2019

Alkalinity Preparation and Runlog

Matrix: H_2O

Date Extracted: 8/28/19
Time Extracted:
Extracted By: LSR

Date Analyzed: 8/28/19
Time Analyzed: 1345
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV161205A
Hydrochloric Acid: –
Sulfuric Acid: R190814B
Sodium Bicarbonate: CINV180510A

pH Meter Calibration:
SLOPE: 98.7%
pH 7 – 7.03 – CINV190724H
4 – 4.00 – 5
10 – 10.01 CINV190801A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION	50mL		0828A								
	#1	~~10.57~~	10.57	INST190814A	5mL	0.05N	–	–	11.60	50/50	$NH_2SO_4 = \frac{(2.65g/L)(5mL)}{(53)(V\ titrant)}$	= 0.021551724
	#2		10.51				–	–	11.60			
1)	MB4C	50mL	5.77	–	–	–	0.02155	0	0.05	50/50		
2)	LCS		8.25	INST190828B	1mL	0.05N		0	4.50			
3)	N037117-1A		7.50					0	11.60			
4)	2A		7.51					0	9.60			
5)	3A		6.61					0	2.60			
6)	4A		7.38					0	3.90			
7)	5A		7.65					0	2.60			
8)	8A		7.87					0	4.15			
9)	N037145-1C		8.08					0	10.55		$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$	
10)	2C		8.02					0	7.50			
11)	N037147-1A		7.78					0	2.75			
12)	2A		7.74					0	1.80			
13)	N037169-1A		5.73					0	0.10		$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$	
14)	70-1A		7.67					0	12.70			
15)	71-1A		7.78					0	12.70			
16)	72-1A		8.16					0	12.50			
17)	73-1A		8.09					0	12.10			
18)	74-1A		5.04					0	3.10			
19)	N037176-1A		7.54					0	2.40			
20)	2A		7.69					0	2.85			
	~~MS~~ 3A		7.88					0	2.80		Julia Ramit 8/30/2019	
	~~MSD~~ 4A		7.89					0	2.70			
	~~LCS~~ N037117-1A DUP		7.78					0	11.65			
	3A MS		7.56	INST190828B	1mL	0.05N		0	7.30			
	3A MSD		7.65					0	7.30			

9/13/2019

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136368
ASSET #: N037147 / N037176 / N037181 N037255 / N037107 / N037145
Method:

[X] EPA 300.0
[ ] EPA 7199

Instrument ID: IC-08
Analyst: HSG
Date Analyzed: 9/9/2019

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?			X			
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: 09/11/2019 Date: —

2nd Level Reviewer: 9/12/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N037145-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.2041 * 50

= 260.205

Reporting result in two significant values,

Sulfate, mg/L = 260

NS 9/26/2019

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
2	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
3	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
4	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
5	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
6	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
7	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
8	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
9	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
10	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
11	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
12	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
13	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
14	N037147-001A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
15	N037147-002A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
16	N037176-001A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
17	N037176-002A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
18	N037176-003A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
19	N037176-004A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
20	N037181-001B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
21	N037225-001B,SAMP,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
22	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
23	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
24	N037147-001ADUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
25	N037176-001AMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
26	N037176-001AMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
27	N037107-007A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
28	N037107-007AMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
29	N037107-008A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
30	N037147-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
31	N037147-001A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
32	N037147-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
33	N037147-002A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
34	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
35	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
36	N037147-001ADUP,DUP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
37	N037147-001ADUP,DUP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
38	N037147-002AMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
39	N037147-002AMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
40	N037147-002AMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
41	N037147-002AMSD,MSD,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK	9/9/2019 9:41:18 AM	BLANK
2	BLANK	9/9/2019 9:58:06 AM	BLANK
3	BLANK	9/9/2019 10:27:00 AM	BLANK
4	Std - 0	9/9/2019 10:43:47 AM	IBLANK
5	Std - 1	9/9/2019 11:05:31 AM	STD-LOW
6	Std - 2	9/9/2019 11:22:19 AM	STD
7	Std - 3	9/9/2019 11:39:07 AM	STD
8	Std - 4	9/9/2019 11:55:55 AM	STD
9	Std - 5	9/9/2019 12:12:43 PM	STD-HIGH
10	ICV,ICV,1	9/9/2019 12:40:06 PM	ICV
11	ICB,ICB,1	9/9/2019 12:56:54 PM	ICB
12	MB-H2O,MBLK,1	9/9/2019 1:13:42 PM	METHOD BLANK
13	LCS-H2O,LCS,1	9/9/2019 1:30:30 PM	LCS
14	N037147-001A,SAMP,5	9/9/2019 1:52:27 PM	SAMP,10mL
15	N037147-002A,SAMP,5	9/9/2019 2:09:14 PM	SAMP,10mL
16	N037176-001A,SAMP,5	9/9/2019 2:26:02 PM	SAMP,10mL
17	N037176-002A,SAMP,5	9/9/2019 2:42:50 PM	SAMP,10mL
18	N037176-003A,SAMP,5	9/9/2019 2:59:38 PM	SAMP,10mL
19	N037176-004A,SAMP,5	9/9/2019 3:16:26 PM	SAMP,10mL
20	N037181-001B,SAMP,5	9/9/2019 3:33:14 PM	SAMP,10mL
21	N037225-001B,SAMP,1	9/9/2019 3:50:02 PM	SAMP,10mL
22	CCV-1,CCV,1	9/9/2019 4:06:49 PM	CCV
23	CCB-1,CCB,1	9/9/2019 4:23:37 PM	CCB
24	N037147-001ADUP,DUP,5	9/9/2019 5:26:20 PM	SAMP,10mL
25	N037176-001AMS,MS,5	9/9/2019 5:43:08 PM	SAMP,10mL
26	N037176-001AMSD,MSD,5	9/9/2019 5:59:56 PM	SAMP,10mL
27	N037107-007A,SAMP,500	9/9/2019 6:17:53 PM	SAMP,10mL
28	N037107-007AMS,MS,500	9/9/2019 6:34:42 PM	SAMP,10mL
29	N037107-008A,SAMP,500	9/9/2019 6:51:30 PM	SAMP,10mL
30	N037147-001A,SAMP,100	9/9/2019 7:08:17 PM	SAMP,10mL
31	N037147-001A,SAMP,1000	9/9/2019 7:25:05 PM	SAMP,10mL
32	N037147-002A,SAMP,50	9/9/2019 7:41:53 PM	SAMP,10mL
33	N037147-002A,SAMP,1000	9/9/2019 7:58:41 PM	SAMP,10mL
34	CCV-2,CCV,1	9/9/2019 8:15:28 PM	CCV
35	CCB-2,CCB,1	9/9/2019 8:32:16 PM	CCB
36	N037147-001ADUP,DUP,100	9/9/2019 8:49:04 PM	SAMP,10mL
37	N037147-001ADUP,DUP,1000	9/9/2019 9:05:52 PM	SAMP,10mL
38	N037147-002AMS,MS,50	9/9/2019 9:22:40 PM	SAMP,10mL
39	N037147-002AMSD,MSD,50	9/9/2019 9:39:28 PM	SAMP,10mL
40	N037147-002AMS,MS,1000	9/9/2019 9:56:16 PM	SAMP,10mL
41	N037147-002AMSD,MSD,1000	9/9/2019 10:13:03 PM	SAMP,10mL

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

	No.	Name	Type	Inj. Vol.	Program	Method	Status
N037145-001C	42	N037145-001A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
N037145-001C	43	N037145-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
N037145-002C	44	N037145-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
N037145-002C	45	N037145-002A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	46	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	47	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	48	N037176-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	49	N037176-001A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	50	N037176-002A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	51	N037176-002A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	52	N037176-003A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	53	N037176-003A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	54	N037176-004A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	55	N037176-004A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	56	N037181-001B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	57	N037181-001B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	58	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	59	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	60	N037225-001B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	61	N037225-001B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	62	N037093-001B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	63	N037176-002A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	64	N037176-003A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	65	N037176-004A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	66	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
	67	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

	No.	Name	Inj. Date/Time	Comment
N037145-001C	42	N037145-001A,SAMP,50	9/9/2019 10:29:51 PM	SAMP,10mL
N037145-001C	43	N037145-001A,SAMP,100	9/9/2019 10:46:39 PM	SAMP,10mL
N037145-002C	44	N037145-002A,SAMP,50	9/9/2019 11:03:27 PM	SAMP,10mL
N037145-002C	45	N037145-002A,SAMP,500	9/9/2019 11:20:14 PM	SAMP,10mL
	46	CCV-3,CCV,1	9/9/2019 11:37:02 PM	CCV
	47	CCB-3,CCB,1	9/9/2019 11:53:51 PM	CCB
	48	N037176-001A,SAMP,100	9/10/2019 12:10:38 AM	SAMP,10mL
	49	N037176-001A,SAMP,1000	9/10/2019 12:27:26 AM	SAMP,10mL
	50	N037176-002A,SAMP,100	9/10/2019 12:44:14 AM	SAMP,10mL
	51	N037176-002A,SAMP,1000	9/10/2019 1:01:02 AM	SAMP,10mL
	52	N037176-003A,SAMP,100	9/10/2019 1:17:50 AM	SAMP,10mL
	53	N037176-003A,SAMP,1000	9/10/2019 1:34:38 AM	SAMP,10mL
	54	N037176-004A,SAMP,100	9/10/2019 1:51:26 AM	SAMP,10mL
	55	N037176-004A,SAMP,1000	9/10/2019 2:08:15 AM	SAMP,10mL
	56	N037181-001B,SAMP,50	9/10/2019 2:25:02 AM	SAMP,10mL
	57	N037181-001B,SAMP,1000	9/10/2019 2:41:50 AM	SAMP,10mL
	58	CCV-4,CCV,1	9/10/2019 2:58:38 AM	CCV
	59	CCB-4,CCB,1	9/10/2019 3:15:26 AM	CCB
	60	N037225-001B,SAMP,100	9/10/2019 3:32:14 AM	SAMP,10mL
	61	N037225-001B,SAMP,500	9/10/2019 3:49:02 AM	SAMP,10mL
	62	N037093-001B,SAMP,10000	9/10/2019 4:05:50 AM	SAMP,10mL
	63	N037176-002A,SAMP,2000	9/10/2019 4:22:37 AM	SAMP,10mL
	64	N037176-003A,SAMP,2000	9/10/2019 4:39:26 AM	SAMP,10mL
	65	N037176-004A,SAMP,2000	9/10/2019 4:56:14 AM	SAMP,10mL
	66	CCV-5,CCV,1	9/10/2019 5:13:02 AM	CCV
	67	CCB-5,CCB,1	9/10/2019 5:29:50 AM	CCB

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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 9/9/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0016	0.0765	0.1581	0.3188	0.8155	1.7192	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 9/9/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0578	0.2351	0.4667	1.1928	2.4803	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **ICV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.025	0.50	2.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.983	0.50	2.000	0	99.2	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.975	0.50	2.000	0	98.7	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.978	0.50	2.000	0	98.9	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3507679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.976	0.50	2.000	0	98.8	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3507684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.975	0.50	2.000	0	98.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **ICV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.048	0.50	4.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.034	0.50	4.000	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.982	0.50	4.000	0	99.6	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.009	0.50	4.000	0	100	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCV**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3507733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.995	0.50	4.000	0	99.9	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCV-5** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136368**
Client ID: **CCV** Batch ID: **R136368** TestNo: **EPA 300.0** Analysis Date: **9/10/2019** SeqNo: **3507736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.972	0.50	4.000	0	99.3	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **ICB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.100	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.109	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.100	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3507680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.116	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3507685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.098	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **ICB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3507727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136368**
Client ID: **CCB**	Batch ID: **R136368**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3507734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.178	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCB-5** SampType: **CCB** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136368**
Client ID: **CCB** Batch ID: **R136368** TestNo: **EPA 300.0** Analysis Date: **9/10/2019** SeqNo: **3507737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 9/9/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	12.027	
CCV-1	Sulfate	12.047	
CCV-2	Sulfate	12.050	
CCV-3	Sulfate	12.100	
CCV-4	Sulfate	12.103	
CCV-5	Sulfate	12.104	
	Average	12.072	
	Applied RT Window	11.872 - 12.272	
MB-R136368_SO4	Sulfate	N.A.	N.A.
LCS-R136368_SO4	Sulfate	12.034	PASS
N037147-001ADUP	Sulfate	12.097	PASS
N037147-002AMS	Sulfate	12.100	PASS
N037147-002AMSD	Sulfate	12.097	PASS
N037145-001C	Sulfate	12.094	PASS
N037145-002C	Sulfate	12.100	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 9/9/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.734	
CCV-1	Chloride	4.717	
CCV-2	Chloride	4.723	
CCV-3	Chloride	4.737	
CCV-4	Chloride	4.747	
CCV-5	Chloride	4.747	
	Average	4.734	
	Applied RT Window	4.534 - 4.934	
MB-R136368_CL	Chloride	4.730	PASS
LCS-R136368_CL	Chloride	4.727	PASS
N037107-007AMS	Chloride	4.720	PASS
N037147-001ADUP	Chloride	4.733	PASS
N037147-002AMS	Chloride	4.737	PASS
N037147-002AMSD	Chloride	4.740	PASS
N037145-001C	Chloride	4.737	PASS
N037145-002C	Chloride	4.737	PASS

MDL STUDY

METHOD DETECTION LIMIT 2019

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 1/7/2019 ; 1/9/2019 ; 5/6/2019
Analyst/Technician: Ria Abes / Hanah Glodoviza

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	190107A D51	190107A D52	190107A D53	190109A D79	190109A D80	190506A D16	190506A D17					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.034	0.039	0.039	0.038	0.038	0.043	0.043	0.020	0.0031	**0.0096**	0.020	0.10
Chloride	0.201	0.201	0.200	0.200	0.202	0.178	0.179	0.050	0.0111	**0.0348**	0.080	0.50
Nitrite	0.033	0.032	0.032	0.035	0.035	0.031	0.031	0.020	0.0016	**0.0050**	0.010	0.05
Bromide	0.040	0.043	0.044	0.043	0.043	0.025	0.022	0.040	0.0095	**0.0300**	0.060	0.50
Nitrate	0.037	0.035	0.035	0.037	0.042	0.040	0.040	0.020	0.0028	**0.0087**	0.020	0.05
Phosphate	0.067	0.069	0.061	0.066	0.069	0.080	0.097	0.040	0.0120	**0.0378**	0.080	0.10
Sulfate	0.294	0.291	0.289	0.325	0.305	0.309	0.306	0.100	0.0127	**0.0399**	0.080	0.50

Note: All 7 Method Blanks analyzed together with the MDL samples have 0 ug/L concentrations

MDL/LOD & PQL Verification 2019 (1st Quarter)

Method Name: **Inorganic Anions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 5/8/2019
Analyst: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD actual Conc., mg/L	PQL Spike Conc., mg/L	PQL actual Conc., mg/L	%Recovery
Fluoride	**0.0096**	0.02	0.038	0.100	0.114	**114**
Chloride	**0.0348**	0.08	0.207	0.500	0.550	**110**
Nitrite	**0.0050**	0.01	0.023	0.050	0.057	**114**
Bromide	**0.0300**	0.06	0.048	0.500	0.503	**101**
Nitrate	**0.0087**	0.02	0.032	0.050	0.064	**129**
Phosphate	**0.0378**	0.08	0.139	0.100	0.141	**141**
Sulfate	**0.0399**	0.08	0.291	0.500	0.661	**132**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136435 **Analyst:** ~~RBA~~ MBC

ASSET #: N037107, 144, 148 **Date Analyzed:** 9/12/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer RBA Date: 9/20/2019

2nd Level Reviewer NS 9/26/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037145-002D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.5131	*	5
	=	2.5655	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.6 mg/L

NS 9/26/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

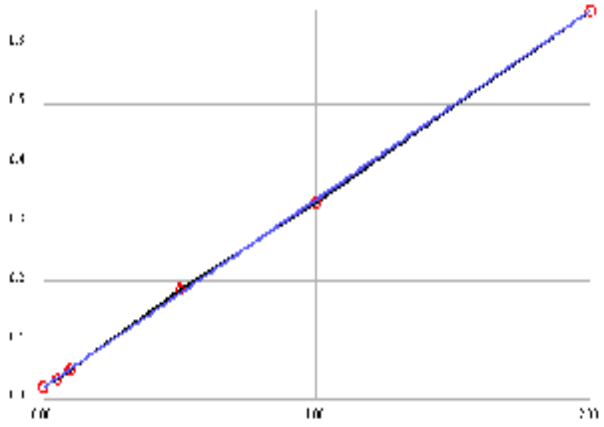
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3184x + 0.0201
Correlation	.999839

Calibrant	Energy	Set	Conc
1	0.0199	0.0000	-0.0007
2	0.0340	0.0500	0.0435
3	0.0506	0.1000	0.0957
4	0.1875	0.5000	0.5256
5	0.3334	1.0000	0.9838
6	0.6576	2.0000	2.0020

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **ICV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.501	0.050	0.5000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.493	0.050	0.5000	0	98.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.548	0.050	0.5000	0	110	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.480	0.050	0.5000	0	96.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037145
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **ICB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCB**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 09-12-2019 14:19
Time end: 09-12-2019 17:17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:35:38	0.0005		0.0203
2	<BLANK>	16:36:31	0.0018		0.0207
3	<CAL1>	16:37:33	-0.0007	[0]	0.0199
4	<CAL2>	16:38:28	0.0435	[0.05]	0.0340
5	<CAL3>	16:39:22	0.0957	[0.1]	0.0506
6	<CAL4>	16:40:23	0.5256	[0.5]	0.1875
7	<CAL5>	16:41:19	0.9838	[1]	0.3334
8	<CAL6>	16:42:14	2.0020	[2]	0.6576
9	,BLANK,BLANK,1, NOT REPORTED	16:43:08	0.0467		0.0350
10	,ICV,ICV,1,	16:44:10	0.5005		0.1795
11	,ICB,ICB,1,	16:45:05	0.0109		0.0236
12	,MB-H2O,MBLK,1,	16:45:59	0.0015		0.0206
13	,LCS-H2O,LCS,1,	16:47:01	0.4870		0.1752
14	,N037097-001D,SAMP,1,	16:47:56	0.2364		0.0954
15	,N037097-001DDUP,DUP,1,	16:48:52	0.2263		0.0922
16	,N037107-005B,SAMP,10,	16:49:52	0.7904		0.2718
17	,N037107-005BMS,MS,10,	16:50:48	1.4132		0.4701
18	,N037107-005BMSD,MSD,10,	16:51:43	1.2750		0.4261
19	,N037107-006B,SAMP,1,	16:52:38	0.6745		0.2349
20	,N037107-007B,SAMP,1,	16:53:39	0.1280		0.0609
21	,BLANK, NOT REPORTED	16:54:35	0.0027		0.0210
22	,CCV-1,CCV,1,	16:55:30	0.4933		0.1772
23	,CCB-1,CCB,1,	16:56:31	0.0194		0.0263
24	,N037107-008B,SAMP,1,	16:57:26	0.4509		0.1637
25	,N037144-001C,SAMP,1,	16:58:22	0.7141		0.2475

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N037144-002C,SAMP,1,	16:59:23	0.0373		0.0320
27	,N037144-003C,SAMP,1,	17:00:17	0.0313		0.0301
28	,N037144-004C,SAMP,5,	17:01:13	0.5850		0.2064
29	,N037145-001D,SAMP,1,	17:02:02	0.0190		0.0262
30	,N037145-002D,SAMP,5,	17:02:44	0.5131		0.1835
31	,N037148-001E,SAMP,1,	17:03:34	0.3607		0.1350
32	,N037148-002E,SAMP,1,	17:04:16	0.3639		0.1360
33	,BLANK, NOT REPORTED	17:04:59	0.0052		0.0218
34	,CCV-2,CCV,1,	17:05:47	0.5482		0.1947
35	,CCB-2,CCB,1,	17:06:31	0.0040		0.0214
36	,N037148-003E,SAMP,1,	17:07:13	0.5347		0.1904
37	,N037148-004E,SAMP,1,	17:07:56	0.3623		0.1355
38	,N037148-005E,SAMP,1,	17:08:46	0.3460		0.1303
39	,N037148-006E,SAMP,1,	17:09:28	0.3413		0.1288
40	,N037148-007E,SAMP,1,	17:10:11	0.3444		0.1298
41	,N037148-008E,SAMP,1,	17:11:00	0.3400		0.1284
42	,N037148-009E,SAMP,1,	17:11:43	0.4923		0.1769
43	,N037148-010E,SAMP,1,	17:12:25	0.3388		0.1280
44	,N037148-011E,SAMP,1,	17:13:09	0.3146		0.1203
45	,BLANK, NOT REPORTED	17:13:58	-0.0017		0.0196
46	,CCV-3,CCV,1,	17:14:40	0.4798		0.1729
47	,CCB-3,CCB,1,	17:15:23	0.0033		0.0212

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/12/2019
Time Analyzed: 2:19 PM ; 5:17 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190904A
Color reagent: R190904C
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037097-001D		6.39							
N037107-005B		8.05							
N037107-006B		7.79							
N037107-007B		8.35							
N037107-008B		8.80							
N037144-001C		8.07							
N037144-002C		7.84							
N037144-003C		7.49							
N037144-004C		7.47							
N037145-001D		8.84							
N037145-002D		8.46							
N037148-001E		5.97							
N037148-002E		8.79							
N037148-004E		7.06							
N037148-005E		8.29							
N037148-006E		5.42							
N037148-007E		7.86							
N037148-008E		7.21							
N037148-010E		5.48							
N037148-011E		7.40							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

September 17, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037148

RE: PG&E Topock - RMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcaw for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Sample N037148-013 (AmbientBlank-3-Q319) was not analyzed as per COC.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N037118-001C-MS and N037118-001C-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N037176-001E-MS and N037176-001E-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037148
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037148-001A	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001B	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001C	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001D	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001E	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-002A	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002B	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002C	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002D	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002E	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-003A	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003B	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003C	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003D	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003E	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-004A	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004B	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004C	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004D	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004E	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-005A	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005B	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005C	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005D	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005E	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-006A	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-006B	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-006C	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-006D	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037148
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037148-006E	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-007A	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007B	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007C	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007D	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007E	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-008A	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008B	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008C	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008D	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008E	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-009A	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009B	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009C	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009D	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009E	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-010A	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010B	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010C	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010D	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010E	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-011A	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011B	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011C	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011D	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011E	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-012A	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-012B	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-012C	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-012D	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037148
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037148-012E	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-013A	AmbientBlank-3-Q319	Groundwater	8/22/2019 1:15:00 PM	8/22/2019	9/17/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N037144-004BDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	136023
Client ID:	ZZZZZZ	Batch ID:	R136023	TestNo:	EPA 120.1			Analysis Date:	8/23/2019	SeqNo:	3489300

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11200.000	0.10						11170	0.268	2	

Sample ID	N037148-007DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	136023
Client ID:	ZZZZZZ	Batch ID:	R136023	TestNo:	EPA 120.1			Analysis Date:	8/23/2019	SeqNo:	3489310

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	878.000	0.10						877.0	0.114	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-003

Client Sample ID: C-MAR-D-Q319
Collection Date: 8/22/2019 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-010

Client Sample ID: C-NR4-S-Q319
Collection Date: 8/22/2019 1:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-011

Client Sample ID: R-19-Q319
Collection Date: 8/22/2019 9:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-012

Client Sample ID: RRB-Q319
Collection Date: 8/22/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.7	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037145-001CDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **136022**
Client ID: **ZZZZZZ**	Batch ID: **R136022**	TestNo: **SM4500-H+B**		Analysis Date: **8/23/2019**	SeqNo: **3489280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.470	0.10						7.450	0.268	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID **N037148-012DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **136022**
Client ID: **ZZZZZZ**	Batch ID: **R136022**	TestNo: **SM4500-H+B**		Analysis Date: **8/23/2019**	SeqNo: **3489294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.730	0.10						7.710	0.259	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B** QC Batch: **75151**				PrepDate:		**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	12	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E** QC Batch: **75171**				PrepDate:		**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	12	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**			PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E** QC Batch: **75171**				PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**			PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E** QC Batch: **75171**				PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**			PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E** QC Batch: **75171**				PrepDate:		**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**			PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**			PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-75151	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	LCSW	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492140

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	947.000	10	1000	0	94.7	80	120				

Sample ID	MB-75151	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	PBW	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492141

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N037148-001DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/26/2019	RunNo:	136100
Client ID:	ZZZZZZ	Batch ID:	75151	TestNo:	SM2540D			Analysis Date:	8/26/2019	SeqNo:	3492150

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-75171	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/27/2019	RunNo:	136132
Client ID:	LCSW	Batch ID:	75171	TestNo:	SM2540D			Analysis Date:	8/27/2019	SeqNo:	3493898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	962.000	10	1000	0	96.2	80	120				

Sample ID	MB-75171	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/27/2019	RunNo:	136132
Client ID:	PBW	Batch ID:	75171	TestNo:	SM2540D			Analysis Date:	8/27/2019	SeqNo:	3493899

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N037148-004DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/27/2019	RunNo:	136132
Client ID:	ZZZZZZ	Batch ID:	75171	TestNo:	SM2540D			Analysis Date:	8/27/2019	SeqNo:	3493901

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	11.500	5.0						12.00	4.26	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:13 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 03:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:23 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:32 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:42 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:51 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:01 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:10 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:29 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:38 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190909A**	QC Batch: **R136358**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/9/2019 05:39 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 08:45 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R136330**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **PBW**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R136330**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **LCSW**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.873	0.20	5.000	0	97.5	90	110				

Sample ID **N037176-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.978	0.20	1.000	0	97.8	90	110				

Sample ID **N037176-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.003	0.20	1.000	0	100	90	110				

Sample ID **N037176-005AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.001	0.20	1.000	0	100	90	110	0.9784	2.25	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037176-005ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID	N037145-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504721

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	660.540	10	250.0	414.5	98.4	90	110				

Sample ID	N037148-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504722

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0	108	90	110				

Sample ID	N037148-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0.09720	98.2	90	110				

Sample ID	N037148-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504727

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.054	0.20	1.000	0	105	90	110				

Sample ID	N037148-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Sample ID	N037148-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504729

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.052	0.20	1.000	0	105	90	110				

Sample ID	N037148-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504730

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.039	0.20	1.000	0.04020	99.8	90	110				

Sample ID	N037148-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504731

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.047	0.20	1.000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037148-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.065	0.20	1.000	0	107	90	110				

Sample ID **N037147-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.961	0.20	1.000	0	96.1	90	110				

Sample ID **N037181-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2518.560	40	1000	1526	99.2	90	110				

Sample ID **N037148-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID **N037148-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504753

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.953	0.20	1.000	0	95.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136358	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	PBW	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505972

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136358	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	LCSW	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505973

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.906	0.20	5.000	0	98.1	90	110				

Sample ID	N037374-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	ZZZZZZ	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505974

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.043	0.20	1.000	0	104	90	110				

Sample ID	N037374-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	ZZZZZZ	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505975

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.055	0.20	1.000	0	105	90	110				

Sample ID	N037356-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	ZZZZZZ	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505976

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037356-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505977**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.041	0.20	1.000	0	104	90	110				

Sample ID **N037376-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.076	1.0	5.000	0	102	90	110				

Sample ID **N037356-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.040	0.20	1.000	0	104	90	110	1.041	0.0865	20	

Sample ID **N037374-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N037148-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.081	0.20	1.000	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037184-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	ZZZZZZ	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505988

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.998	0.20	1.000	0	99.8	90	110				

Sample ID	N037186-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	ZZZZZZ	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505989

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.045	0.20	1.000	0	105	90	110				

Sample ID	N037355-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	ZZZZZZ	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505990

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110				

Sample ID	N037241-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136358
Client ID:	ZZZZZZ	Batch ID:	R136358	TestNo:	EPA 218.6			Analysis Date:	9/9/2019	SeqNo:	3505993

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.990	0.20	1.000	0	99.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75182	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	PBW	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510118

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75182	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	LCSW	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510119

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.221	1.0	10.00	0	102	85	115				

Sample ID	N037148-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510123

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.110	1.0	10.00	0	101	75	125				

Sample ID	N037148-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510124

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.165	1.0	10.00	0	102	75	125	10.11	0.542	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.66	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.42	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.31	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.32	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136435	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	PBW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510868

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136435	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	LCSW	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	N037097-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510871

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.226	0.050						0.2364	4.37	20	

Sample ID	N037107-005BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	14.132	0.50	5.000	7.904	125	75	125				

Sample ID	N037107-005BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136435
Client ID:	ZZZZZZ	Batch ID:	R136435	TestNo:	SM4500-NO3			Analysis Date:	9/12/2019	SeqNo:	3510874

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.750	0.50	5.000	7.904	96.9	75	125	14.13	10.3	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136491	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	PBW	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513045

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136491	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	LCSW	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513046

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.556	0.050	0.5000	0	111	85	115				

Sample ID	N037148-012EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513048

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.331	0.050						0.3220	2.73	20	

Sample ID	N037176-004BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513050

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	24.435	2.5	25.00	0	97.7	75	125				

Sample ID	N037176-004BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513051

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	26.250	2.5	25.00	0	105	75	125	24.44	7.16	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:17 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:22 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:47 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-003

Client Sample ID: C-MAR-D-Q319
Collection Date: 8/22/2019 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	55	18	20		ug/L	1	9/5/2019 01:26 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	290	18	20		ug/L	1	9/5/2019 03:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-004

Client Sample ID: C-MAR-S-Q319
Collection Date: 8/22/2019 8:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:30 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	220	18	20		ug/L	1	9/5/2019 04:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:35 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 04:09 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-006

Client Sample ID: C-NR1-S-Q319
Collection Date: 8/22/2019 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:39 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**				PrepDate:	**8/23/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 04:13 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:44 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 04:18 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:21 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 10:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-009

Client Sample ID: C-NR4-D-Q319
Collection Date: 8/22/2019 12:45:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:44 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 10:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-010

Client Sample ID: C-NR4-S-Q319
Collection Date: 8/22/2019 1:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**				PrepDate:	**8/28/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:48 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**				PrepDate:	**8/28/2019**	Analyst: **CEI**
Iron	91	18	20		ug/L	1	9/9/2019 10:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**				PrepDate:	**8/28/2019**	Analyst: **CEI**
Iron	34	18	20		ug/L	1	9/9/2019 08:52 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**				PrepDate:	**8/28/2019**	Analyst: **CEI**
Iron	35	18	20		ug/L	1	9/9/2019 10:57 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-012

Client Sample ID: RRB-Q319
Collection Date: 8/22/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:56 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	35	18	20		ug/L	1	9/9/2019 11:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75133	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75133	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503517

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	93.007	20	100.0	0	93.0	85	115				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503521

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	97.928	20	100.0	0	97.9	75	125	98.89	0.981	20	

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503583

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	98.893	20	100.0	0	98.9	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75187	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	PBW	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507172

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS1-75187	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	LCSW	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507173

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.563	20	100.0	0	101	85	115				

Sample ID	N037148-008B-MS1	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507179

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.689	20	100.0	0	103	75	125				

Sample ID	N037148-008B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507180

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.062	20	100.0	0	102	75	125	102.7	0.612	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-75132	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503470

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75132	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503471

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	89.419	20	100.0	0	89.4	85	115				

Sample ID	N037118-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503477

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.588	20	100.0	35.58	74.0	75	125				S

Sample ID	N037118-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503478

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.497	20	100.0	35.58	73.9	75	125	109.6	0.0835	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-75186	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	PBW	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507305

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75186	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	LCSW	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507306

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.617	20	100.0	0	103	85	115				

Sample ID	N037176-001E-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	ZZZZZZ	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507317

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1909.456	20	100.0	2097	-188	75	125				S

Sample ID	N037176-001E-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	ZZZZZZ	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507318

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1960.129	20	100.0	2097	-137	75	125	1909	2.62	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**N037118-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID:	**ZZZZZZ**	Batch ID: **75133**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/4/2019**	SeqNo: **3503520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	113.136	20	100.0	0	113	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	N037148-008B-PS	SampType:	PS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136383
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507178

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	112.248	20	100.0	0	112	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	N037118-001C-PS	SampType:	PS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503476

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.722	20	100.0	35.58	72.1	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	N037176-001E-PS	SampType:	PS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136384
Client ID:	ZZZZZZ	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507316

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1838.590	20	100.0	2097	-258	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 03:37 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 03:37 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 03:37 PM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/11/2019 03:37 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 09:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-002

Client Sample ID: C-CON-S-Q319
Collection Date: 8/22/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 04:02 PM
Barium	120	0.15	1.0		µg/L	1	9/11/2019 04:02 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:02 PM
Molybdenum	4.8	0.21	0.50		µg/L	1	9/11/2019 04:02 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 07:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:07 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:07 PM
Manganese	2.6	0.26	0.50		µg/L	1	9/11/2019 04:07 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:07 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 06:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:12 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:12 PM
Manganese	5.5	0.26	0.50		µg/L	1	9/11/2019 04:12 PM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/11/2019 04:12 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 04:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 04:26 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:26 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:26 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:26 PM
Selenium	1.5	0.36	0.50		µg/L	1	9/11/2019 07:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190911A** QC Batch: **75182** PrepDate: **8/28/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 04:31 PM
Barium	120	0.15	1.0		µg/L	1	9/11/2019 04:31 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:31 PM
Molybdenum	4.7	0.21	0.50		µg/L	1	9/11/2019 04:31 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/13/2019 02:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/11/2019 04:36 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:36 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:36 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:36 PM
Selenium	1.7	0.36	0.50		µg/L	1	9/11/2019 07:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/11/2019 04:41 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:41 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:41 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:41 PM
Selenium	1.4	0.36	0.50		µg/L	1	9/13/2019 02:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/11/2019 04:46 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:46 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:46 PM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/11/2019 04:46 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:51 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:51 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:51 PM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/11/2019 04:51 PM
Selenium	1.5	0.36	0.50		µg/L	1	9/11/2019 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:56 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:56 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:56 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:56 PM
Selenium	1.4	0.36	0.50		µg/L	1	9/11/2019 04:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-012

Client Sample ID: RRB-Q319
Collection Date: 8/22/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 05:01 PM
Barium	120	0.15	1.0		µg/L	1	9/11/2019 05:01 PM
Manganese	13	0.26	0.50		µg/L	1	9/11/2019 05:01 PM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/11/2019 05:01 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 08:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75182**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/28/2019**	RunNo: **136415**
Client ID: **PBW**	Batch ID: **75182**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/11/2019**	SeqNo: **3509944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-75182**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/28/2019**	RunNo: **136415**
Client ID: **LCSW**	Batch ID: **75182**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/11/2019**	SeqNo: **3509945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.205	0.10	10.00	0	102	85	115				
Barium	10.011	1.0	10.00	0	100	85	115				
Manganese	105.129	0.50	100.0	0	105	85	115				
Molybdenum	9.938	0.50	10.00	0	99.4	85	115				
Selenium	10.170	0.50	10.00	0	102	85	115				

Sample ID **N037148-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/28/2019**	RunNo: **136415**
Client ID: **ZZZZZZ**	Batch ID: **75182**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/11/2019**	SeqNo: **3509949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.051	0.10	10.00	2.402	106	75	125				
Barium	121.177	1.0	10.00	111.7	94.6	75	125				
Manganese	100.848	0.50	100.0	0	101	75	125				
Molybdenum	15.658	0.50	10.00	4.466	112	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037148-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3509950

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.746	0.10	10.00	2.402	103	75	125	13.05	2.36	20	
Barium	122.857	1.0	10.00	111.7	111	75	125	121.2	1.38	20	
Manganese	101.372	0.50	100.0	0	101	75	125	100.8	0.518	20	
Molybdenum	15.590	0.50	10.00	4.466	111	75	125	15.66	0.437	20	

Sample ID	N037148-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.449	0.50	10.00	1.609	98.4	75	125				

Sample ID	N037148-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510845

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.940	0.50	10.00	1.609	93.3	75	125	11.45	4.54	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: Y N; 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present; 5. IR number 2
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Global ID: Specify State:
Submitted By: Raggie Tap	Phone: Fax: 916-786-3302	Phone: 949-727-1400, ext 200 Fax:	6. Method of Cooling: ICE
Title: Field Tech	Sampled By: Nara Tap		Sample Temp: 3.9 / 1.9
Signature: Date: 8/22/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 8/22/19		Tracking No.:
Project Name: PG&E Topock - RMP			
Project Number: 30019131			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Sr (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite as Nitrogen (SM4500N03); H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037148-01	C-CON-D-Q319	8/22/2019	10:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
2	-02	C-CON-S-Q319	8/22/2019	10:20		X		X		X	X		X	X			X	X	E	7	P	BNS	
3	-03	C-MAR-D-Q319	8/22/2019	8:30		X		X		X	X		X	X			X	X	E	7	P	BNS	
4	-04	C-MAR-S-Q319	8/22/2019	8:45		X		X		X	X		X	X			X	X	E	7	P	BNS	
5	-05	C-NR1-D-Q319	8/22/2019	10:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
6	-06	C-NR1-S-Q319	8/22/2019	11:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
7	-07	C-NR3-D-Q319	8/22/2019	12:00		X		X		X	X		X	X			X	X	E	7	P	BNS	
8	-08	C-NR3-S-Q319	8/22/2019	12:15		X		X		X	X		X	X			X	X	E	7	P	BNS	
9	-09	C-NR4-D-Q319	8/22/2019	12:45		X		X		X	X		X	X			X	X	E	7	P	BNS	
10	-10	C-NR4-S-Q319	8/22/2019	13:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
11	-11	R-19-Q319	8/22/2019	9:10		X		X		X	X		X	X			X	X	E	7	P	BNS	
12	-12	RRB-Q319	8/22/2019	9:35		X		X		X	X		X	X			X	X	E	7	P	BNS	
13																							
14																							

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Raggie Tap	8/22/19 1600	JERDAN	8/22/19 1600
JORDAN	8/22/19 1907	JORDAN	8/22/19 1907

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Reggie Tap	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech	Sampled By: Nara Tej		
Signature: RG. Date: 8/22/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 8/22/19		
Project Name: PG&E Topock - RMP			
Project Number: 30019131			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number		✓
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 3.9 / 1.9		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 ml poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
	N037148-13	AmbientBlank-3-Q319	8/22/2019	13:15			X												E	1	P	B	Hold

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
RG. Reggie Tap	8/22/19 1600	JORDAN	8/22/19 1600
JORDAN	8/22/19 1907	JORDAN	8/22/19 1907

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/22/2019	Workorder:	N037148
Rep sample Temp (Deg C):	3.9/1.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 8/28/2019

Reviewed By: LG 090619

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-001A	C-CON-D-Q319	8/22/2019 10:05:00 AM	9/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-001B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-001C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-001D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-001E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-002A	C-CON-S-Q319	8/22/2019 10:20:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-002B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-002C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-002D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-002D	C-CON-S-Q319	8/22/2019 10:20:00 AM	9/6/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-002E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-003A	C-MAR-D-Q319	8/22/2019 8:30:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-003B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-003C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-003D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-003E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-004A	C-MAR-S-Q319	8/22/2019 8:45:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-004B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-004B	C-MAR-S-Q319	8/22/2019 8:45:00 AM	9/6/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-004C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-004D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-004E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-005A	C-NR1-D-Q319	8/22/2019 10:50:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-005B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-005C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-005D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-005E	C-NR1-D-Q319	8/22/2019 10:50:00 AM	9/6/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-006A	C-NR1-S-Q319	8/22/2019 11:05:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-006B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-006C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-006D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-006E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-007A	C-NR3-D-Q319	8/22/2019 12:00:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-007B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-007C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-007C	C-NR3-D-Q319	8/22/2019 12:00:00 PM	9/6/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-007D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-007E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-008A	C-NR3-S-Q319	8/22/2019 12:15:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-008B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-008C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-008D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-008E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-009A	C-NR4-D-Q319	8/22/2019 12:45:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-009B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-009B	C-NR4-D-Q319	8/22/2019 12:45:00 PM	9/6/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-009C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-009D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-009E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-010A	C-NR4-S-Q319	8/22/2019 1:05:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-010B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-010C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-010D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-010D	C-NR4-S-Q319	8/22/2019 1:05:00 PM	9/6/2019	Groundwater		Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-010E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-011A	R-19-Q319	8/22/2019 9:10:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-011B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-011C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-011D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-011E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-012A	RRB-Q319	8/22/2019 9:35:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-012B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-012C	RRB-Q319	8/22/2019 9:35:00 AM	9/6/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-012D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-012E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-013A	AmbientBlank-3-Q319	8/22/2019 1:15:00 PM					☐	☐	☐	WW
N037148-014A	FOLDER	9/6/2019	9/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - RMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037148

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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September 17, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037148

RE: PG&E Topock - RMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcaw for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Sample N037148-013 (AmbientBlank-3-Q319) was not analyzed as per COC.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N037118-001C-MS and N037118-001C-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N037176-001E-MS and N037176-001E-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *17-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037148
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037148-001A	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001B	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001C	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001D	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-001E	C-CON-D-Q319	Groundwater	8/22/2019 10:05:00 AM	8/22/2019	9/17/2019
N037148-002A	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002B	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002C	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002D	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-002E	C-CON-S-Q319	Groundwater	8/22/2019 10:20:00 AM	8/22/2019	9/17/2019
N037148-003A	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003B	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003C	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003D	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-003E	C-MAR-D-Q319	Groundwater	8/22/2019 8:30:00 AM	8/22/2019	9/17/2019
N037148-004A	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004B	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004C	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004D	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-004E	C-MAR-S-Q319	Groundwater	8/22/2019 8:45:00 AM	8/22/2019	9/17/2019
N037148-005A	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005B	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005C	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005D	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-005E	C-NR1-D-Q319	Groundwater	8/22/2019 10:50:00 AM	8/22/2019	9/17/2019
N037148-006A	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-006B	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-006C	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-006D	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037148
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037148-006E	C-NR1-S-Q319	Groundwater	8/22/2019 11:05:00 AM	8/22/2019	9/17/2019
N037148-007A	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007B	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007C	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007D	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-007E	C-NR3-D-Q319	Groundwater	8/22/2019 12:00:00 PM	8/22/2019	9/17/2019
N037148-008A	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008B	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008C	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008D	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-008E	C-NR3-S-Q319	Groundwater	8/22/2019 12:15:00 PM	8/22/2019	9/17/2019
N037148-009A	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009B	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009C	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009D	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-009E	C-NR4-D-Q319	Groundwater	8/22/2019 12:45:00 PM	8/22/2019	9/17/2019
N037148-010A	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010B	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010C	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010D	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-010E	C-NR4-S-Q319	Groundwater	8/22/2019 1:05:00 PM	8/22/2019	9/17/2019
N037148-011A	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011B	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011C	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011D	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-011E	R-19-Q319	Groundwater	8/22/2019 9:10:00 AM	8/22/2019	9/17/2019
N037148-012A	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-012B	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-012C	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-012D	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, 30019131
Lab Order: N037148
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037148-012E	RRB-Q319	Groundwater	8/22/2019 9:35:00 AM	8/22/2019	9/17/2019
N037148-013A	AmbientBlank-3-Q319	Groundwater	8/22/2019 1:15:00 PM	8/22/2019	9/17/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190823B**	QC Batch: **R136023**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	8/23/2019 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N037144-004BDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11200.000	0.10						11170	0.268	2	

Sample ID	**N037148-007DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**136023**
Client ID:	**ZZZZZZ**	Batch ID:	**R136023**	TestNo:	**EPA 120.1**			Analysis Date:	**8/23/2019**	SeqNo:	**3489310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	878.000	0.10						877.0	0.114	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-001

Client Sample ID: C-CON-D-Q319
Collection Date: 8/22/2019 10:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-002

Client Sample ID: C-CON-S-Q319
Collection Date: 8/22/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-005

Client Sample ID: C-NR1-D-Q319
Collection Date: 8/22/2019 10:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-009

Client Sample ID: C-NR4-D-Q319
Collection Date: 8/22/2019 12:45:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-010

Client Sample ID: C-NR4-S-Q319
Collection Date: 8/22/2019 1:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-011

Client Sample ID: R-19-Q319
Collection Date: 8/22/2019 9:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-012

Client Sample ID: RRB-Q319
Collection Date: 8/22/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190823A**	QC Batch: **R136022**			PrepDate:			Analyst: **LR**
pH	7.7	0.10	0.10	H	pH Units	1	8/23/2019 10:00 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	8/23/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037145-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **136022**
Client ID: **ZZZZZZ** Batch ID: **R136022** TestNo: **SM4500-H+B** Analysis Date: **8/23/2019** SeqNo: **3489280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.470	0.10						7.450	0.268	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID **N037148-012DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **136022**
Client ID: **ZZZZZZ** Batch ID: **R136022** TestNo: **SM4500-H+B** Analysis Date: **8/23/2019** SeqNo: **3489294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.730	0.10						7.710	0.259	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**			PrepDate:	**8/26/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190826B**	QC Batch: **75151**				PrepDate:	**8/26/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	12	5.0	5.0		mg/L	1	8/26/2019 08:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E** QC Batch: **75171**				PrepDate:	**8/27/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	12	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E** QC Batch: **75171** PrepDate: **8/27/2019** Analyst: **LR**							
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**				PrepDate:	**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**				PrepDate:	**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**				PrepDate:	**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**				PrepDate:	**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**				PrepDate:	**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**				PrepDate:	**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190827E**	QC Batch: **75171**				PrepDate:	**8/27/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	8/27/2019 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	**LCS-75151**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/26/2019**	RunNo: **136100**
Client ID:	**LCSW**	Batch ID: **75151**	TestNo: **SM2540D**		Analysis Date: **8/26/2019**	SeqNo: **3492140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	947.000	10	1000	0	94.7	80	120				

Sample ID	**MB-75151**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/26/2019**	RunNo: **136100**
Client ID:	**PBW**	Batch ID: **75151**	TestNo: **SM2540D**		Analysis Date: **8/26/2019**	SeqNo: **3492141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	**N037148-001DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/26/2019**	RunNo: **136100**
Client ID:	**ZZZZZZ**	Batch ID: **75151**	TestNo: **SM2540D**		Analysis Date: **8/26/2019**	SeqNo: **3492150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-75171	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/27/2019	RunNo:	136132
Client ID:	LCSW	Batch ID:	75171	TestNo:	SM2540D			Analysis Date:	8/27/2019	SeqNo:	3493898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	962.000	10	1000	0	96.2	80	120				

Sample ID	MB-75171	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/27/2019	RunNo:	136132
Client ID:	PBW	Batch ID:	75171	TestNo:	SM2540D			Analysis Date:	8/27/2019	SeqNo:	3493899

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N037148-004DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/27/2019	RunNo:	136132
Client ID:	ZZZZZZ	Batch ID:	75171	TestNo:	SM2540D			Analysis Date:	8/27/2019	SeqNo:	3493901

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	11.500	5.0						12.00	4.26	5	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:13 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 03:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:23 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:32 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:42 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 06:51 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:01 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:10 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:29 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A** QC Batch: **R136330**				PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 07:38 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A** QC Batch: **75182**				PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190909A**	QC Batch: **R136358**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/9/2019 05:39 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 04:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190903A**	QC Batch: **R136330**			PrepDate:			Analyst: **HH**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/3/2019 08:45 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/11/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136330	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	PBW	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504709

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136330	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	LCSW	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504710

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.873	0.20	5.000	0	97.5	90	110				

Sample ID	N037176-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504711

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.978	0.20	1.000	0	97.8	90	110				

Sample ID	N037176-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504712

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.003	0.20	1.000	0	100	90	110				

Sample ID	N037176-005AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504717

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.001	0.20	1.000	0	100	90	110	0.9784	2.25	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037176-005ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136330**		
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**				SeqNo: **3504719**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N037145-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136330**		
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**				SeqNo: **3504721**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	660.540	10	250.0	414.5	98.4	90	110				

Sample ID **N037148-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136330**		
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**				SeqNo: **3504722**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0	108	90	110				

Sample ID **N037148-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136330**		
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**				SeqNo: **3504723**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.079	0.20	1.000	0.09720	98.2	90	110				

Sample ID **N037148-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **136330**		
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**				SeqNo: **3504724**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037148-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.054	0.20	1.000	0	105	90	110				

Sample ID **N037148-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Sample ID **N037148-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.052	0.20	1.000	0	105	90	110				

Sample ID **N037148-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.039	0.20	1.000	0.04020	99.8	90	110				

Sample ID **N037148-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136330**
Client ID: **ZZZZZZ** Batch ID: **R136330** TestNo: **EPA 218.6** Analysis Date: **9/3/2019** SeqNo: **3504731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.047	0.20	1.000	0	105	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037148-010AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.065	0.20	1.000	0	107	90	110				

Sample ID **N037147-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.961	0.20	1.000	0	96.1	90	110				

Sample ID **N037181-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2518.560	40	1000	1526	99.2	90	110				

Sample ID **N037148-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID **N037148-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037148-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136330
Client ID:	ZZZZZZ	Batch ID:	R136330	TestNo:	EPA 218.6			Analysis Date:	9/3/2019	SeqNo:	3504753

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.953	0.20	1.000	0	95.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R136358**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **PBW**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R136358**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **LCSW**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.906	0.20	5.000	0	98.1	90	110				

Sample ID **N037374-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ZZZZZZ**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505974**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.043	0.20	1.000	0	104	90	110				

Sample ID **N037374-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ZZZZZZ**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505975**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.055	0.20	1.000	0	105	90	110				

Sample ID **N037356-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ZZZZZZ**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505976**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037356-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505977**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.041	0.20	1.000	0	104	90	110				

Sample ID **N037376-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.076	1.0	5.000	0	102	90	110				

Sample ID **N037356-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.040	0.20	1.000	0	104	90	110	1.041	0.0865	20	

Sample ID **N037374-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N037148-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.081	0.20	1.000	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037184-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505988**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.998	0.20	1.000	0	99.8	90	110				

Sample ID **N037186-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.045	0.20	1.000	0	105	90	110				

Sample ID **N037355-001BMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110				

Sample ID **N037241-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136358**
Client ID: **ZZZZZZ** Batch ID: **R136358** TestNo: **EPA 218.6** Analysis Date: **9/9/2019** SeqNo: **3505993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.990	0.20	1.000	0	99.0	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75182	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	PBW	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510118

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75182	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	LCSW	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510119

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.221	1.0	10.00	0	102	85	115				

Sample ID	N037148-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510123

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.110	1.0	10.00	0	101	75	125				

Sample ID	N037148-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510124

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.165	1.0	10.00	0	102	75	125	10.11	0.542	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:20:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.66	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:45:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 11:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:15:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.42	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 1:05:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190912B**	QC Batch: **R136435**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.31	0.032	0.050		mg/L	1	9/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.32	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R136435	**MBLK**	**4500N03F_W**	**mg/L**		**136435**
Client ID: **PBW**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R136435	**LCS**	**4500N03F_W**	**mg/L**		**136435**
Client ID: **LCSW**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037097-001DDUP	**DUP**	**4500N03F_W**	**mg/L**		**136435**
Client ID: **ZZZZZZ**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.226	0.050						0.2364	4.37	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037107-005BMS	**MS**	**4500N03F_W**	**mg/L**		**136435**
Client ID: **ZZZZZZ**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	14.132	0.50	5.000	7.904	125	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N037107-005BMSD	**MSD**	**4500N03F_W**	**mg/L**		**136435**
Client ID: **ZZZZZZ**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.750	0.50	5.000	7.904	96.9	75	125	14.13	10.3	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R136491**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **PBW**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **LCS-R136491**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **LCSW**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.556	0.050	0.5000	0	111	85	115				

Sample ID **N037148-012EDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **ZZZZZZ**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.331	0.050						0.3220	2.73	20	

Sample ID **N037176-004BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **ZZZZZZ**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	24.435	2.5	25.00	0	97.7	75	125				

Sample ID **N037176-004BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **ZZZZZZ**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	26.250	2.5	25.00	0	105	75	125	24.44	7.16	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:05:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:17 AM
TOTAL METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:42 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-002

Client Sample ID: C-CON-S-Q319
Collection Date: 8/22/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:22 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 03:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-003

Client Sample ID: C-MAR-D-Q319
Collection Date: 8/22/2019 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	55	18	20		ug/L	1	9/5/2019 01:26 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	290	18	20		ug/L	1	9/5/2019 03:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-004

Client Sample ID: C-MAR-S-Q319
Collection Date: 8/22/2019 8:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:30 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	220	18	20		ug/L	1	9/5/2019 04:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:35 AM
TOTAL METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 04:09 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified	
	DO	Surrogate Diluted Out			

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-006

Client Sample ID: C-NR1-S-Q319
Collection Date: 8/22/2019 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:39 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 04:13 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:00:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75133**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 01:44 AM
TOTAL METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190904E**	QC Batch: **75132**			PrepDate:	**8/23/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/5/2019 04:18 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-008

Client Sample ID: C-NR3-S-Q319
Collection Date: 8/22/2019 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:21 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 10:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-009

Client Sample ID: C-NR4-D-Q319
Collection Date: 8/22/2019 12:45:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:44 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 10:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-010

Client Sample ID: C-NR4-S-Q319
Collection Date: 8/22/2019 1:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:48 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	91	18	20		ug/L	1	9/9/2019 10:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-011

Client Sample ID: R-19-Q319
Collection Date: 8/22/2019 9:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	34	18	20		ug/L	1	9/9/2019 08:52 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	35	18	20		ug/L	1	9/9/2019 10:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-012

Client Sample ID: RRB-Q319
Collection Date: 8/22/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909B**	QC Batch: **75187**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	ND	18	20		ug/L	1	9/9/2019 08:56 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190909C**	QC Batch: **75186**			PrepDate:	**8/28/2019**		Analyst: **CEI**
Iron	35	18	20		ug/L	1	9/9/2019 11:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75133	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75133	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/4/2019	SeqNo:	3503517

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	93.007	20	100.0	0	93.0	85	115				

Sample ID	N037118-001B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503521

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	97.928	20	100.0	0	97.9	75	125	98.89	0.981	20	

Sample ID	N037118-001B-MS	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75133	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503583

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	98.893	20	100.0	0	98.9	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-75187	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	PBW	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507172

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS1-75187	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	LCSW	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507173

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.563	20	100.0	0	101	85	115				

Sample ID	N037148-008B-MS1	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507179

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.689	20	100.0	0	103	75	125				

Sample ID	N037148-008B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136383
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507180

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.062	20	100.0	0	102	75	125	102.7	0.612	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-75132	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	PBW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503470

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75132	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	LCSW	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503471

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	89.419	20	100.0	0	89.4	85	115				

Sample ID	N037118-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503477

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.588	20	100.0	35.58	74.0	75	125				S

Sample ID	N037118-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/23/2019	RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503478

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.497	20	100.0	35.58	73.9	75	125	109.6	0.0835	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-75186	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	PBW	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507305

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-75186	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	LCSW	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507306

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.617	20	100.0	0	103	85	115				

Sample ID	N037176-001E-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	ZZZZZZ	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507317

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1909.456	20	100.0	2097	-188	75	125				S

Sample ID	N037176-001E-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/28/2019	RunNo:	136384
Client ID:	ZZZZZZ	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507318

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1960.129	20	100.0	2097	-137	75	125	1909	2.62	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**N037118-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID:	**ZZZZZZ**	Batch ID: **75133**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/4/2019**	SeqNo: **3503520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	113.136	20	100.0	0	113	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	N037148-008B-PS	SampType:	PS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136383
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507178

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	112.248	20	100.0	0	112	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	N037118-001C-PS	SampType:	PS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136301
Client ID:	ZZZZZZ	Batch ID:	75132	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/5/2019	SeqNo:	3503476

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.722	20	100.0	35.58	72.1	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	N037176-001E-PS	SampType:	PS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136384
Client ID:	ZZZZZZ	Batch ID:	75186	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507316

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1838.590	20	100.0	2097	-258	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-001

Client Sample ID: C-CON-D-Q319
Collection Date: 8/22/2019 10:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 03:37 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 03:37 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 03:37 PM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/11/2019 03:37 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 09:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-002

Client Sample ID: C-CON-S-Q319
Collection Date: 8/22/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 04:02 PM
Barium	120	0.15	1.0		µg/L	1	9/11/2019 04:02 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:02 PM
Molybdenum	4.8	0.21	0.50		µg/L	1	9/11/2019 04:02 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 07:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 8:30:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:07 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:07 PM
Manganese	2.6	0.26	0.50		µg/L	1	9/11/2019 04:07 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:07 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 06:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-004

Client Sample ID: C-MAR-S-Q319
Collection Date: 8/22/2019 8:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:12 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:12 PM
Manganese	5.5	0.26	0.50		µg/L	1	9/11/2019 04:12 PM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/11/2019 04:12 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 04:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 10:50:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**				PrepDate:	**8/28/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 04:26 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:26 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:26 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:26 PM
Selenium	1.5	0.36	0.50		µg/L	1	9/11/2019 07:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-006

Client Sample ID: C-NR1-S-Q319
Collection Date: 8/22/2019 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	9/11/2019 04:31 PM
Barium	120	0.15	1.0		µg/L	1	9/11/2019 04:31 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:31 PM
Molybdenum	4.7	0.21	0.50		µg/L	1	9/11/2019 04:31 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/13/2019 02:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-007

Client Sample ID: C-NR3-D-Q319
Collection Date: 8/22/2019 12:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/11/2019 04:36 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:36 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:36 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:36 PM
Selenium	1.7	0.36	0.50		µg/L	1	9/11/2019 07:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-008

Client Sample ID: C-NR3-S-Q319
Collection Date: 8/22/2019 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/11/2019 04:41 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:41 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:41 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:41 PM
Selenium	1.4	0.36	0.50		µg/L	1	9/13/2019 02:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 12:45:00 PM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**				PrepDate:	**8/28/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	9/11/2019 04:46 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:46 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:46 PM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/11/2019 04:46 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037148
Project: PG&E Topock - RMP, 30019131
Lab ID: N037148-010

Client Sample ID: C-NR4-S-Q319
Collection Date: 8/22/2019 1:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**			PrepDate:		**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:51 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:51 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:51 PM
Molybdenum	4.4	0.21	0.50		µg/L	1	9/11/2019 04:51 PM
Selenium	1.5	0.36	0.50		µg/L	1	9/11/2019 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:10:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190911A**	QC Batch: **75182**				PrepDate:	**8/28/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 04:56 PM
Barium	110	0.15	1.0		µg/L	1	9/11/2019 04:56 PM
Manganese	ND	0.26	0.50		µg/L	1	9/11/2019 04:56 PM
Molybdenum	4.6	0.21	0.50		µg/L	1	9/11/2019 04:56 PM
Selenium	1.4	0.36	0.50		µg/L	1	9/11/2019 04:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q319
Lab Order:	N037148	**Collection Date:**	8/22/2019 9:35:00 AM
Project:	PG&E Topock - RMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037148-012		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190911A** QC Batch: **75182** PrepDate: **8/28/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.3	0.081	0.10		µg/L	1	9/11/2019 05:01 PM
Barium	120	0.15	1.0		µg/L	1	9/11/2019 05:01 PM
Manganese	13	0.26	0.50		µg/L	1	9/11/2019 05:01 PM
Molybdenum	4.5	0.21	0.50		µg/L	1	9/11/2019 05:01 PM
Selenium	1.6	0.36	0.50		µg/L	1	9/11/2019 08:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75182** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/28/2019** RunNo: **136415**
Client ID: **PBW** Batch ID: **75182** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/11/2019** SeqNo: **3509944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-75182** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/28/2019** RunNo: **136415**
Client ID: **LCSW** Batch ID: **75182** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/11/2019** SeqNo: **3509945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.205	0.10	10.00	0	102	85	115				
Barium	10.011	1.0	10.00	0	100	85	115				
Manganese	105.129	0.50	100.0	0	105	85	115				
Molybdenum	9.938	0.50	10.00	0	99.4	85	115				
Selenium	10.170	0.50	10.00	0	102	85	115				

Sample ID **N037148-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/28/2019** RunNo: **136415**
Client ID: **ZZZZZZ** Batch ID: **75182** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/11/2019** SeqNo: **3509949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.051	0.10	10.00	2.402	106	75	125				
Barium	121.177	1.0	10.00	111.7	94.6	75	125				
Manganese	100.848	0.50	100.0	0	101	75	125				
Molybdenum	15.658	0.50	10.00	4.466	112	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037148-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3509950

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.746	0.10	10.00	2.402	103	75	125	13.05	2.36	20	
Barium	122.857	1.0	10.00	111.7	111	75	125	121.2	1.38	20	
Manganese	101.372	0.50	100.0	0	101	75	125	100.8	0.518	20	
Molybdenum	15.590	0.50	10.00	4.466	111	75	125	15.66	0.437	20	

Sample ID	N037148-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.449	0.50	10.00	1.609	98.4	75	125				

Sample ID	N037148-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/28/2019	RunNo:	136415
Client ID:	ZZZZZZ	Batch ID:	75182	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	9/11/2019	SeqNo:	3510845

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.940	0.50	10.00	1.609	93.3	75	125	11.45	4.54	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Global ID:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Specify State:
Submitted By: Raggie Tap	Phone: Fax: 916-786-3302	Phone: 949-727-1400, ext 200 Fax:	
Title: Field Tech			
Signature: Date: 8/22/19	Sampled By: Nara Tap		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*		
Project Name: PG&E Topock - RMP	Signature: Date: 8/22/19		
Project Number: 30019131			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: ICE; Sample Temp: 3.9 / 1.9; Courier:; Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Sr (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite as Nitrogen (SM4500N03); H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037148-01	C-CON-D-Q319	8/22/2019	10:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
2	-02	C-CON-S-Q319	8/22/2019	10:20		X		X		X	X		X	X			X	X	E	7	P	BNS	
3	-03	C-MAR-D-Q319	8/22/2019	8:30		X		X		X	X		X	X			X	X	E	7	P	BNS	
4	-04	C-MAR-S-Q319	8/22/2019	8:45		X		X		X	X		X	X			X	X	E	7	P	BNS	
5	-05	C-NR1-D-Q319	8/22/2019	10:50		X		X		X	X		X	X			X	X	E	7	P	BNS	
6	-06	C-NR1-S-Q319	8/22/2019	11:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
7	-07	C-NR3-D-Q319	8/22/2019	12:00		X		X		X	X		X	X			X	X	E	7	P	BNS	
8	-08	C-NR3-S-Q319	8/22/2019	12:15		X		X		X	X		X	X			X	X	E	7	P	BNS	
9	-09	C-NR4-D-Q319	8/22/2019	12:45		X		X		X	X		X	X			X	X	E	7	P	BNS	
10	-10	C-NR4-S-Q319	8/22/2019	13:05		X		X		X	X		X	X			X	X	E	7	P	BNS	
11	-11	R-19-Q319	8/22/2019	9:10		X		X		X	X		X	X			X	X	E	7	P	BNS	
12	-12	RRB-Q319	8/22/2019	9:35		X		X		X	X		X	X			X	X	E	7	P	BNS	
13																							
14																							

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Raggie Tap	8/22/19 1600	JERDAN	8/22/19 1600
JORDAN	8/22/19 1907	JORDAN	8/22/19 1907

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Reggie Tap	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech	Sampled By: Nara Tej		
Signature: Date: 8/22/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 8/22/19		
Project Name: PG&E Topock - RMP			
Project Number: 30019131			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present	✓	
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 3.9 / 1.9		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	3x250 mL poly	250 ml Poly	3x500mL poly	3x500mL poly	3x500mL poly	500 mL poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	125 ml poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
						Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba	Total metals (SW6010B); HNO3 Fe	Anions (E300.0); Br, Cl, SO4	Specific Conductance (E120.1)	pH (SM4500HB)	TDS (SM2540C)	Alkalinity (Total, reported as CaCO3) (SM2320B)	TSS (SM2540)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4					
																			Courier:				
																			Tracking No.:				
	N037148-13	AmbientBlank-3-Q319	8/22/2019	13:15			X												E	1	P	B	Hold

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Reggie Tap	8/22/19 1600	JORDAN	8/22/19 1600
JORDAN	8/22/19 1907	JORDAN	8/22/19 1907

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/22/2019	Workorder:	N037148
Rep sample Temp (Deg C):	3.9/1.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 8/28/2019

Reviewed By: LG 090619

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-001A	C-CON-D-Q319	8/22/2019 10:05:00 AM	9/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-001B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-001C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-001D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-001E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-002A	C-CON-S-Q319	8/22/2019 10:20:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-002B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-002C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-002D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-002D	C-CON-S-Q319	8/22/2019 10:20:00 AM	9/6/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-002E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-003A	C-MAR-D-Q319	8/22/2019 8:30:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-003B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-003C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-003D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-003E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-004A	C-MAR-S-Q319	8/22/2019 8:45:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-004B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-004B	C-MAR-S-Q319	8/22/2019 8:45:00 AM	9/6/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-004C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-004D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-004E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-005A	C-NR1-D-Q319	8/22/2019 10:50:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-005B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-005C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-005D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-005E	C-NR1-D-Q319	8/22/2019 10:50:00 AM	9/6/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-006A	C-NR1-S-Q319	8/22/2019 11:05:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-006B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-006C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-006D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-006E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-007A	C-NR3-D-Q319	8/22/2019 12:00:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-007B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-007C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-007C	C-NR3-D-Q319	8/22/2019 12:00:00 PM	9/6/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-007D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-007E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-008A	C-NR3-S-Q319	8/22/2019 12:15:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-008B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-008C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-008D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-008E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-009A	C-NR4-D-Q319	8/22/2019 12:45:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-009B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-009B	C-NR4-D-Q319	8/22/2019 12:45:00 PM	9/6/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-009C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-009D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-009E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-010A	C-NR4-S-Q319	8/22/2019 1:05:00 PM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-010B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-010C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-010D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-010D	C-NR4-S-Q319	8/22/2019 1:05:00 PM	9/6/2019	Groundwater		Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-010E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-011A	R-19-Q319	8/22/2019 9:10:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-011B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037148-011C			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-011D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-011E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-012A	RRB-Q319	8/22/2019 9:35:00 AM	9/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037148-012B			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			9/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-Aug-19

WorkOrder: N037148

Client ID: ARCUS02

Project: PG&E Topock - RMP, 30019131 **QC Level:** Level IV **Date Received:** 8/22/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037148-012C	RRB-Q319	8/22/2019 9:35:00 AM	9/6/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/6/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N037148-012D			9/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/6/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/6/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/6/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N037148-012E			9/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037148-013A	AmbientBlank-3-Q319	8/22/2019 1:15:00 PM					☐	☐	☐	WW
N037148-014A	FOLDER	9/6/2019	9/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB
			9/6/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037148

NAME	TEST METHOD
Claire Ignacio	EPA 6010B_Dissolved, EPA 6010B, EPA 6020_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540D
Heather Hammond	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136023 **Analyst:** LSR

ASSET #: N037148 **Date Analyzed:** 23-Aug

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Alicia Ramit Date: 8/30/2019

2nd Level Reviewer: Nancy 9/17/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 8/23/19 1055

Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 mS/cm	CINV-190516A	10.06 @22.4°C	% Rec: (90-110%)
1410	190724D	1408 @22.3°C	
9985	190724F	9940 @22.3°C	
99999	190613A	100900 @22.2°C	

	Sample ID	Matrix	Reading	Comments
1	NB7144-1B	H_2O	15290 @23.1°C	
2	2B		13700 @22.9°C	
3	3B		12810 @22.8°C	
4	4B		11170 @22.8°C	
5	4BDUP		11200 @23.0°C	
6	NB7145-1C		2370* @24.0°C	
7	2C		6930 @23.7°C	
8	NB7148-1D		869 @23.3°C	
9	2D		860 @22.9°C	
10	3D		859 @22.8°C	
Dup	4D		865 @22.8°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 8/30/2019

Date:

Analyst: CONT'D

Standard	Std ID	Reading	Comments
1413 mS/cm	CINV-190313A	1425 @25.5°C	% Rec: (90-110%)
10000	B	9940 @25.4°C	
99999	CINV-190524A	98000 @25.6°C	

	Sample ID	Matrix	Reading	Comments
1	NB7148-5D	H_2O	874 @23.4°C	
2	6D		873 @23.3°C	
3	7D		877 @23.1°C	
4	7DDUP		878 @23.1°C	
5	8D		871 @23.5°C	
6	9D		875 @23.3°C	
7	10D		881 @23.4°C	
8	11D		879 @23.6°C	
9	12D		896 @23.6°C	
10	1413 mS/cm	CINV-190313A	1424 @25.7°C	
Dup	10000	B	9950 @26.8°C	RPD Criteria: 2%
	Std Chk 99999	CINV-190524A	98000 @26.9°C	% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136022 **Instrument ID:** pH meter

ASSET #: N037148 **Analyst:** LSR

Date Analyzed: 23-Aug

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?	X					
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 8/29/2019

2nd Level Reviewer 9/17/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 8/27/19 1000
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CNW-190724H	7.03 @25°C	
Buffer 4	190724J	4.03 @25°C	
Buffer 10	190801A	10.02 @25°C	
Slope		98.5%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB57145-1C	H2O	7.45 @25°C	
2	1CDUP		7.47 @25°C	
3	2C		7.15 @25°C	
4	NB57148-1D		8.00 @25°C	
5	2D		7.98 @25°C	
6	3D		8.06 @25°C	
7	4D		7.99 @25°C	
8	5D		7.99 @25°C	
9	6D		7.98 @25°C	
10	7D		7.98 @25°C	
~~Dup~~	8D		7.91 @25°C	Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CNW-190422C	6.96 @25°C	Accept: +/-0.05 pH units from expected value

Silvia Ramit 8/29/2019

Date:
Analyst: CONT'D

Standard	Std ID	pH	Comments
Buffer 7			
Buffer 4			
Buffer 10			
Slope			Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB57148-9D	H2O	7.93 @25°C	
2	10D		7.96 @25°C	
3	11D		8.03 @25°C	
4	12D		7.71 @25°C	
5	12DDUP		7.73 @25°C	
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CNW-190422C	6.97 @25°C	Accept: +/-0.05 pH units from expected value

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SM 2540D

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75151/75171 **Analyst:** LSR

ASSET #: N037148 **Date Analyzed:** 8/26,8/27/19

Method: EPA 160.2 / SM 2540D

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/3/2019

2nd Level Reviewer: 9/17/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540D
TEST NAME: Total Non-Filterable Residue
MATRIX: Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N037148-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.4027- 1.4023) *1000000}{200}$$

= 2 mg/L

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Julia Ramit 9/3/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 8:47:28 A**
Prep End Date: **8/26/2019 2:45:00 P**

Reviewed/ Date: 9/17/2019
Initials/ Date: Lilia Ramit 9/3/2019

Prep Batch **75151** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75151	Water		100	☐	100	1.000		
MB-75151	Water		100	☐	100	1.000		
N037098-001B	Water		200	☐	100	0.500		
N037099-001D	Wastewater		200	☐	100	0.500		
N037100-001A	Wastewater		200	☐	100	0.500		
N037118-011D	Groundwater		200	☐	100	0.500		
N037118-012D	Groundwater		200	☐	100	0.500		
N037118-013D	Groundwater		200	☐	100	0.500		
N037125-001B	Water		100	☐	100	1.000		
N037148-001D	Groundwater		200	☐	100	0.500		
N037148-001D-DU	Groundwater		200	☐	100	0.500		
N037148-002D	Groundwater		200	☐	100	0.500		
N037148-003D	Groundwater		200	☐	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10416	Glass Fiber Filter, 47mm
10417	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190814C	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/26/2019 8:47:28 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 9/3/2019

Prep Factor Units
mL / mL

Prep Batch **75151** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75151	Water	lwst1908140	100	☐	100	1.000		
MB-75151	Water		100	☐	100	1.000		
N037098-001B	Water		100 /200	☐	100	1.000		
N037099-001D	Wastewater		100 /200	☐	100	1.000		
N037100-001A	Wastewater		100 /200	☐	100	1.000		
N037118-011D	Groundwater		100 /200	☐	100	1.000		
N037118-012D	Groundwater		100 /200	☐	100	1.000		
N037118-013D	Groundwater		100 /200	☐	100	1.000		
N037125-001B	Water		✓100	☐	100	1.000		
N037148-001D	Groundwater		100 /200	☐	100	1.000		
N037148-001D-DU	Groundwater		100 /200	☐	100	1.000		
N037148-002D	Groundwater		100 /200	☐	100	1.000		
N037148-003D	Groundwater		100 /200	☐	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10416
10417

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/27/2019 11:23:21**
Prep End Date: **8/27/2019 5:15:00 P**

Reviewed/ Date: 9/17/2019
Initials/ Date: Lilia Ramit 9/3/2019

Prep Batch **75171** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL** Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75171	Water		100	☐	100	1.000		
MB-75171	Water		100	☐	100	1.000		
N037148-004D	Groundwater		200	☐	100	0.500		
N037148-004D-DU	Groundwater		200	☐	100	0.500		
N037148-005D	Groundwater		200	☐	100	0.500		
N037148-006D	Groundwater		200	☐	100	0.500		
N037148-007D	Groundwater		200	☐	100	0.500		
N037148-008D	Groundwater		200	☐	100	0.500		
N037148-009D	Groundwater		200	☐	100	0.500		
N037148-010D	Groundwater		200	☐	100	0.500		
N037148-011D	Groundwater		200	☐	100	0.500		
N037148-012D	Groundwater		200	☐	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10417	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190814C	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/27/2019 11:23:21**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 9/3/2019

Prep Batch **75171** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75171	Water	IWS1191894C	100	☐	100	1.000		
MB-75171	Water		100	☐	100	1.000		
N037148-004D	Groundwater		100 | 200	☐	100	1.000		
N037148-004D-DU	Groundwater		100 | 200	☐	100	1.000		
N037148-005D	Groundwater		100 | 200	☐	100	1.000		
N037148-006D	Groundwater		100 | 200	☐	100	1.000		
N037148-007D	Groundwater		100 | 200	☐	100	1.000		
N037148-008D	Groundwater		100 | 200	☐	100	1.000		
N037148-009D	Groundwater		100 | 200	☐	100	1.000		
N037148-010D	Groundwater		100 | 200	☐	100	1.000		
N037148-011D	Groundwater		100 | 200	☐	100	1.000		
N037148-012D	Groundwater		100 | 200	☐	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

17417

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST (TSS) TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19 847	MB 75151	100	1.4204 1.4223	1.4223 1.4222	USR
	LCS 75151	100	1.4070 1.4071	1.5017 1.5018	
11	NB37098-1B	200	1.4201 1.4198	1.4204 1.4203	
12	NB37099-1D	200	1.4002 1.3999	1.3999 1.4002	
13	NB37100-1A	200	1.4193 1.4192	1.4193 1.4193	1
14	NB37118-11D (use 8/26)	200	1.4229 1.4229	1.4230 1.4230	
15	12D	200	1.4171 1.4170	1.4172 1.4172	
16	13D	200	1.4124 1.4125	1.4124 1.4126 (use 8/26)	
17	NB37125-1B	100	1.4128 1.4126	1.4330 1.4331	
18	NB37148-1D	200	1.4025 1.4023	1.4024 1.4027	

Julia Ramit 9/3/2019 ASSET Laboratories Logbook#17

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/26/19	NB7148-1D. DUP	200	1.3195 1.3995	1.3996 1.4000	USN
19	2D	200	1.4052 1.4055	1.4056 1.4056	USN 9/4
20	3D	200	1.4142 1.4139	1.4161 1.4164	
	Julia Ramit		9/3/2019		
	0.9999 ✓	1445	8/26/19 USN		

105°C TIME IN 1445 USN
TIME OUT = 1415

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ORELAP/NELAP Cert 4046

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/26/2019							
MB-75151	100	1.4223	1.4222	-1.0000	1.00	-1	MBLK
LCS-75151	100	1.4071	1.5018	947.0000	1.00	947	LCS
N037098-001B	200	1.4198	1.4203	5.0000	0.50	2.5	SAMP
N037099-001D	200	1.3999	1.4002	3.0000	0.50	1.5	SAMP
N037100-001A	200	1.4192	1.4193	1.0000	0.50	0.5	SAMP
N037118-011D	200	1.4229	1.423	1.0000	0.50	0.5	SAMP
N037118-012D	200	1.417	1.4172	2.0000	0.50	1	SAMP
N037118-013D	200	1.4125	1.4126	1.0000	0.50	0.5	SAMP
N037125-001B	100	1.4126	1.4331	205.0000	1.00	205	SAMP
N037148-001D	200	1.4023	1.4027	4.0000	0.50	2	SAMP
N037148-001DDUP	200	1.3995	1.4	5.0000	0.50	2.5	DUP
N037148-002D	200	1.4055	1.4056	1.0000	0.50	0.5	SAMP
N037148-003D	200	1.4139	1.4164	25.0000	0.50	12.5	SAMP

Julia Ramit 9/3/2019

SOLIDS RAW DATA

TEST TSS/TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
8/27/19 1123	MB1 75171	100	1.4115 1.4115	1.4114 1.4115	[illegible]
	LCS1 75171	100	1.4140 1.4142	1.5102 1.5104	
1	N037148-4D	200	1.4009 1.4009	1.4033 1.4033	
2	4D DUP	200	1.4021 1.4019	1.4042 1.4042	
3	5D	200	1.4114 1.4113	1.4115 1.4116 [illegible] 8/27	
4	6D	200	1.4080 1.4078	1.4082 1.4081	
5	7D	200	1.3987 1.3986	1.3986 1.3989	
6	8D	200	1.4008 1.4011	1.4012 1.4012	
7	9D	200	1.4040 1.4038	1.4037 1.4039	
8	10D	200	1.4064 1.4062	1.4063 1.4065	

Julia Ramit 9/3/2019

ASSET Laboratories

Logbook#17

ASSET LABORATORIES
Serving Clients with Passion and Professionalism"

CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638

NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

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SOLIDS RAW DATA

TEST (TSS) TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments / Initial
8/27/19 9	N037148-11D	200	1.4070 1.4068	1.4071 1.4072	use
10	12D	200	1.4111 1.4113	1.4114 1.4115	
	MB 75172	100	1.4101 1.4103	1.4102 1.4100	
	LCS 75172	100	1.4006 1.4004	1.4961 1.4961	
11	N037135-1A	200	1.3891 1.3892	1.3909 1.3909	1
12	2A	200	1.3934 1.3931	1.3948 1.3947	
13	N037164-1A	200	1.3939 1.3942	1.3953 1.3955	
14	1A DUP	200	1.4126 1.4124	1.4137 1.4138	
15	2A	200	1.4152 1.4154	1.4173 1.4174	
16			1.4141 1.4143	use 8/27/19 1.0001 @ 1715	8/27/19 LW

105°C time in: 1415
time out: 1445

ASSET Laboratories Julia Ramit 9/3/2019 Logbook#17

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/27/2019							
MB-75171	100	1.4115	1.4115	0.0000	1.00	0	MBLK
LCS-75171	100	1.4142	1.5104	962.0000	1.00	962	LCS
N037148-004D	200	1.4009	1.4033	24.0000	0.50	12	SAMP
N037148-004DDUP	200	1.4019	1.4042	23.0000	0.50	11.5	DUP
N037148-005D	200	1.4113	1.4116	3.0000	0.50	1.5	SAMP
N037148-006D	200	1.4078	1.4081	3.0000	0.50	1.5	SAMP
N037148-007D	200	1.3986	1.3989	3.0000	0.50	1.5	SAMP
N037148-008D	200	1.4011	1.4012	1.0000	0.50	0.5	SAMP
N037148-009D	200	1.4038	1.4039	1.0000	0.50	0.5	SAMP
N037148-010D	200	1.4062	1.4065	3.0000	0.50	1.5	SAMP
N037148-011D	200	1.4068	1.4072	4.0000	0.50	2	SAMP
N037148-012D	200	1.4113	1.4115	2.0000	0.50	1	SAMP

Divia Ramit 9/3/2019

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136330
ASSET #: N037148

Instrument ID: IC-07
Analyst: HH
Date Analyzed: 9/3/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X	X		X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HH Date: 9/10/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136358
ASSET #: N037148

Instrument ID: IC-07
Analyst: HH
Date Analyzed: 9/9/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [ ] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X	X		X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: HH Date: 9/10/2019

2nd Level Reviewer: NS 9/10/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037148-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0972 * 1$$

$$Cr^{+6}, \mu g/L = 0.0972$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

NS 9/18/2019

ANALYSIS RUN LOG

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 10:48 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/03/19 10:59 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/03/19 11:08 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/03/19 11:18 AM	Reported
13	MB-R136330	MBLK	1	Hexavalent Chromium	09/03/19 11:27 AM	Reported
14	LCS-R136330	LCS	1	Hexavalent Chromium	09/03/19 11:37 AM	Reported
15	N037145-002AMS	MS	1	Hexavalent Chromium	09/03/19 11:46 AM	Not Reported
16	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 11:56 AM	Not Reported
17	N037176-005AMS	MS	1	Hexavalent Chromium	09/03/19 12:05 PM	Reported
18	N037176-006AMS	MS	1	Hexavalent Chromium	09/03/19 12:14 PM	Reported
19	N037181-001AMS	MS	1	Hexavalent Chromium	09/03/19 12:24 PM	Not Reported
20	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 12:33 PM	Not Reported
21	N037145-002A	SAMP	50	Hexavalent Chromium	09/03/19 12:43 PM	Reported
22	N037147-003A	SAMP	1	Hexavalent Chromium	09/03/19 1:47 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/03/19 1:58 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/03/19 2:08 PM	Reported
25	N037176-005AMSD	MSD	1	Hexavalent Chromium	09/03/19 2:17 PM	Reported
26	N037176-005A	SAMP	1	Hexavalent Chromium	09/03/19 2:27 PM	Reported
27	N037176-005ADUP	DUP	1	Hexavalent Chromium	09/03/19 2:36 PM	Reported
28	N037176-006A	SAMP	1	Hexavalent Chromium	09/03/19 2:46 PM	Reported
29	N037181-001AMS	MS	100	Hexavalent Chromium	09/03/19 2:55 PM	Not Reported
30	N037181-001A	SAMP	100	Hexavalent Chromium	09/03/19 3:05 PM	Not Reported
31	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 3:14 PM	Reported
32	N037148-001AMS	MS	1	Hexavalent Chromium	09/03/19 3:23 PM	Reported
33	N037148-002AMS	MS	1	Hexavalent Chromium	09/03/19 3:33 PM	Reported
34	N037148-003AMS	MS	1	Hexavalent Chromium	09/03/19 3:42 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/03/19 3:52 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/03/19 4:01 PM	Reported
37	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 4:11 PM	Not Reported
38	N037148-005AMS	MS	1	Hexavalent Chromium	09/03/19 4:20 PM	Reported
39	N037148-006AMS	MS	1	Hexavalent Chromium	09/03/19 4:30 PM	Reported
40	N037148-007AMS	MS	1	Hexavalent Chromium	09/03/19 4:39 PM	Reported
41	N037148-008AMS	MS	1	Hexavalent Chromium	09/03/19 4:56 PM	Reported
42	N037148-009AMS	MS	1	Hexavalent Chromium	09/03/19 5:07 PM	Reported

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037148-010AMS	MS	1	Hexavalent Chromium	09/03/19 5:16 PM	Reported
44	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 5:26 PM	Reported
45	N037181-001AMS	MS	200	Hexavalent Chromium	09/03/19 5:35 PM	Reported
46	N037181-001A	SAMP	200	Hexavalent Chromium	09/03/19 5:45 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	09/03/19 5:54 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	09/03/19 6:04 PM	Reported
49	N037148-001A	SAMP	1	Hexavalent Chromium	09/03/19 6:13 PM	Reported
50	N037148-002A	SAMP	1	Hexavalent Chromium	09/03/19 6:23 PM	Reported
51	N037148-003A	SAMP	1	Hexavalent Chromium	09/03/19 6:32 PM	Reported
52	N037148-004A	SAMP	1	Hexavalent Chromium	09/03/19 6:42 PM	Reported
53	N037148-005A	SAMP	1	Hexavalent Chromium	09/03/19 6:51 PM	Reported
54	N037148-006A	SAMP	1	Hexavalent Chromium	09/03/19 7:01 PM	Reported
55	N037148-007A	SAMP	1	Hexavalent Chromium	09/03/19 7:10 PM	Reported
56	N037148-008A	SAMP	1	Hexavalent Chromium	09/03/19 7:19 PM	Reported
57	N037148-009A	SAMP	1	Hexavalent Chromium	09/03/19 7:29 PM	Reported
58	N037148-010A	SAMP	1	Hexavalent Chromium	09/03/19 7:38 PM	Reported
59	CCV-5	CCV	1	Hexavalent Chromium	09/03/19 7:48 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	09/03/19 7:57 PM	Reported
61	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 8:07 PM	Reported
62	N037148-011AMS	MS	1	Hexavalent Chromium	09/03/19 8:16 PM	Not Reported
63	N037148-011A	SAMP	1	Hexavalent Chromium	09/03/19 8:26 PM	Not Reported
64	N037148-012AMS	MS	1	Hexavalent Chromium	09/03/19 8:35 PM	Reported
65	N037148-012A	SAMP	1	Hexavalent Chromium	09/03/19 8:45 PM	Reported
66	N037148-013AMS	MS	1	Hexavalent Chromium	09/03/19 8:54 PM	Reported
67	N037148-013A	SAMP	1	Hexavalent Chromium	09/03/19 9:04 PM	Reported
68	CCV-6	CCV1	1	Hexavalent Chromium	09/03/19 9:13 PM	Reported
69	CCB-6	CCB	1	Hexavalent Chromium	09/03/19 9:22 PM	Reported
70	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 9:32 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190903A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/Sep/19 09:44:10**
No. of Injections:	**73**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/03/2019 10:48	Finished	BLANK
10	CCV1,CCV,1,	2	1000	Unknown		09/03/2019 10:59	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/03/2019 11:08	Finished	PQL @ 0.2ppb
12	CCB1,CCB,1,	4	1000	Unknown		09/03/2019 11:18	Finished	CCB R190701
13	MB-H2O,MBLK,1,	5	1000	Unknown		09/03/2019 11:27	Finished	MB R190701
14	LCS-H2O,LCS,1,	6	1000	Unknown		09/03/2019 11:37	Finished	LCS @5ppb, IWST-190702B
15	N037145-002AMS,MS	8	1000	Unknown		09/03/2019 11:46	Finished	MS (1ppb), IWST-190702B,10
16	N037147-003AMS,MS	9	1000	Unknown		09/03/2019 11:56	Finished	MS (1ppb), IWST-190702B,10
17	N037176-005AMS,MS	10	1000	Unknown		09/03/2019 12:05	Finished	MS (1ppb), IWST-190702B,10
18	N037176-006AMS,MS	11	1000	Unknown		09/03/2019 12:14	Finished	MS (1ppb), IWST-190702B,10
19	N037181-001AMS,MS	12	1000	Unknown		09/03/2019 12:24	Finished	MS (1ppb), IWST-190702B,10
20	N037145-002AMS,MS	13	1000	Unknown		09/03/2019 12:33	Finished	MS (5ppb), IWST-190702B,0.2
21	N037145-002A,SAMP	14	1000	Unknown		09/03/2019 12:43	Finished	SAMP,0.2>10mL
22	N037147-003A,SAMP	15	1000	Unknown		09/03/2019 13:47	Finished	SAMP,10mL
23	CCV-2,CCV1,1,	16	1000	Unknown		09/03/2019 13:58	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	17	1000	Unknown		09/03/2019 14:08	Finished	CCB R190617C
25	N037176-005AMSD,M	18	1000	Unknown		09/03/2019 14:17	Finished	MSD (1ppb), IWST-190702B,10
26	N037176-005A,SAMP	19	1000	Unknown		09/03/2019 14:27	Finished	SAMP,10mL
27	N037176-005ADUP,D	20	1000	Unknown		09/03/2019 14:36	Finished	SAMP,10mL
28	N037176-006A,SAMP	21	1000	Unknown		09/03/2019 14:46	Finished	MS (1ppb), IWST-190702B,10
29	N037181-001AMS,MS	22	1000	Unknown		09/03/2019 14:55	Finished	MS (5ppb), IWST-190702B,0.1
30	N037181-001A,SAMP	23	1000	Unknown		09/03/2019 15:05	Finished	SAMP,0.1>10mL
31	N037145-002AMS,MS	24	1000	Unknown		09/03/2019 15:14	Finished	MS (5ppb), IWST-190702B,0.2
32	N037148-001AMS,MS	25	1000	Unknown		09/03/2019 15:23	Finished	MS (1ppb), IWST-190702B,10
33	N037148-002AMS,MS	26	1000	Unknown		09/03/2019 15:33	Finished	MS (1ppb), IWST-190702B,10
34	N037148-003AMS,MS	27	1000	Unknown		09/03/2019 15:42	Finished	MS (1ppb), IWST-190702B,10
35	CCV-3,CCV,1,	28	1000	Unknown		09/03/2019 15:52	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	29	1000	Unknown		09/03/2019 16:01	Finished	CCB R190617C
37	N037148-004AMS,MS	30	1000	Unknown		09/03/2019 16:11	Finished	MS (1ppb), IWST-190702B,10
38	N037148-005AMS,MS	31	1000	Unknown		09/03/2019 16:20	Finished	MS (1ppb), IWST-190702B,10
39	N037148-006AMS,MS	32	1000	Unknown		09/03/2019 16:30	Finished	MS (1ppb), IWST-190702B,10
40	N037148-007AMS,MS	33	1000	Unknown		09/03/2019 16:39	Finished	MS (1ppb), IWST-190702B,10
41	N037148-008AMS,MS	1	1000	Unknown		09/03/2019 16:56	Finished	MS (1ppb), IWST-190702B,10
42	N037148-009AMS,MS	2	1000	Unknown		09/03/2019 17:07	Finished	MS (1ppb), IWST-190702B,10
43	N037148-010AMS,MS	3	1000	Unknown		09/03/2019 17:16	Finished	MS (1ppb), IWST-190702B,10
44	N037147-003AMS,MS	4	1000	Unknown		09/03/2019 17:26	Finished	MS (1ppb), IWST-190702B,10
45	N037181-001AMS,MS	5	1000	Unknown		09/03/2019 17:35	Finished	MS (5ppb), IWST-190702B,0.0
46	N037181-001A,SAMP	6	1000	Unknown		09/03/2019 17:45	Finished	SAMP,0.05>10mL
47	CCV-4,CCV1,1,	7	1000	Unknown		09/03/2019 17:54	Finished	CCV @10ppb, IWST-190702A
48	CCB-4,CCB,1,	8	1000	Unknown		09/03/2019 18:04	Finished	CCB R190617C
49	N037148-001A,SAMP	9	1000	Unknown		09/03/2019 18:13	Finished	SAMP,10mL
50	N037148-002A,SAMP	10	1000	Unknown		09/03/2019 18:23	Finished	SAMP,10mL
51	N037148-003A,SAMP	11	1000	Unknown		09/03/2019 18:32	Finished	SAMP,10mL
52	N037148-004A,SAMP	12	1000	Unknown		09/03/2019 18:42	Finished	SAMP,10mL
53	N037148-005A,SAMP	13	1000	Unknown		09/03/2019 18:51	Finished	SAMP,10mL
54	N037148-006A,SAMP	14	1000	Unknown		09/03/2019 19:01	Finished	SAMP,10mL
55	N037148-007A,SAMP	15	1000	Unknown		09/03/2019 19:10	Finished	SAMP,10mL
56	N037148-008A,SAMP	16	1000	Unknown		09/03/2019 19:19	Finished	SAMP,10mL
57	N037148-009A,SAMP	17	1000	Unknown		09/03/2019 19:29	Finished	SAMP,10mL
58	N037148-010A,SAMP	18	1000	Unknown		09/03/2019 19:38	Finished	SAMP,10mL
59	CCV-5,CCV,1,	19	1000	Unknown		09/03/2019 19:48	Finished	CCV @5ppb, IWST-190702A
60	CCB-5,CCB,1,	20	1000	Unknown		09/03/2019 19:57	Finished	CCB R190617C

61	N037148-004AMS,MS	21	1000	Unknown		09/03/2019 20:07	Finished	MS (1ppb), IWST-190702B,10
62	N037148-011AMS,MS	22	1000	Unknown		09/03/2019 20:16	Finished	MS (1ppb), IWST-190702B,10
63	N037148-011A,SAMP	23	1000	Unknown		09/03/2019 20:26	Finished	SAMP,10mL
64	N037148-012AMS,MS	24	1000	Unknown		09/03/2019 20:35	Finished	MS (1ppb), IWST-190702B,10
65	N037148-012A,SAMP	25	1000	Unknown		09/03/2019 20:45	Finished	SAMP,10mL
66	N037148-013AMS,MS	26	1000	Unknown		09/03/2019 20:54	Finished	MS (1ppb), IWST-190702B,10
67	N037148-013A,SAMP	27	1000	Unknown		09/03/2019 21:04	Finished	SAMP,10mL
68	CCV-6,CCV1,1,	28	1000	Unknown		09/03/2019 21:13	Finished	CCV @10ppb, IWST-190702A
69	CCB-6,CCB,1,	29	1000	Unknown		09/03/2019 21:22	Finished	CCB R190617C
70	BLANK	30	1000	Unknown		09/03/2019 21:32	Finished	BLANK
71	SHUTDOWN	31	1000	Unknown		09/03/2019 21:41	Finished	
72	Eluent: R190903A	32	1000	Unknown		n.a.	Finished	Eluent
73	PCR: R190903B	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

09/10/19

INJECTION LOG: 190909A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/09/19 12:21 PM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/09/19 12:32 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/09/19 12:42 PM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/09/19 1:08 PM	Reported
13	MB-R136358	MBLK	1	Hexavalent Chromium	09/09/19 1:20 PM	Reported
14	LCS-R136358	LCS	1	Hexavalent Chromium	09/09/19 1:29 PM	Reported
15	N037374-001AMS	MS	1	Hexavalent Chromium	09/09/19 1:41 PM	Reported
16	N037374-002AMS	MS	1	Hexavalent Chromium	09/09/19 1:52 PM	Reported
17	N037376-001AMS	MS	1	Hexavalent Chromium	09/09/19 2:02 PM	Not Reported
18	N037356-001AMS	MS	1	Hexavalent Chromium	09/09/19 2:11 PM	Reported
19	N037356-002AMS	MS	1	Hexavalent Chromium	09/09/19 2:21 PM	Reported
20	N037374-001A	SAMP	1	Hexavalent Chromium	09/09/19 2:30 PM	Reported
21	N037374-002A	SAMP	1	Hexavalent Chromium	09/09/19 2:40 PM	Reported
22	N037356-001A	SAMP	1	Hexavalent Chromium	09/09/19 2:49 PM	Not Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/09/19 2:58 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/09/19 3:07 PM	Reported
25	N037376-001AMS	MS	1	Hexavalent Chromium	09/09/19 3:17 PM	Not Reported
26	N037356-002A	SAMP	1	Hexavalent Chromium	09/09/19 3:26 PM	Reported
27	N037376-001AMS	MS	5	Hexavalent Chromium	09/09/19 3:41 PM	Reported
28	N037376-001A	SAMP	5	Hexavalent Chromium	09/09/19 3:54 PM	Reported
29	N037356-002AMSD	MSD	1	Hexavalent Chromium	09/09/19 4:05 PM	Reported
30	N037374-001ADUP	DUP	1	Hexavalent Chromium	09/09/19 4:15 PM	Reported
31	N037148-011AMS	MS	1	Hexavalent Chromium	09/09/19 4:24 PM	Reported
32	N037184-002AMS	MS	1	Hexavalent Chromium	09/09/19 4:34 PM	Reported
33	N037186-002AMS	MS	1	Hexavalent Chromium	09/09/19 4:43 PM	Reported
34	N037355-001BMS	MS	1	Hexavalent Chromium	09/09/19 4:53 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/09/19 5:02 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/09/19 5:12 PM	Reported
37	N037241-001AMS	MS	1	Hexavalent Chromium	09/09/19 5:28 PM	Reported
38	N037148-011A	SAMP	1	Hexavalent Chromium	09/09/19 5:39 PM	Reported
39	N037184-002A	SAMP	1	Hexavalent Chromium	09/09/19 5:49 PM	Reported
40	N037186-002A	SAMP	1	Hexavalent Chromium	09/09/19 5:58 PM	Reported
41	N037355-001B	SAMP	1	Hexavalent Chromium	09/09/19 6:08 PM	Reported
42	N037241-001A	SAMP	1	Hexavalent Chromium	09/09/19 6:17 PM	Reported

INJECTION LOG: 190909A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037356-001A	SAMP	1	Hexavalent Chromium	09/09/19 6:27 PM	Reported
44	CCV-4	CCV1	1	Hexavalent Chromium	09/09/19 6:36 PM	Reported
45	CCB-4	CCB	1	Hexavalent Chromium	09/09/19 6:45 PM	Reported
46	BLANK	BLANK	1	Hexavalent Chromium	09/09/19 6:55 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190909A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/Sep/19 09:22:05**
No. of Injections:	**49**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/09/2019 12:21	Finished	BLANK
10	CCV1,CCV,1,	2	1000	Unknown		09/09/2019 12:32	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/09/2019 12:42	Finished	PQL @ 0.2ppb
12	CCB1,CCB,1,	5	1000	Unknown		09/09/2019 13:08	Finished	CCB R190701B
13	MB-H2O,MBLK,1,	6	1000	Unknown		09/09/2019 13:20	Finished	MB R190701B
14	LCS-H2O,LCS,1,	7	1000	Unknown		09/09/2019 13:29	Finished	LCS @5ppb, IWST-190702B
15	N037374-001AMS,MS	8	1000	Unknown		09/09/2019 13:41	Finished	MS (1ppb), IWST-190702B,10
16	N037374-002AMS,MS	9	1000	Unknown		09/09/2019 13:52	Finished	MS (1ppb), IWST-190702B,10
17	N037376-001AMS,MS	10	1000	Unknown		09/09/2019 14:02	Finished	MS (1ppb), IWST-190702B,10
18	N037356-001AMS,MS	11	1000	Unknown		09/09/2019 14:11	Finished	MS (1ppb), IWST-190702B,10
19	N037356-002AMS,MS	12	1000	Unknown		09/09/2019 14:21	Finished	MS (1ppb), IWST-190702B,10
20	N037374-001A,SAMP	13	1000	Unknown		09/09/2019 14:30	Finished	SAMP,10mL
21	N037374-002A,SAMP	14	1000	Unknown		09/09/2019 14:40	Finished	SAMP,10mL
22	N037356-001A,SAMP	16	1000	Unknown		09/09/2019 14:49	Finished	SAMP,10mL
23	CCV-2,CCV1,1,	17	1000	Unknown		09/09/2019 14:58	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	18	1000	Unknown		09/09/2019 15:07	Finished	CCB R190701B
25	N037376-001AMS,MS	19	1000	Unknown		09/09/2019 15:17	Finished	MS (1ppb), IWST-190702B,10
26	N037356-002A,SAMP	20	1000	Unknown		09/09/2019 15:26	Finished	SAMP,10mL
27	N037376-001AMS,MS	22	1000	Unknown		09/09/2019 15:41	Finished	MS (1ppb), IWST-190702B,2>1
28	N037376-001A,SAMP	23	1000	Unknown		09/09/2019 15:54	Finished	SAMP,2>10mL
29	N037356-002AMSD,M	24	1000	Unknown		09/09/2019 16:05	Finished	MSD (1ppb), IWST-190702B,10
30	N037374-001ADUP,D	25	1000	Unknown		09/09/2019 16:15	Finished	DUP,10mL
31	N037148-011AMS,MS	26	1000	Unknown		09/09/2019 16:24	Finished	MS (1ppb), IWST-190702B,10
32	N037184-002AMS,MS	27	1000	Unknown		09/09/2019 16:34	Finished	MS (1ppb), IWST-190702B,10
33	N037186-002AMS,MS	28	1000	Unknown		09/09/2019 16:43	Finished	MS (1ppb), IWST-190702B,10
34	N037355-001BMS,MS	29	1000	Unknown		09/09/2019 16:53	Finished	MS (1ppb), IWST-190702B,10
35	CCV-3,CCV,1,	30	1000	Unknown		09/09/2019 17:02	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	31	1000	Unknown		09/09/2019 17:12	Finished	CCB R190701B
37	N037241-001BMS,MS	32	1000	Unknown		09/09/2019 17:28	Finished	MS (1ppb), IWST-190702B,10
38	N037148-011A,SAMP	33	1000	Unknown		09/09/2019 17:39	Finished	SAMP,10mL
39	N037184-002A,SAMP	34	1000	Unknown		09/09/2019 17:49	Finished	SAMP,10mL
40	N037186-002A,SAMP	35	1000	Unknown		09/09/2019 17:58	Finished	SAMP,10mL
41	N037355-001B,SAMP	36	1000	Unknown		09/09/2019 18:08	Finished	SAMP,10mL
42	N037241-001B,SAMP	37	1000	Unknown		09/09/2019 18:17	Finished	SAMP,10mL
43	N037356-001A,SAMP	38	1000	Unknown		09/09/2019 18:27	Finished	SAMP,10mL
44	CCV-4,CCV1,1,	40	1000	Unknown		09/09/2019 18:36	Finished	CCV @10ppb, IWST-190702A
45	CCB-4,CCB,1,	41	1000	Unknown		09/09/2019 18:45	Finished	CCB R190701B
46	BLANK	42	1000	Unknown		09/09/2019 18:55	Finished	BLANK
47	SHUTDOWN	43	1000	Unknown		09/09/2019 19:04	Finished	
48	Eluent: R190909A	44	1000	Unknown		n.a.	Finished	Eluent
49	PCR: R190909B	45	1000	Unknown		n.a.	Finished	Post-Column Reagent

N037241-001B

09/10/19

9/10/2019

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation — CONT'D

Date Prepared: 8/23/19
Time Prepared: 1206
Prepared By: LSR

SLOPE: 98.5%
pH4: 4.03
7: 7.03
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190903A
NH4OH + NH4SO4 buffer: R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	NB7148-1A	9.23	9.31	~250ml	~250ml	+2 drops NaOH	1 of 3
2)	1A	9.26	9.32			+1 drops	2 of 3
3)	1A	9.24	9.36			+2 drops	3 of 3
4)	2A	9.18	9.35			+2 drops	1/3
5)	2A	9.23	9.30			+1 drop	2/3
6)	2A	9.24	9.37			+2 drops	3/3
7)	3A	9.24	9.32			+1 drop	1/3
8)	3A	9.21	9.37			+2 drops	2/3
9)	3A	9.19	9.34			+2 drops	3/3
10)	4A	9.23	9.35			+2 drops	1/3
11)	4A	9.19	9.31			+2 drops	2/3
12)	4A	9.24	9.32			+1 drop	3/3
13)	5A	9.26	9.32			+1 drop	1/3
14)	5A	9.09	9.31			+3 drops	2/3
15)	5A	9.19	9.34			+2 drops	3/3

Sample Preparation — CONT'D

Date Prepared:
Time Prepared:
Prepared By:

Reagent ID:
Sulfuric Acid:
Diphenylcarbazide:
NH4OH + NH4SO4 eluent: R190903A
NH4OH + NH4SO4 buffer: R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	NB7148-6A	9.24	9.30	~250 ml	~250 ml	+2 drops NaOH	1/3
2)	6A	9.24	9.33			+2 drops	2/3
3)	6A	9.19	9.34			+2 drops	3/3
4)	7A	9.18	9.32			+2 drops	1/3
5)	7A	9.08	9.39			+4 drops	2/3
6)	7A	9.15	9.35			+3 drops	3/3
7)	8A	9.18	9.30			+2 drops	1/3
8)	8A	9.18	9.35			+3 drops	2/3
9)	8A	9.07	9.34			+4 drops	3/3
10)	9A	9.18	9.43			+3 drops	1/3
11)	9A	9.24	9.32			+2 drops	2/3
12)	9A	9.24	9.33			+2 drops	3/3
13)	10A	8.96	9.35			+5 drops	1/3
14)	10A	9.18	9.33			+2 drops	2/3
15)	10A	9.17	9.39			+3 drops	3/3

Logbook No. 16

Sample Preparation

CONTD

Date Prepared: 8/23/19
Time Prepared: 1206
Prepared By: LSR

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CNV-190329A
NH4OH + NH4SO4 eluent: R190903A, ~~R19~~ R190909A
NH4OH + NH4SO4 buffer: R190701B

LCS: 6.95 OK

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037148-11A	9.20	9.33	~250mL	~250mL	+2 drops 6N NaOH	1/3
2)	11A	9.00	9.65			+5 drops	2/3
3)	11A	8.88	9.72			+5 drops	3/3
4)	12A	9.20	9.30			+2 drops	1/3
5)	12A	9.01	9.33			+4 drops	2/3
6)	12A	9.18	9.30			+2 drops	3/3
7)	13A	9.25	9.33			+1 drop	
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 8/26/19
Time Prepared: 0921
Prepared By: HSG

SLOPE: 98.2%
pH 4: 4.02
7: 7.01
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CNV-190329A
NH4OH + NH4SO4 eluent: R190822A, R190826B, R09 R190903A R190909A
NH4OH + NH4SO4 buffer: R190704A, R190816D, R190716A R190701B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037177-1A	9.41	–	~250ml	~250ml		
2)	-2A	9.44	–				
3)	N037179-1A	9.30	–				
4)	-2A	9.53	–				
5)	N037183-1A	9.50	–				
6)	N037175-1A	9.33	–				
7)	-2A	9.33	–				
8)	-3A	9.39	–				
9)	-4A	9.39	–				
10)	N037178-2A	9.56	–				
11)	N037180-2A	9.52	–				
12)	N037181-1A	9.50	–				
13)	-2A	9.64	–				
14)	N037184-2A	9.62	–				
15)	N037185-1A	9.45	–				
	N037186-2A	9.59	–				
	N037187-1B	9.39	–				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/27/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0535	0.2527	1.2778	2.5458	3.9240	5.1959	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.885	0.20	5.000	0	97.7	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.198	0.20	0.2000	0	99.2	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.860	0.20	10.00	0	98.6	95	105				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.953	0.20	5.000	0	99.1	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.906	0.20	10.00	0	99.1	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.947	0.20	5.000	0	98.9	95	105				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.837	0.20	10.00	0	98.4	95	105				

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ICV**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ZZZZZZ**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.202	0.20	0.2000	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **CCV**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505969**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.094	0.20	5.000	0	102	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ZZZZZZ**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505970**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.234	0.20	0.2000	0	117	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ZZZZZZ**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.099	0.20	10.00	0	101	95	105				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **CCV**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.983	0.20	5.000	0	99.7	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ZZZZZZ**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3506000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.036	0.20	10.00	0	100	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ICV**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ZZZZZZ**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.202	0.20	0.2000	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.174	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.131	0.20									

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **CCB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **9/3/2019**	SeqNo: **3504756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136330**
Client ID: **ICB**	Batch ID: **R136330**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **CCB**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **CCB**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **CCB**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3505992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **CCB**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **9/9/2019**	SeqNo: **3506001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136358**
Client ID: **ICB**	Batch ID: **R136358**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3506221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.698	
CCV-6	4.698	

Average	4.698
Actual RT Window	4.618 - 4.778
Applied RT Window	4.498 - 4.898

MB-R136330	N.A.	N.A.
LCS-R136330	4.698	PASS
N037145-002AMS	4.598	PASS
N037147-003AMS	4.698	PASS
N037176-005AMS	4.698	PASS
N037176-006AMS	4.698	PASS
N037181-001AMS	4.415	FAIL
N037145-002AMS	4.698	PASS
N037145-002A	4.698	PASS
N037147-003A	N.A.	N.A.
N037176-005AMSD	4.698	PASS
N037176-005A	N.A.	N.A.
N037176-005ADUP	N.A.	N.A.
N037176-006A	N.A.	N.A.
N037181-001AMS	4.698	PASS
N037181-001A	4.698	PASS
N037145-002AMS	4.698	PASS
N037148-001AMS	4.698	PASS
N037148-002AMS	4.698	PASS
N037148-003AMS	4.698	PASS
N037148-004AMS	4.690	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.698	
CCV-6	4.698	
Average	4.698	
Actual RT Window	4.618 - 4.778	
Applied RT Window	4.498 - 4.898	
N037148-005AMS	4.698	PASS
N037148-006AMS	4.698	PASS
N037148-007AMS	4.698	PASS
N037148-008AMS	4.690	PASS
N037148-009AMS	4.698	PASS
N037148-010AMS	4.690	PASS
N037147-003AMS	4.698	PASS
N037181-001AMS	4.698	PASS
N037181-001A	4.690	PASS
N037148-001A	N.A.	N.A.
N037148-002A	4.698	PASS
N037148-003A	N.A.	N.A.
N037148-004A	N.A.	N.A.
N037148-005A	N.A.	N.A.
N037148-006A	N.A.	N.A.
N037148-007A	N.A.	N.A.
N037148-008A	4.698	PASS
N037148-009A	N.A.	N.A.
N037148-010A	N.A.	N.A.
N037148-004AMS	4.698	PASS
N037148-011AMS	4.681	PASS
N037148-011A	4.306	FAIL

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/3/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.698	
CCV-2	4.698	
CCV-3	4.698	
CCV-4	4.698	
CCV-5	4.698	
CCV-6	4.698	
Average	4.698	
Actual RT Window	4.618 - 4.778	
Applied RT Window	4.498 - 4.898	
N037148-012AMS	4.698	PASS
N037148-012A	N.A.	N.A.
N037148-013AMS	4.698	PASS
N037148-013A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/9/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.715	
CCV-2	4.715	
CCV-3	4.715	
CCV-4	4.715	
Average	4.715	
Actual RT Window	4.635 - 4.795	
Applied RT Window	4.515 - 4.915	
MB-R136358	N.A.	N.A.
LCS-R136358	4.723	PASS
N037374-001AMS	4.606	PASS
N037374-002AMS	4.606	PASS
N037376-001AMS	N.A.	N.A.
N037356-001AMS	4.640	PASS
N037356-002AMS	4.631	PASS
N037374-001A	N.A.	N.A.
N037374-002A	N.A.	N.A.
N037356-001A	N.A.	N.A.
N037376-001AMS	N.A.	N.A.
N037356-002A	N.A.	N.A.
N037376-001AMS	4.673	PASS
N037376-001A	N.A.	N.A.
N037356-002AMSD	4.631	PASS
N037374-001ADUP	4.381	FAIL
N037148-011AMS	4.715	PASS
N037184-002AMS	4.706	PASS
N037186-002AMS	4.715	PASS
N037355-001BMS	4.681	PASS
N037241-001AMS	4.715	PASS
N037148-011A	4.490	FAIL
N037184-002A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/9/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.715	
CCV-2	4.715	
CCV-3	4.715	
CCV-4	4.715	
Average	4.715	
Actual RT Window	4.635 - 4.795	
Applied RT Window	4.515 - 4.915	
N037186-002A	N.A.	N.A.
N037355-001B	N.A.	N.A.
N037241-001A	N.A.	N.A.
N037356-001A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

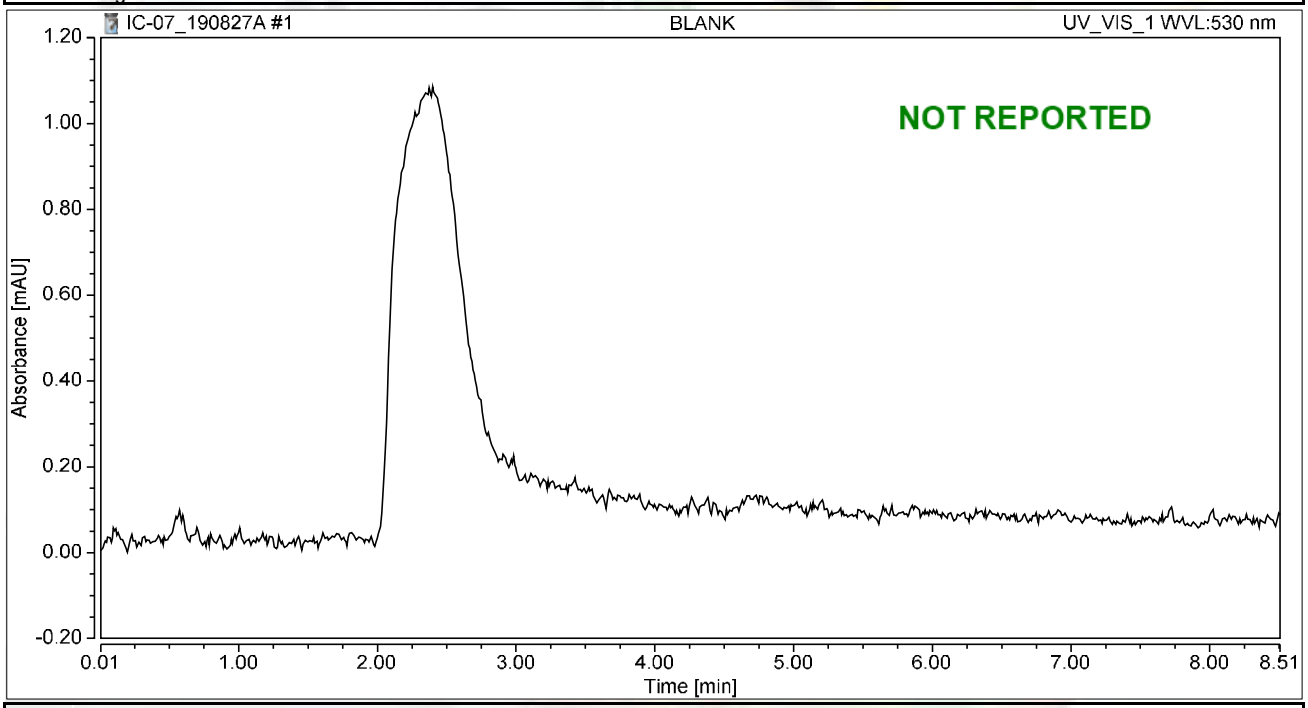
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

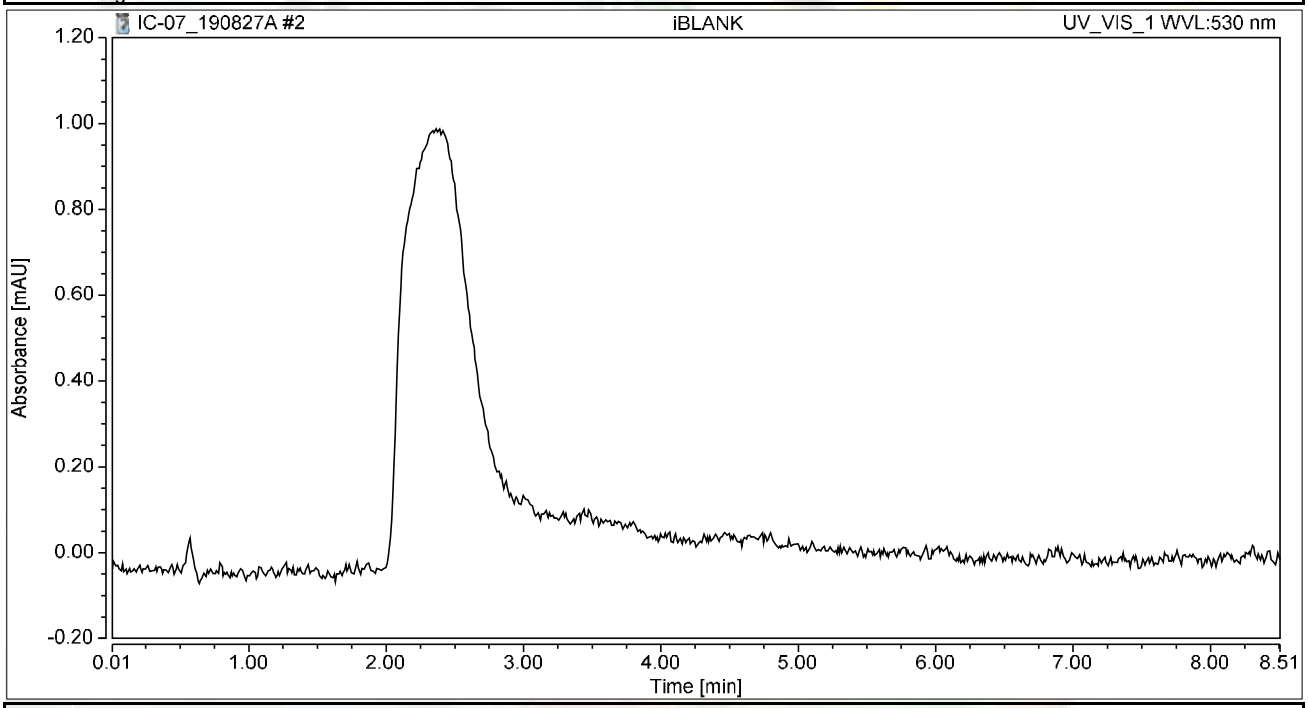
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

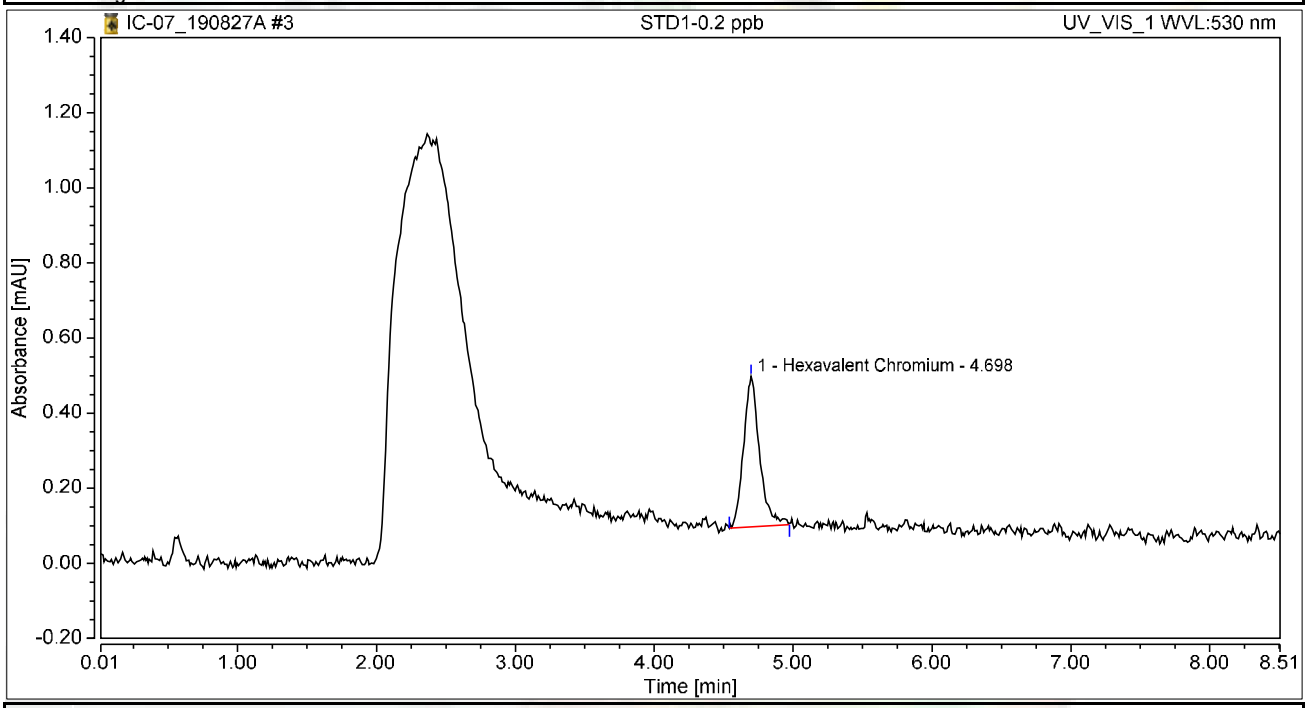
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

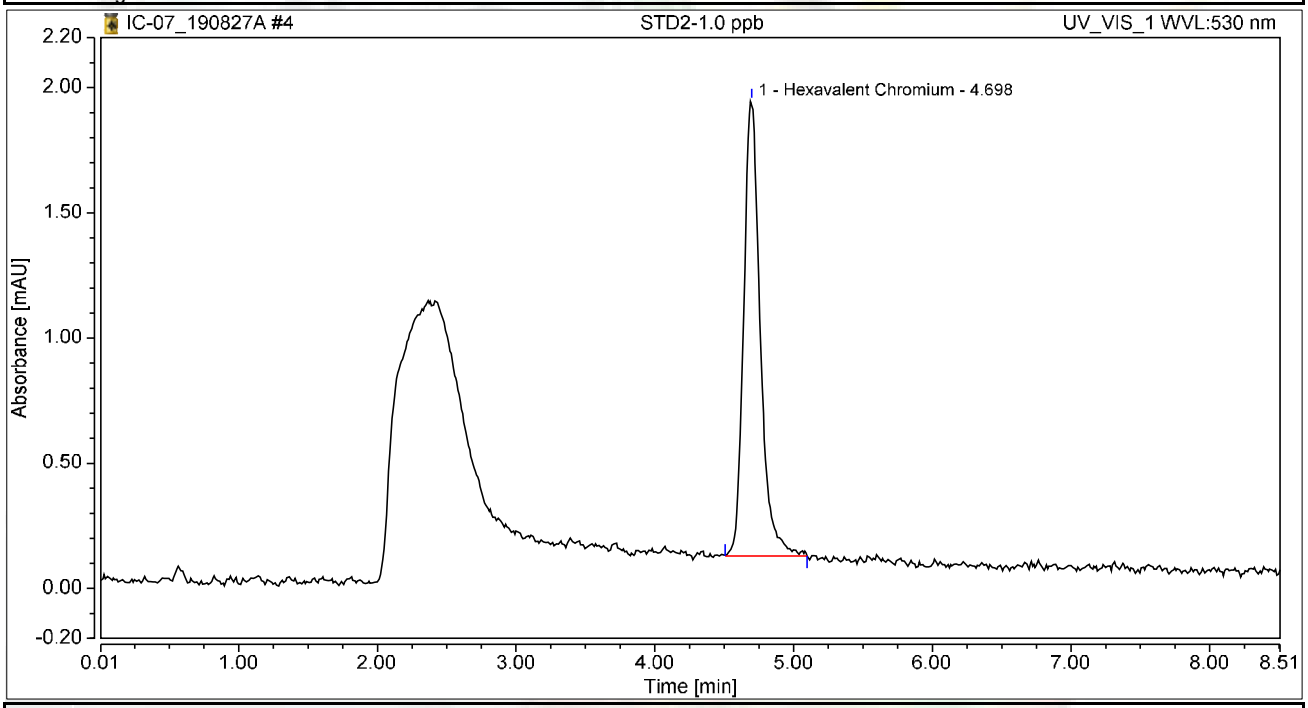
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.401	100.00	100.00	0.2063
Total:			**0.054**	**0.401**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

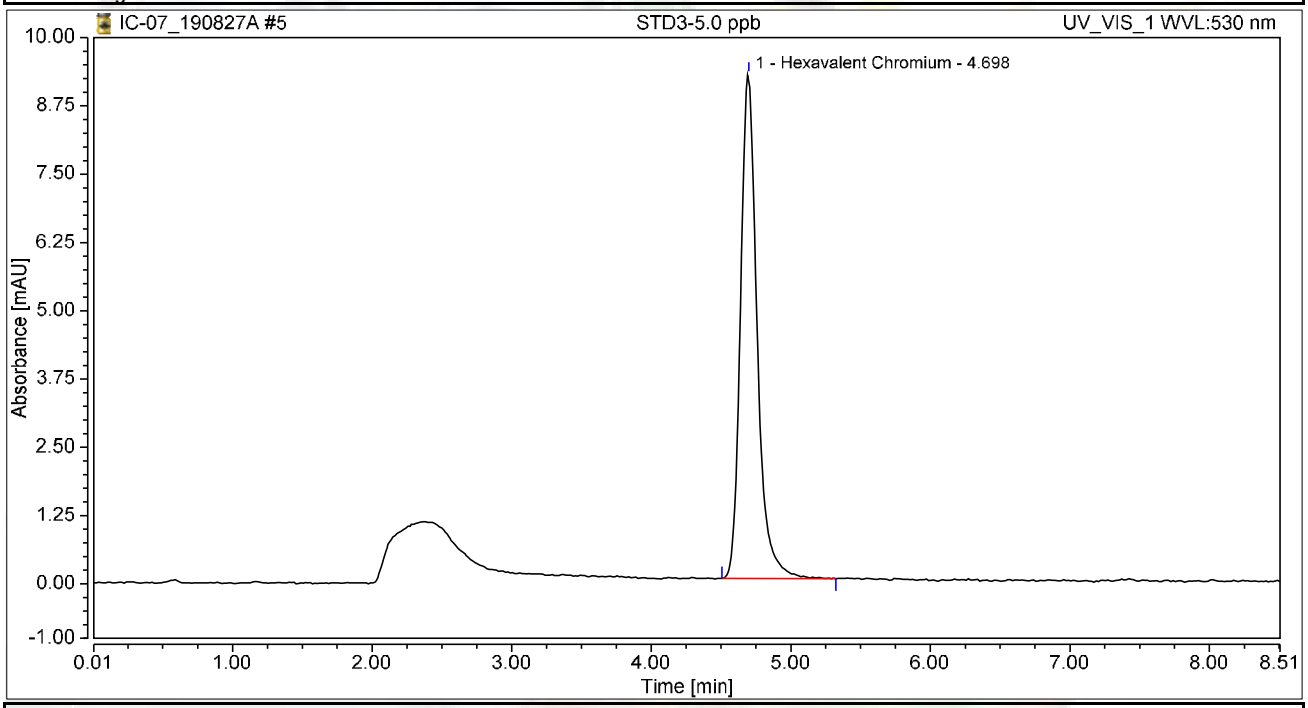
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.253	1.819	100.00	100.00	0.9737
Total:			**0.253**	**1.819**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

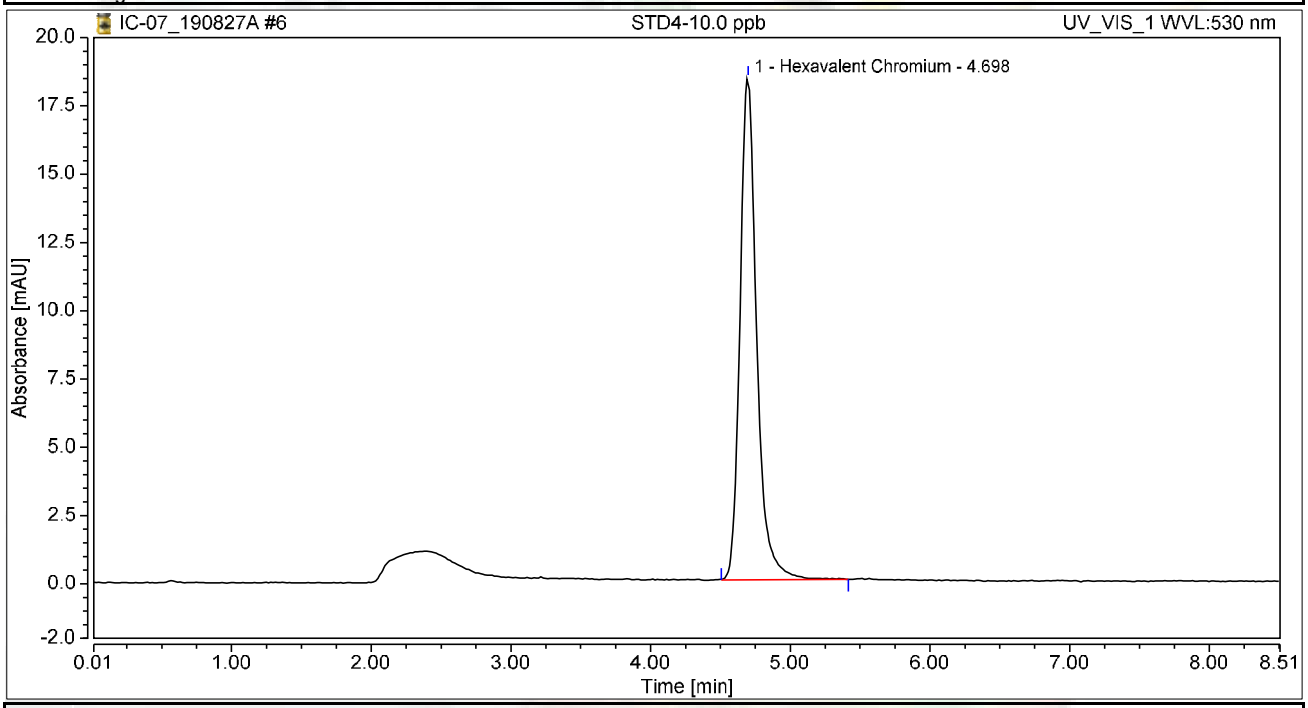
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.278	9.233	100.00	100.00	4.9242
Total:			**1.278**	**9.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

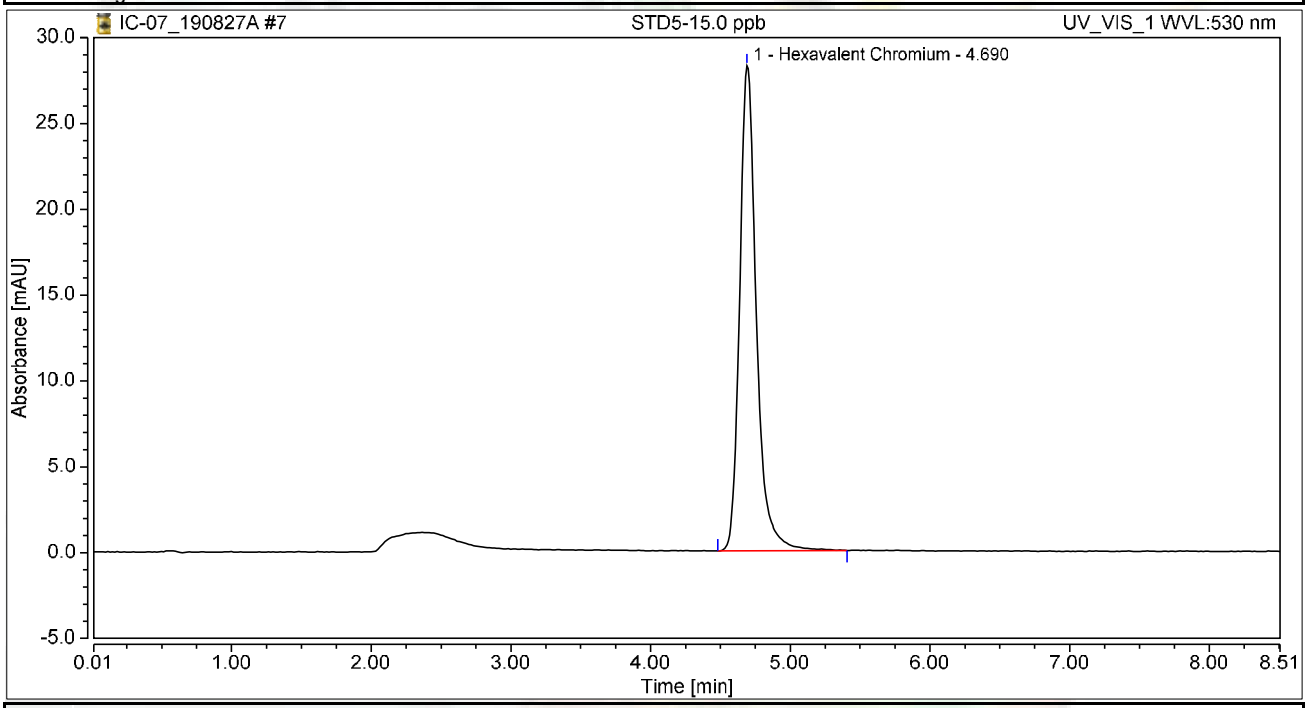
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.546	18.373	100.00	100.00	9.8106
Total:			**2.546**	**18.373**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

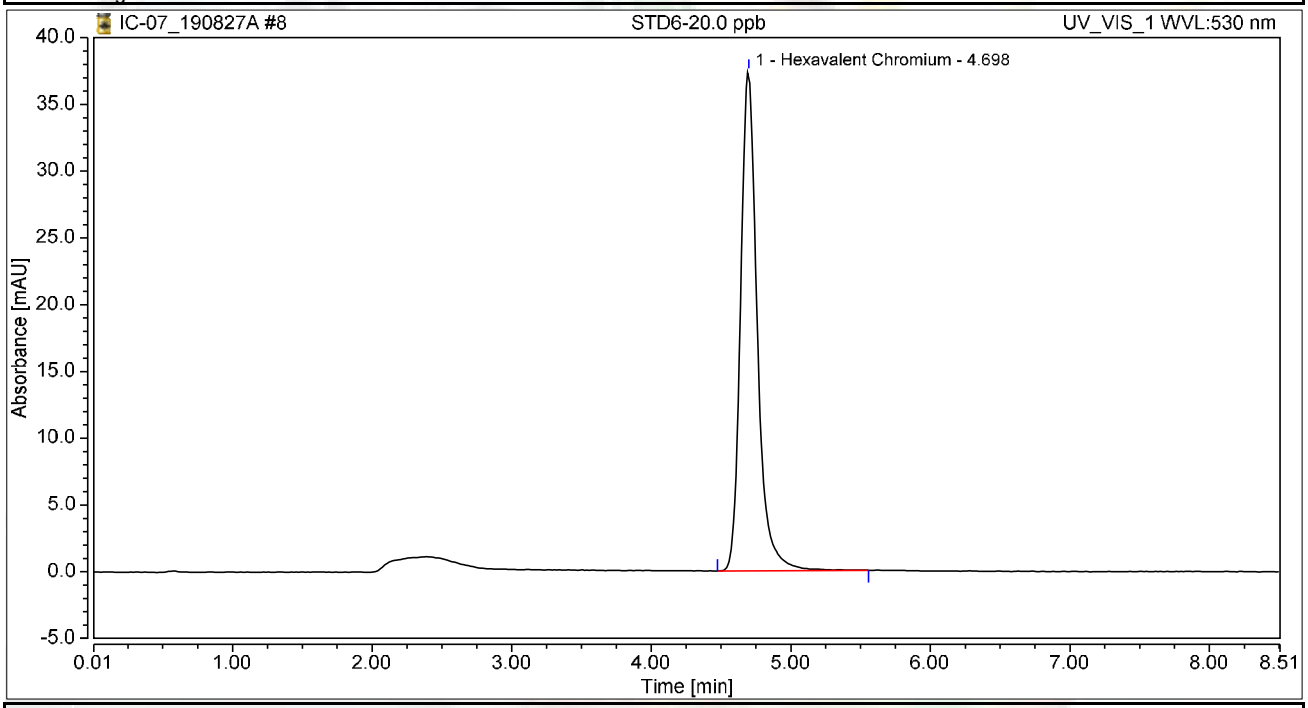
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.924	28.263	100.00	100.00	15.1217
Total:			**3.924**	**28.263**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



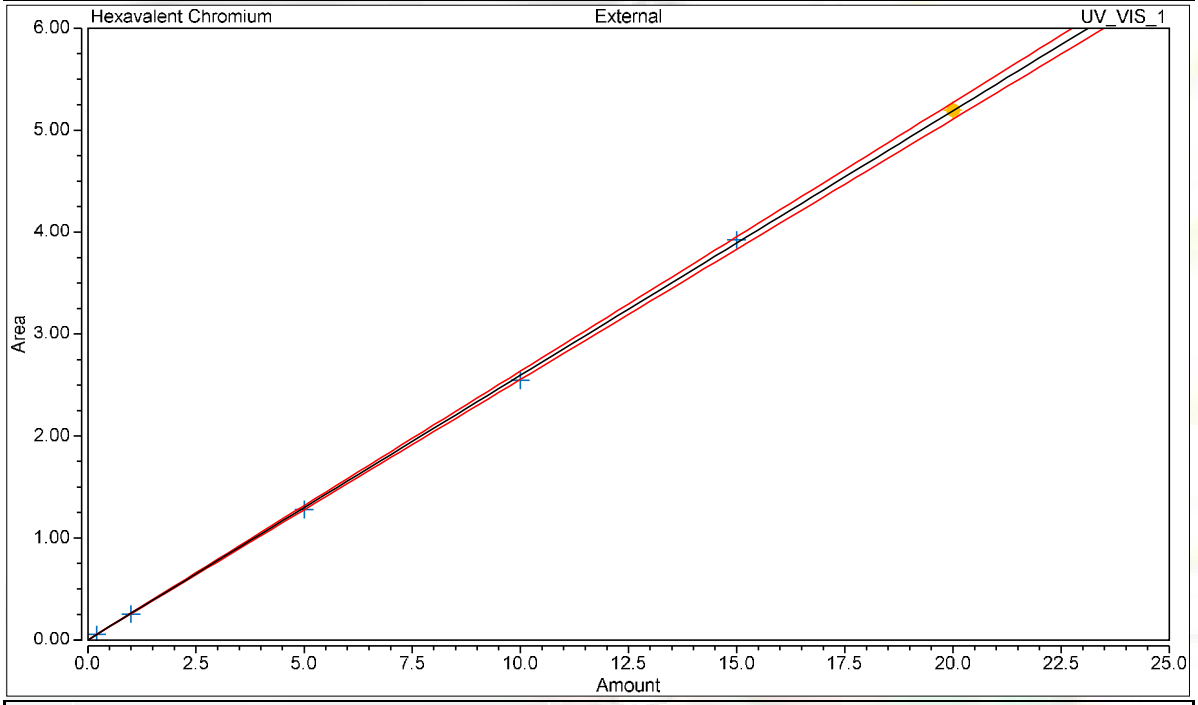
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.196	37.432	100.00	100.00	20.0236
Total:			**5.196**	**37.432**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99982

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

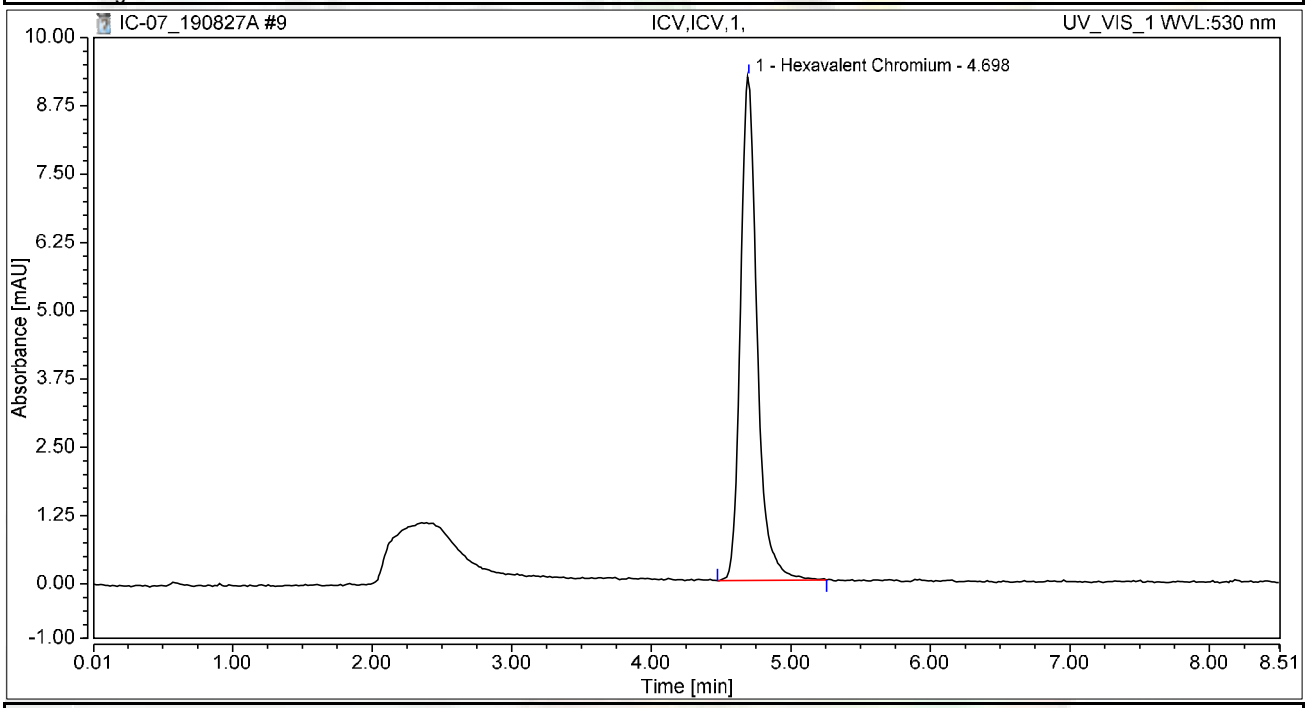
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
3	STD1-0.2 ppb	01	0.2000	0.0535	0.054	0.401
4	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.819
5	STD3-5.0 ppb	03	5.0000	1.2778	1.278	9.233
6	STD4-10.0 ppb	04	10.0000	2.5458	2.546	18.373
7	STD5-15.0 ppb	05	15.0000	3.9240	3.924	28.263
8	STD6-20.0 ppb	06	20.0000	5.1959	5.196	37.432

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

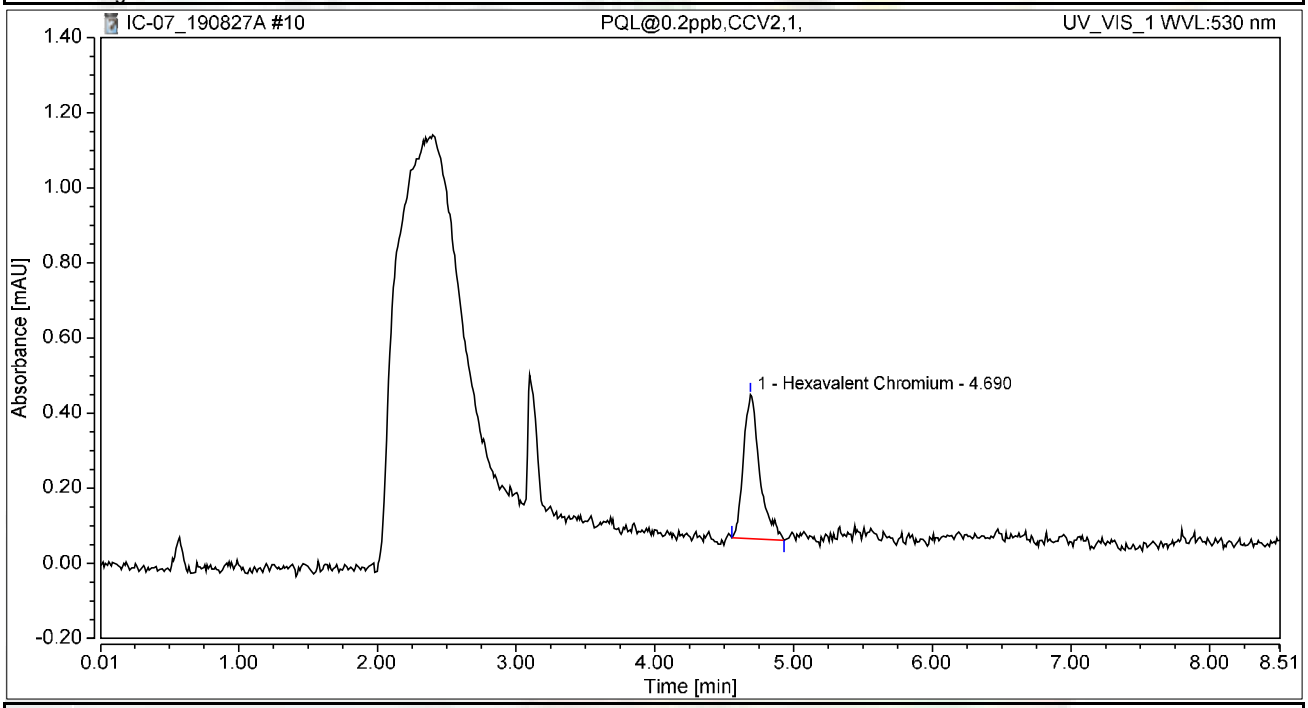
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.281	9.225	100.00	100.00	4.9381
Total:			**1.281**	**9.225**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

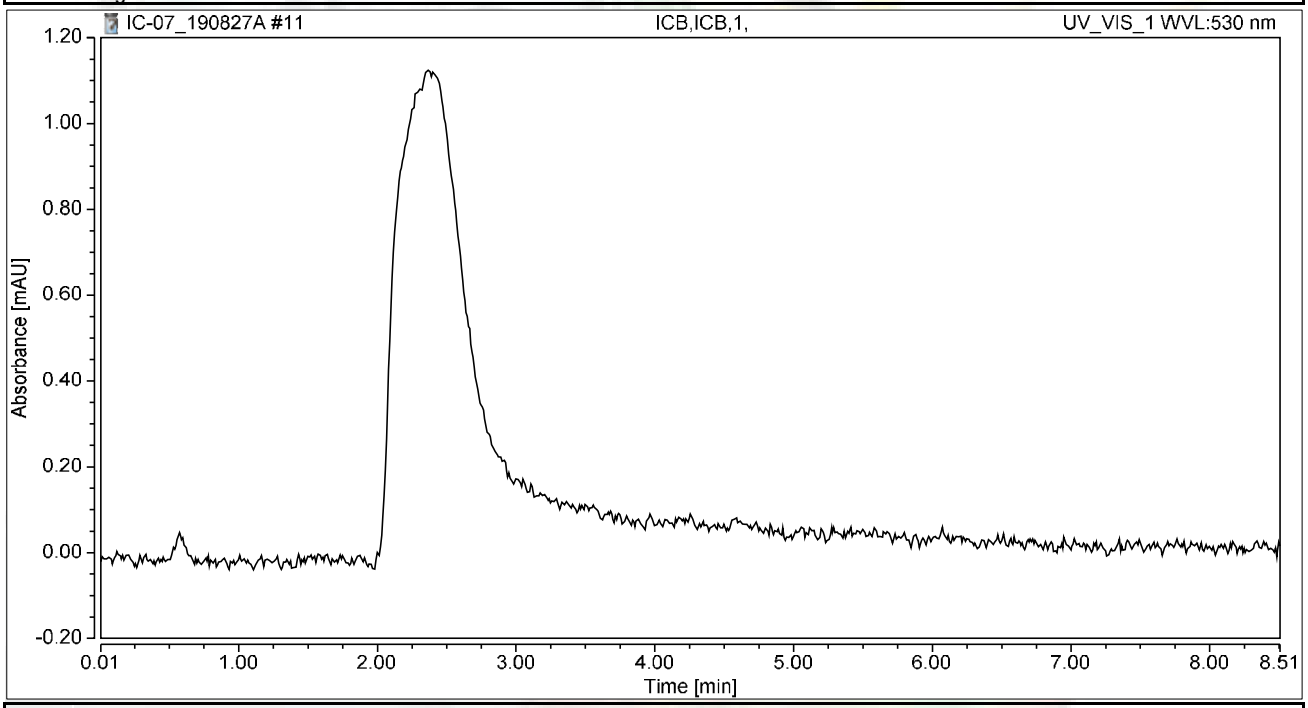
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.052	0.383	100.00	100.00	0.2022
Total:			**0.052**	**0.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 10:48 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/03/19 10:59 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/03/19 11:08 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/03/19 11:18 AM	Reported
13	MB-R136330	MBLK	1	Hexavalent Chromium	09/03/19 11:27 AM	Reported
14	LCS-R136330	LCS	1	Hexavalent Chromium	09/03/19 11:37 AM	Reported
15	N037145-002AMS	MS	1	Hexavalent Chromium	09/03/19 11:46 AM	Not Reported
16	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 11:56 AM	Not Reported
17	N037176-005AMS	MS	1	Hexavalent Chromium	09/03/19 12:05 PM	Reported
18	N037176-006AMS	MS	1	Hexavalent Chromium	09/03/19 12:14 PM	Reported
19	N037181-001AMS	MS	1	Hexavalent Chromium	09/03/19 12:24 PM	Not Reported
20	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 12:33 PM	Not Reported
21	N037145-002A	SAMP	50	Hexavalent Chromium	09/03/19 12:43 PM	Reported
22	N037147-003A	SAMP	1	Hexavalent Chromium	09/03/19 1:47 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/03/19 1:58 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/03/19 2:08 PM	Reported
25	N037176-005AMSD	MSD	1	Hexavalent Chromium	09/03/19 2:17 PM	Reported
26	N037176-005A	SAMP	1	Hexavalent Chromium	09/03/19 2:27 PM	Reported
27	N037176-005ADUP	DUP	1	Hexavalent Chromium	09/03/19 2:36 PM	Reported
28	N037176-006A	SAMP	1	Hexavalent Chromium	09/03/19 2:46 PM	Reported
29	N037181-001AMS	MS	100	Hexavalent Chromium	09/03/19 2:55 PM	Not Reported
30	N037181-001A	SAMP	100	Hexavalent Chromium	09/03/19 3:05 PM	Not Reported
31	N037145-002AMS	MS	50	Hexavalent Chromium	09/03/19 3:14 PM	Reported
32	N037148-001AMS	MS	1	Hexavalent Chromium	09/03/19 3:23 PM	Reported
33	N037148-002AMS	MS	1	Hexavalent Chromium	09/03/19 3:33 PM	Reported
34	N037148-003AMS	MS	1	Hexavalent Chromium	09/03/19 3:42 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/03/19 3:52 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/03/19 4:01 PM	Reported
37	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 4:11 PM	Not Reported
38	N037148-005AMS	MS	1	Hexavalent Chromium	09/03/19 4:20 PM	Reported
39	N037148-006AMS	MS	1	Hexavalent Chromium	09/03/19 4:30 PM	Reported
40	N037148-007AMS	MS	1	Hexavalent Chromium	09/03/19 4:39 PM	Reported
41	N037148-008AMS	MS	1	Hexavalent Chromium	09/03/19 4:56 PM	Reported
42	N037148-009AMS	MS	1	Hexavalent Chromium	09/03/19 5:07 PM	Reported

INJECTION LOG: 190903A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037148-010AMS	MS	1	Hexavalent Chromium	09/03/19 5:16 PM	Reported
44	N037147-003AMS	MS	1	Hexavalent Chromium	09/03/19 5:26 PM	Reported
45	N037181-001AMS	MS	200	Hexavalent Chromium	09/03/19 5:35 PM	Reported
46	N037181-001A	SAMP	200	Hexavalent Chromium	09/03/19 5:45 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	09/03/19 5:54 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	09/03/19 6:04 PM	Reported
49	N037148-001A	SAMP	1	Hexavalent Chromium	09/03/19 6:13 PM	Reported
50	N037148-002A	SAMP	1	Hexavalent Chromium	09/03/19 6:23 PM	Reported
51	N037148-003A	SAMP	1	Hexavalent Chromium	09/03/19 6:32 PM	Reported
52	N037148-004A	SAMP	1	Hexavalent Chromium	09/03/19 6:42 PM	Reported
53	N037148-005A	SAMP	1	Hexavalent Chromium	09/03/19 6:51 PM	Reported
54	N037148-006A	SAMP	1	Hexavalent Chromium	09/03/19 7:01 PM	Reported
55	N037148-007A	SAMP	1	Hexavalent Chromium	09/03/19 7:10 PM	Reported
56	N037148-008A	SAMP	1	Hexavalent Chromium	09/03/19 7:19 PM	Reported
57	N037148-009A	SAMP	1	Hexavalent Chromium	09/03/19 7:29 PM	Reported
58	N037148-010A	SAMP	1	Hexavalent Chromium	09/03/19 7:38 PM	Reported
59	CCV-5	CCV	1	Hexavalent Chromium	09/03/19 7:48 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	09/03/19 7:57 PM	Reported
61	N037148-004AMS	MS	1	Hexavalent Chromium	09/03/19 8:07 PM	Reported
62	N037148-011AMS	MS	1	Hexavalent Chromium	09/03/19 8:16 PM	Not Reported
63	N037148-011A	SAMP	1	Hexavalent Chromium	09/03/19 8:26 PM	Not Reported
64	N037148-012AMS	MS	1	Hexavalent Chromium	09/03/19 8:35 PM	Reported
65	N037148-012A	SAMP	1	Hexavalent Chromium	09/03/19 8:45 PM	Reported
66	N037148-013AMS	MS	1	Hexavalent Chromium	09/03/19 8:54 PM	Reported
67	N037148-013A	SAMP	1	Hexavalent Chromium	09/03/19 9:04 PM	Reported
68	CCV-6	CCV1	1	Hexavalent Chromium	09/03/19 9:13 PM	Reported
69	CCB-6	CCB	1	Hexavalent Chromium	09/03/19 9:22 PM	Reported
70	BLANK	BLANK	1	Hexavalent Chromium	09/03/19 9:32 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190903A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/Sep/19 09:44:10**
No. of Injections:	**73**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/03/2019 10:48	Finished	BLANK
10	~~CCV1~~CCV,1,	2	1000	Unknown		09/03/2019 10:59	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/03/2019 11:08	Finished	PQL @ 0.2ppb
12	~~CCB~~1,CCB,1,	4	1000	Unknown		09/03/2019 11:18	Finished	CCB R190701
13	MB-H2O,MBLK,1,	5	1000	Unknown		09/03/2019 11:27	Finished	MB R190701
14	LCS-H2O,LCS,1,	6	1000	Unknown		09/03/2019 11:37	Finished	LCS @5ppb, IWST-190702B
15	N037145-002AMS,MS	8	1000	Unknown		09/03/2019 11:46	Finished	MS (1ppb), IWST-190702B,10
16	N037147-003AMS,MS	9	1000	Unknown		09/03/2019 11:56	Finished	MS (1ppb), IWST-190702B,10
17	N037176-005AMS,MS	10	1000	Unknown		09/03/2019 12:05	Finished	MS (1ppb), IWST-190702B,10
18	N037176-006AMS,MS	11	1000	Unknown		09/03/2019 12:14	Finished	MS (1ppb), IWST-190702B,10
19	N037181-001AMS,MS	12	1000	Unknown		09/03/2019 12:24	Finished	MS (1ppb), IWST-190702B,10
20	N037145-002AMS,MS	13	1000	Unknown		09/03/2019 12:33	Finished	MS (5ppb), IWST-190702B,0.2
21	N037145-002A,SAMP	14	1000	Unknown		09/03/2019 12:43	Finished	SAMP,0.2>10mL
22	N037147-003A,SAMP	15	1000	Unknown		09/03/2019 13:47	Finished	SAMP,10mL
23	CCV-2,CCV1,1,	16	1000	Unknown		09/03/2019 13:58	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	17	1000	Unknown		09/03/2019 14:08	Finished	CCB R190617C
25	N037176-005AMSD,M	18	1000	Unknown		09/03/2019 14:17	Finished	MSD (1ppb), IWST-190702B,10
26	N037176-005A,SAMP	19	1000	Unknown		09/03/2019 14:27	Finished	SAMP,10mL
27	N037176-005ADUP,D	20	1000	Unknown		09/03/2019 14:36	Finished	SAMP,10mL
28	N037176-006A,SAMP	21	1000	Unknown		09/03/2019 14:46	Finished	MS (1ppb), IWST-190702B,10
29	N037181-001AMS,MS	22	1000	Unknown		09/03/2019 14:55	Finished	MS (5ppb), IWST-190702B,0.1
30	N037181-001A,SAMP	23	1000	Unknown		09/03/2019 15:05	Finished	SAMP,0.1>10mL
31	N037145-002AMS,MS	24	1000	Unknown		09/03/2019 15:14	Finished	MS (5ppb), IWST-190702B,0.2
32	N037148-001AMS,MS	25	1000	Unknown		09/03/2019 15:23	Finished	MS (1ppb), IWST-190702B,10
33	N037148-002AMS,MS	26	1000	Unknown		09/03/2019 15:33	Finished	MS (1ppb), IWST-190702B,10
34	N037148-003AMS,MS	27	1000	Unknown		09/03/2019 15:42	Finished	MS (1ppb), IWST-190702B,10
35	CCV-3,CCV,1,	28	1000	Unknown		09/03/2019 15:52	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	29	1000	Unknown		09/03/2019 16:01	Finished	CCB R190617C
37	N037148-004AMS,MS	30	1000	Unknown		09/03/2019 16:11	Finished	MS (1ppb), IWST-190702B,10
38	N037148-005AMS,MS	31	1000	Unknown		09/03/2019 16:20	Finished	MS (1ppb), IWST-190702B,10
39	N037148-006AMS,MS	32	1000	Unknown		09/03/2019 16:30	Finished	MS (1ppb), IWST-190702B,10
40	N037148-007AMS,MS	33	1000	Unknown		09/03/2019 16:39	Finished	MS (1ppb), IWST-190702B,10
41	N037148-008AMS,MS	1	1000	Unknown		09/03/2019 16:56	Finished	MS (1ppb), IWST-190702B,10
42	N037148-009AMS,MS	2	1000	Unknown		09/03/2019 17:07	Finished	MS (1ppb), IWST-190702B,10
43	N037148-010AMS,MS	3	1000	Unknown		09/03/2019 17:16	Finished	MS (1ppb), IWST-190702B,10
44	N037147-003AMS,MS	4	1000	Unknown		09/03/2019 17:26	Finished	MS (1ppb), IWST-190702B,10
45	N037181-001AMS,MS	5	1000	Unknown		09/03/2019 17:35	Finished	MS (5ppb), IWST-190702B,0.0
46	N037181-001A,SAMP	6	1000	Unknown		09/03/2019 17:45	Finished	SAMP,0.05>10mL
47	CCV-4,CCV1,1,	7	1000	Unknown		09/03/2019 17:54	Finished	CCV @10ppb, IWST-190702A
48	CCB-4,CCB,1,	8	1000	Unknown		09/03/2019 18:04	Finished	CCB R190617C
49	N037148-001A,SAMP	9	1000	Unknown		09/03/2019 18:13	Finished	SAMP,10mL
50	N037148-002A,SAMP	10	1000	Unknown		09/03/2019 18:23	Finished	SAMP,10mL
51	N037148-003A,SAMP	11	1000	Unknown		09/03/2019 18:32	Finished	SAMP,10mL
52	N037148-004A,SAMP	12	1000	Unknown		09/03/2019 18:42	Finished	SAMP,10mL
53	N037148-005A,SAMP	13	1000	Unknown		09/03/2019 18:51	Finished	SAMP,10mL
54	N037148-006A,SAMP	14	1000	Unknown		09/03/2019 19:01	Finished	SAMP,10mL
55	N037148-007A,SAMP	15	1000	Unknown		09/03/2019 19:10	Finished	SAMP,10mL
56	N037148-008A,SAMP	16	1000	Unknown		09/03/2019 19:19	Finished	SAMP,10mL
57	N037148-009A,SAMP	17	1000	Unknown		09/03/2019 19:29	Finished	SAMP,10mL
58	N037148-010A,SAMP	18	1000	Unknown		09/03/2019 19:38	Finished	SAMP,10mL
59	CCV-5,CCV,1,	19	1000	Unknown		09/03/2019 19:48	Finished	CCV @5ppb, IWST-190702A
60	CCB-5,CCB,1,	20	1000	Unknown		09/03/2019 19:57	Finished	CCB R190617C

CCV-1

CCB-1

61	N037148-004AMS,MS	21	1000	Unknown		09/03/2019 20:07	Finished	MS (1ppb), IWST-190702B,10
62	N037148-011AMS,MS	22	1000	Unknown		09/03/2019 20:16	Finished	MS (1ppb), IWST-190702B,10
63	N037148-011A,SAMP	23	1000	Unknown		09/03/2019 20:26	Finished	SAMP,10mL
64	N037148-012AMS,MS	24	1000	Unknown		09/03/2019 20:35	Finished	MS (1ppb), IWST-190702B,10
65	N037148-012A,SAMP	25	1000	Unknown		09/03/2019 20:45	Finished	SAMP,10mL
66	N037148-013AMS,MS	26	1000	Unknown		09/03/2019 20:54	Finished	MS (1ppb), IWST-190702B,10
67	N037148-013A,SAMP	27	1000	Unknown		09/03/2019 21:04	Finished	SAMP,10mL
68	CCV-6,CCV1,1,	28	1000	Unknown		09/03/2019 21:13	Finished	CCV @10ppb, IWST-190702A
69	CCB-6,CCB,1,	29	1000	Unknown		09/03/2019 21:22	Finished	CCB R190617C
70	BLANK	30	1000	Unknown		09/03/2019 21:32	Finished	BLANK
71	SHUTDOWN	31	1000	Unknown		09/03/2019 21:41	Finished	
72	Eluent: R190903A	32	1000	Unknown		n.a.	Finished	Eluent
73	PCR: R190903B	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

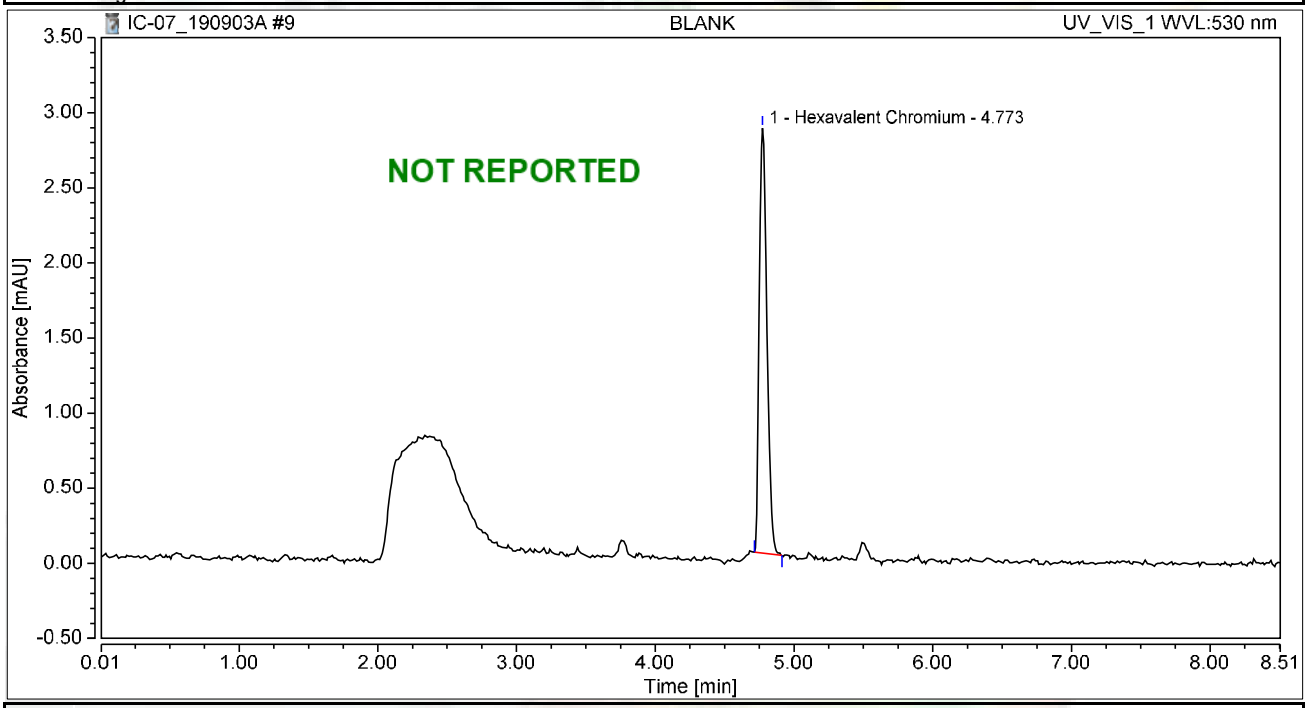
09/10/19

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 10:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

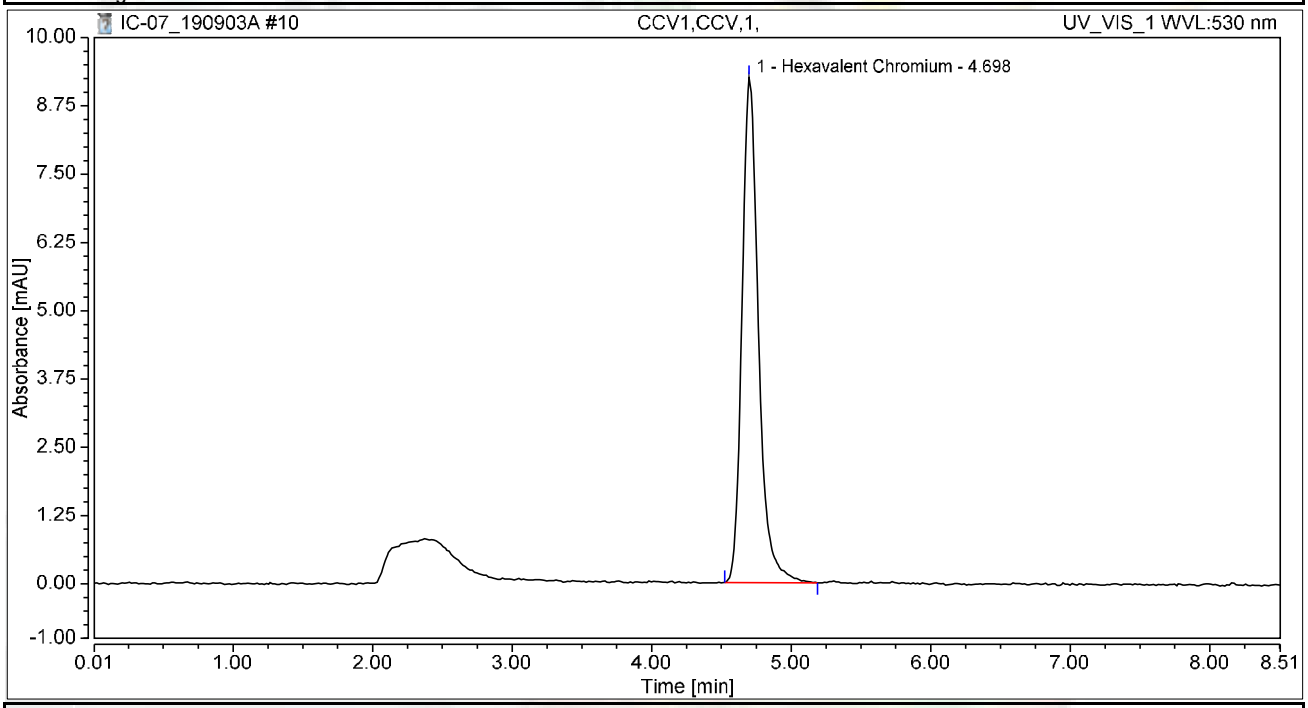
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.183	2.830	100.00	100.00	0.7044
Total:			**0.183**	**2.830**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 10:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

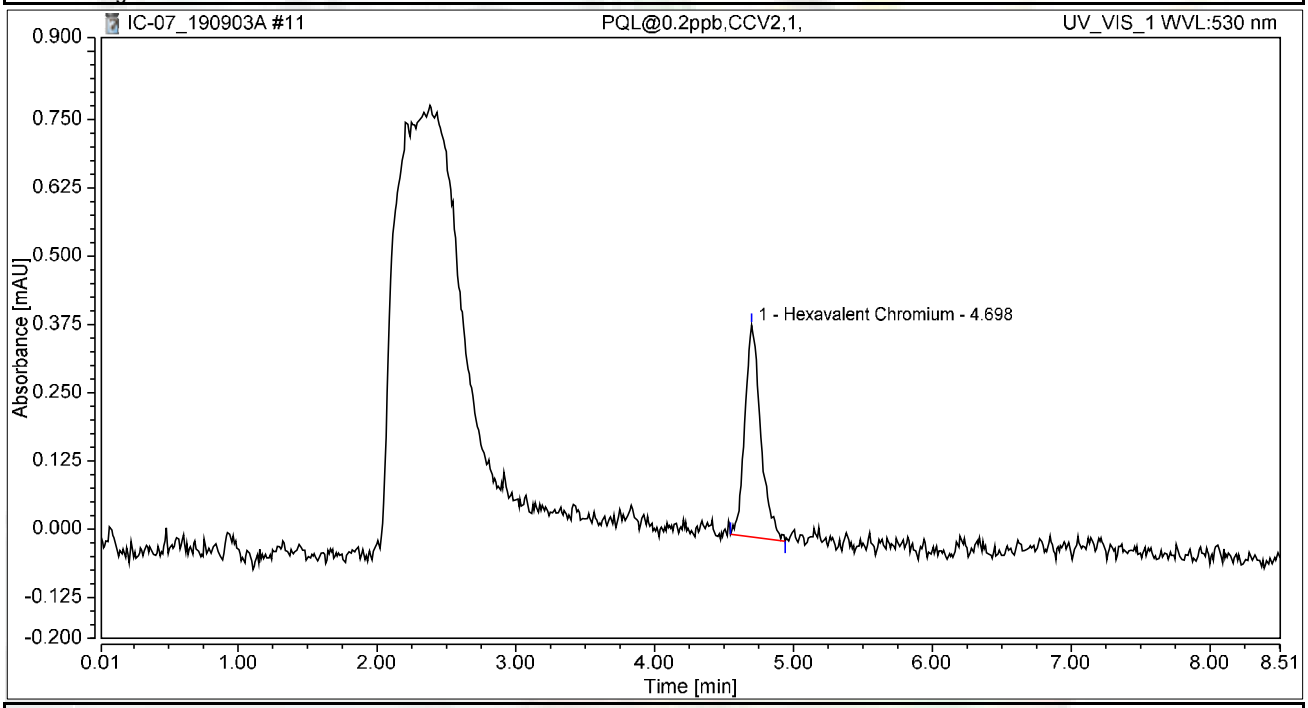
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.268	9.244	100.00	100.00	4.8848
Total:			**1.268**	**9.244**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

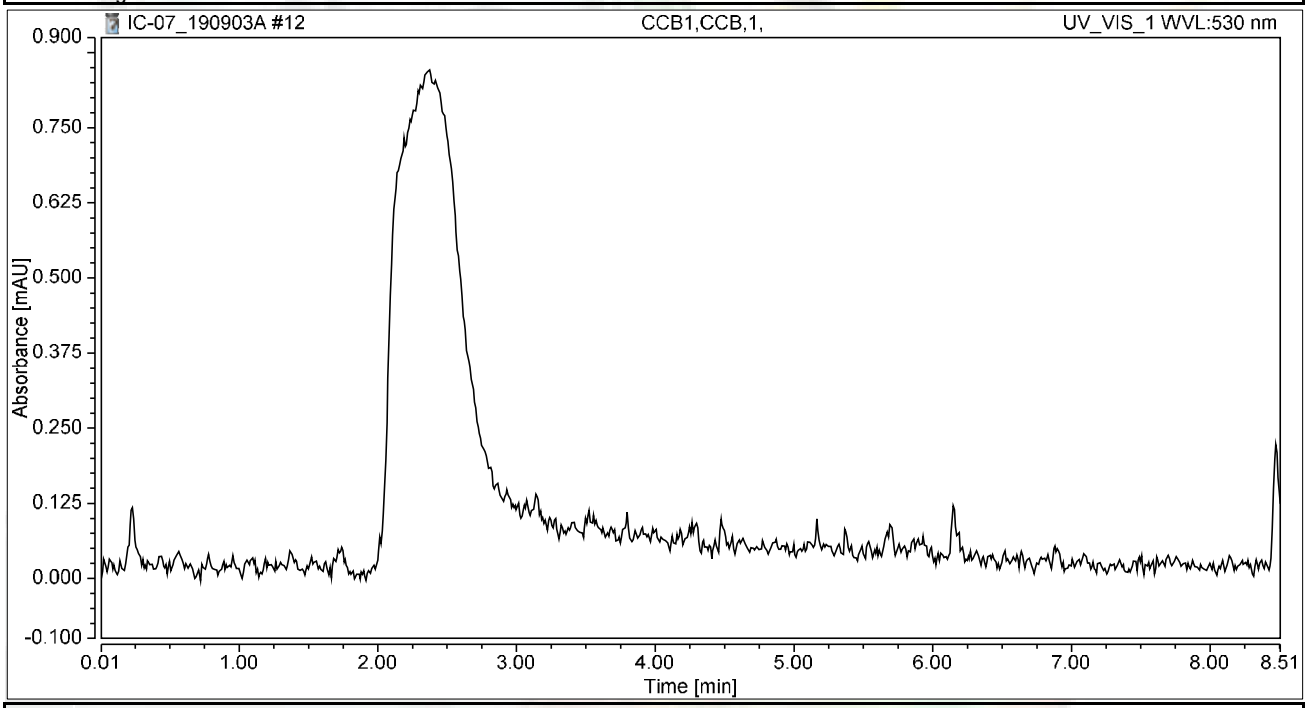
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.051	0.387	100.00	100.00	0.1984
Total:			**0.051**	**0.387**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

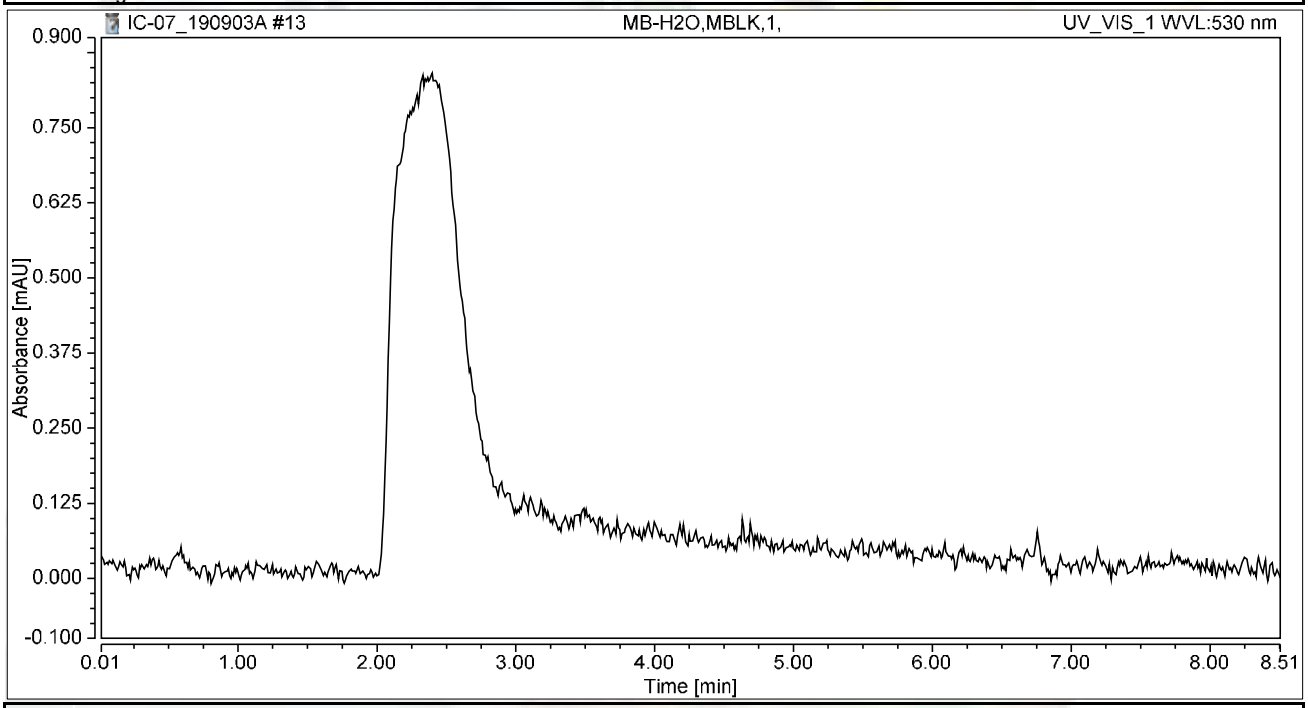
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

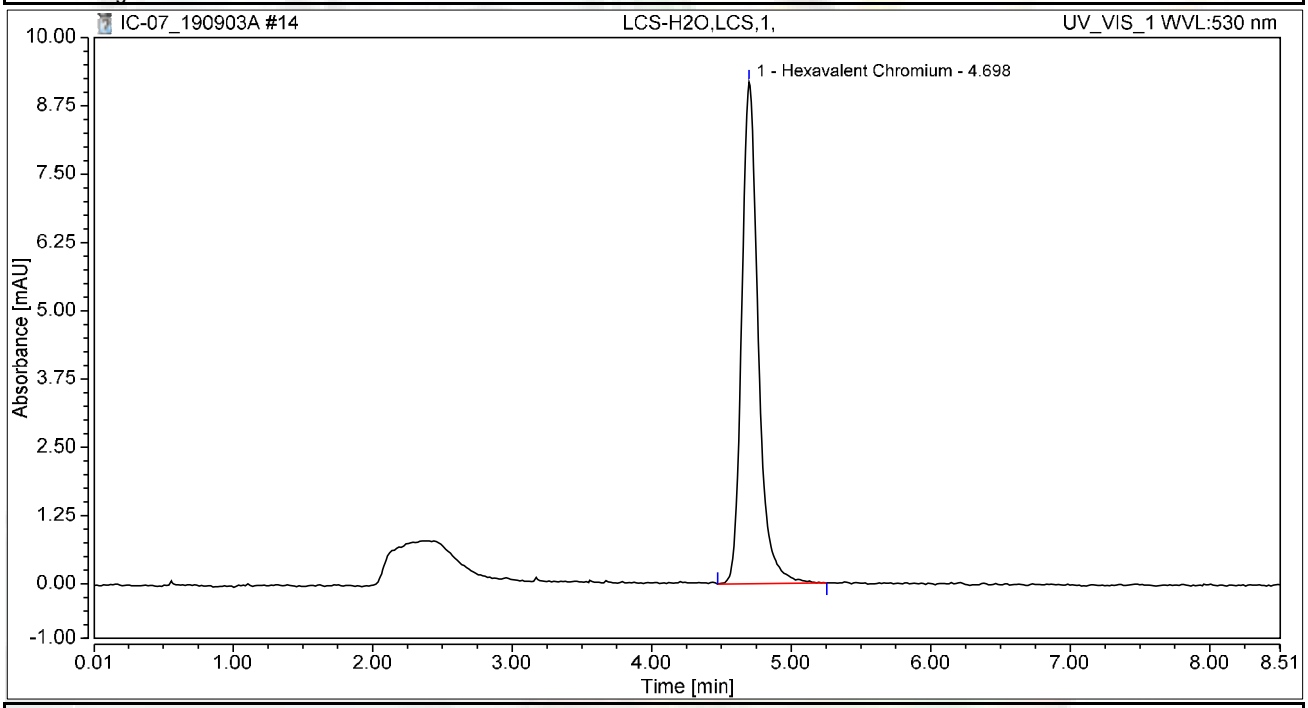
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

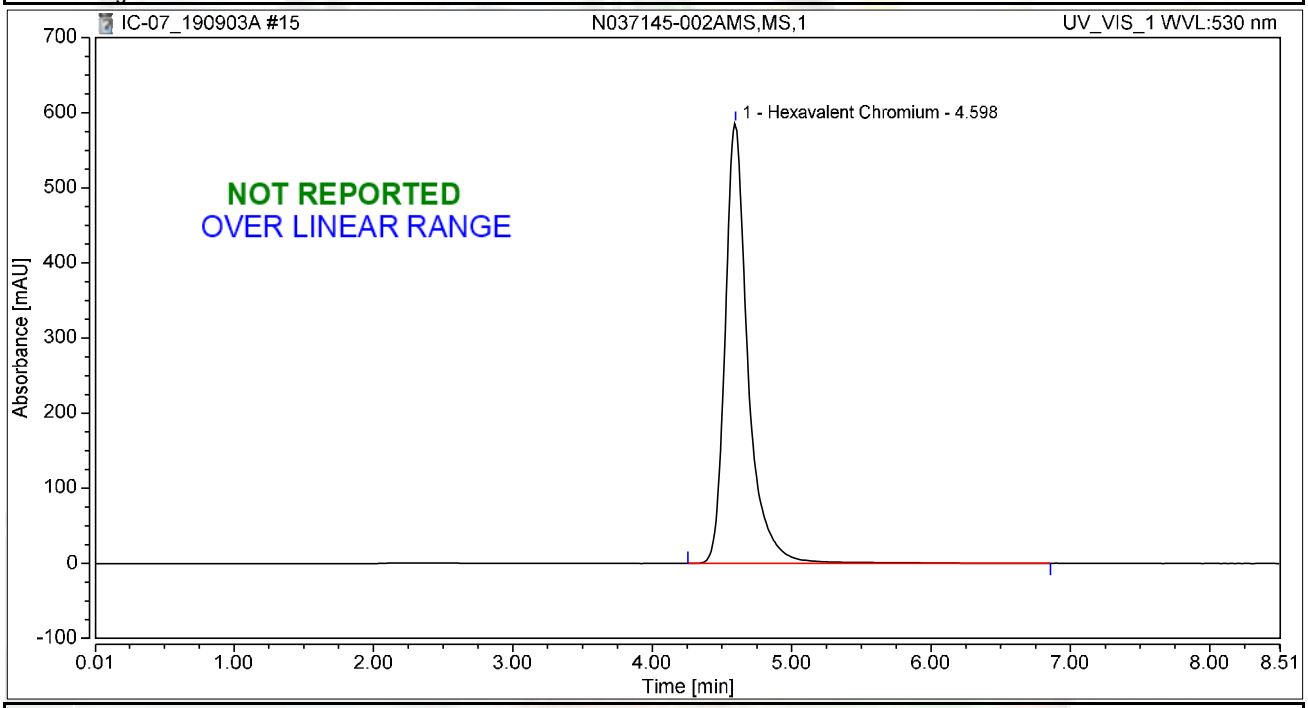
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.265	9.189	100.00	100.00	4.8732
Total:			**1.265**	**9.189**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

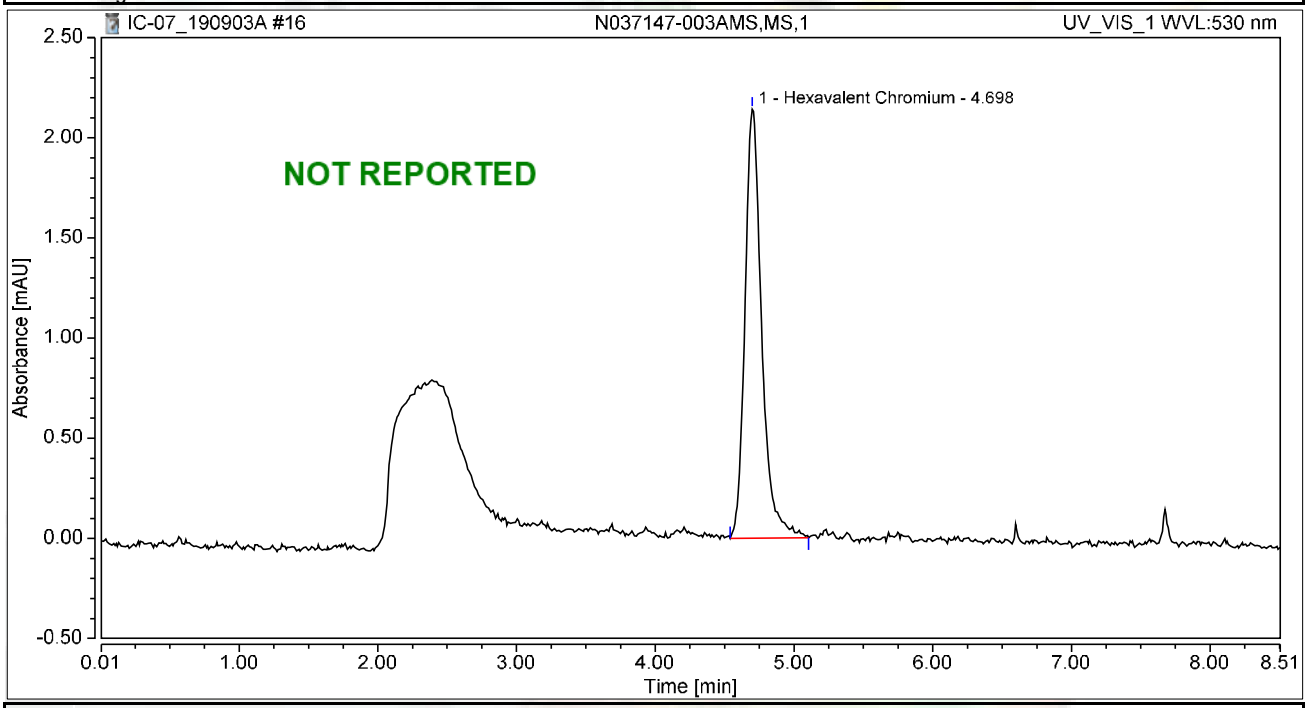
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	110.927	585.723	100.00	100.00	427.4791
Total:			**110.927**	**585.723**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037147-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 11:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

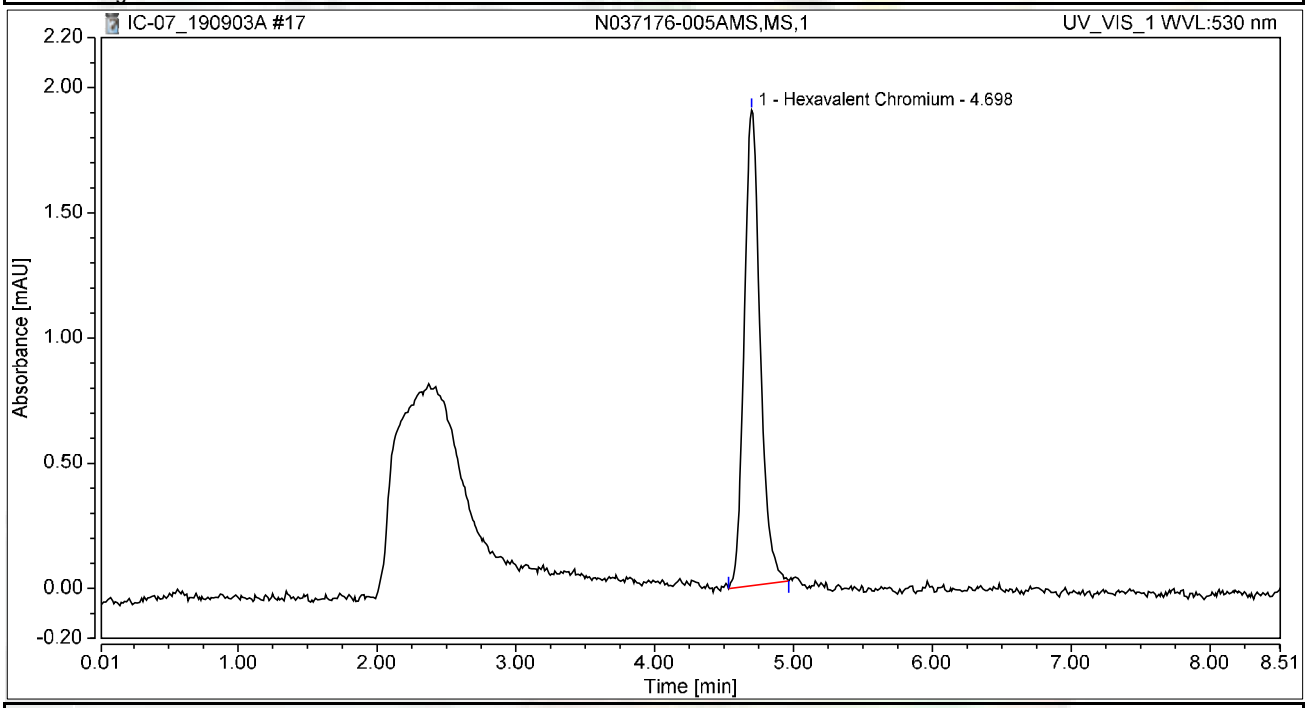
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.301	2.143	100.00	100.00	1.1583
Total:			**0.301**	**2.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

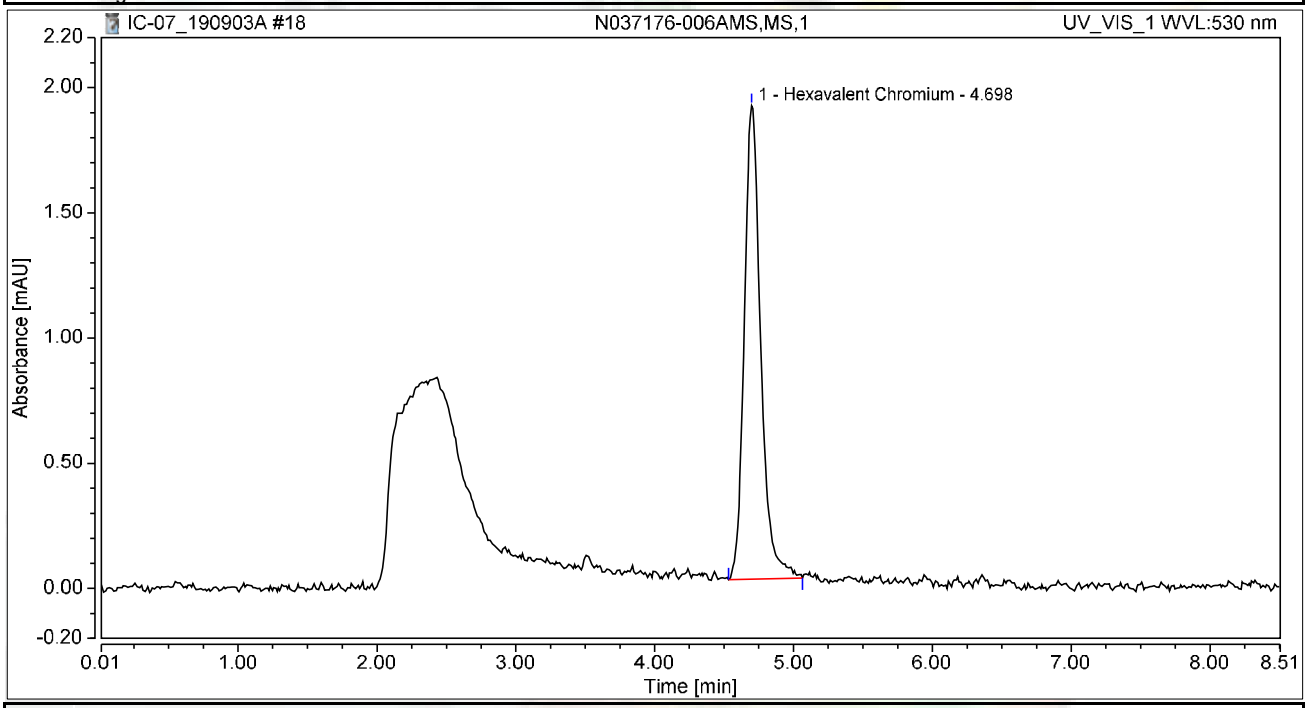
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.254	1.898	100.00	100.00	0.9784
Total:			**0.254**	**1.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-006AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

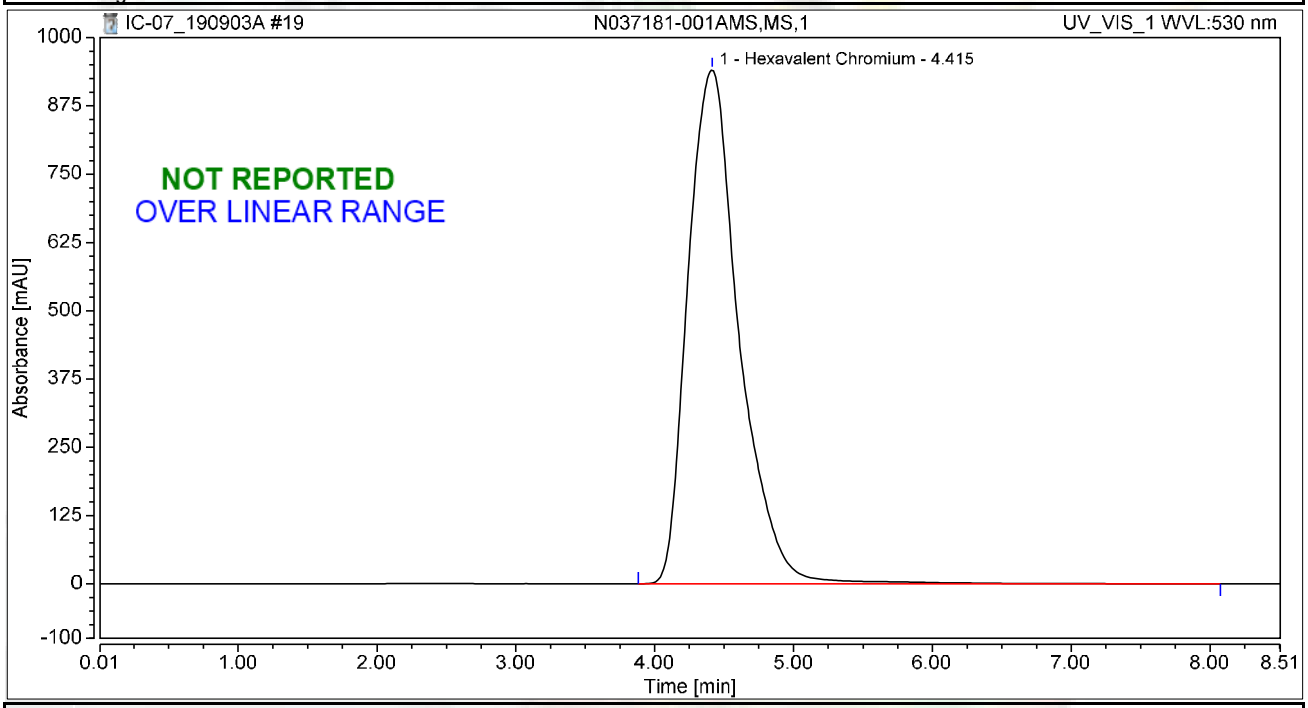
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.260	1.891	100.00	100.00	1.0029
Total:			**0.260**	**1.891**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

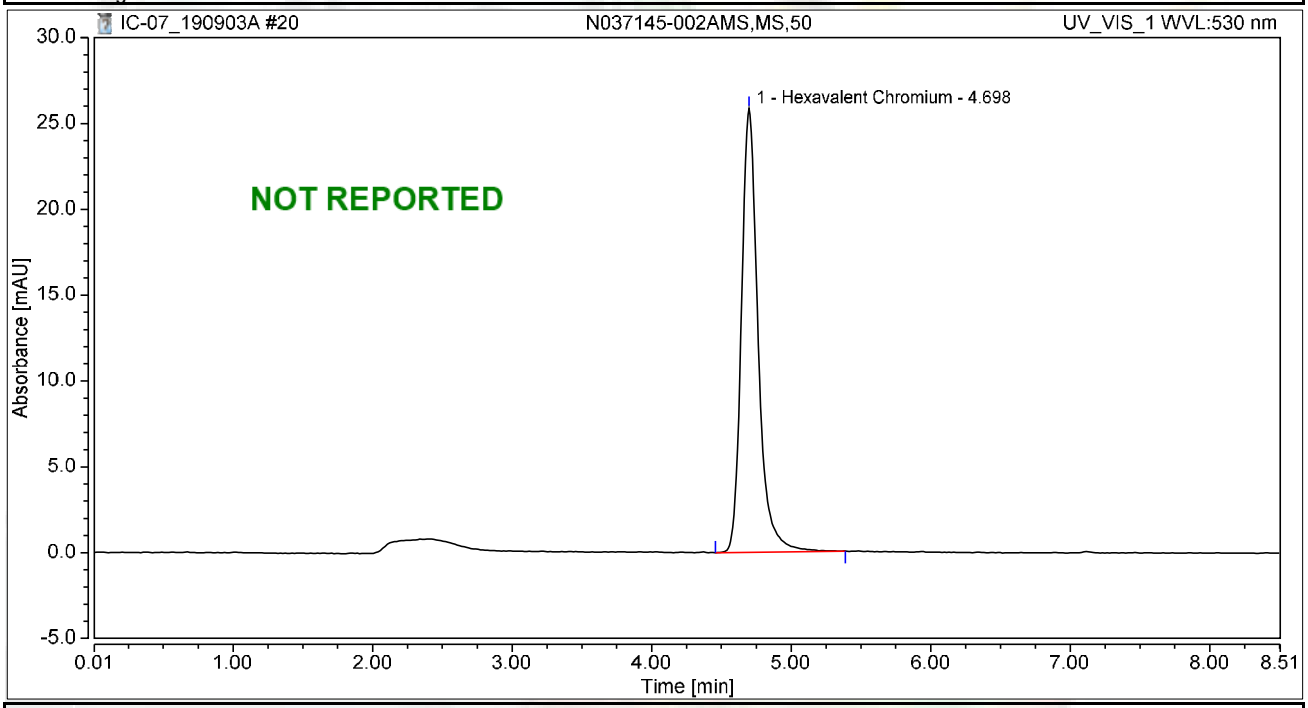
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.415	402.405	941.170	100.00	100.00	1550.7467
Total:			**402.405**	**941.170**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

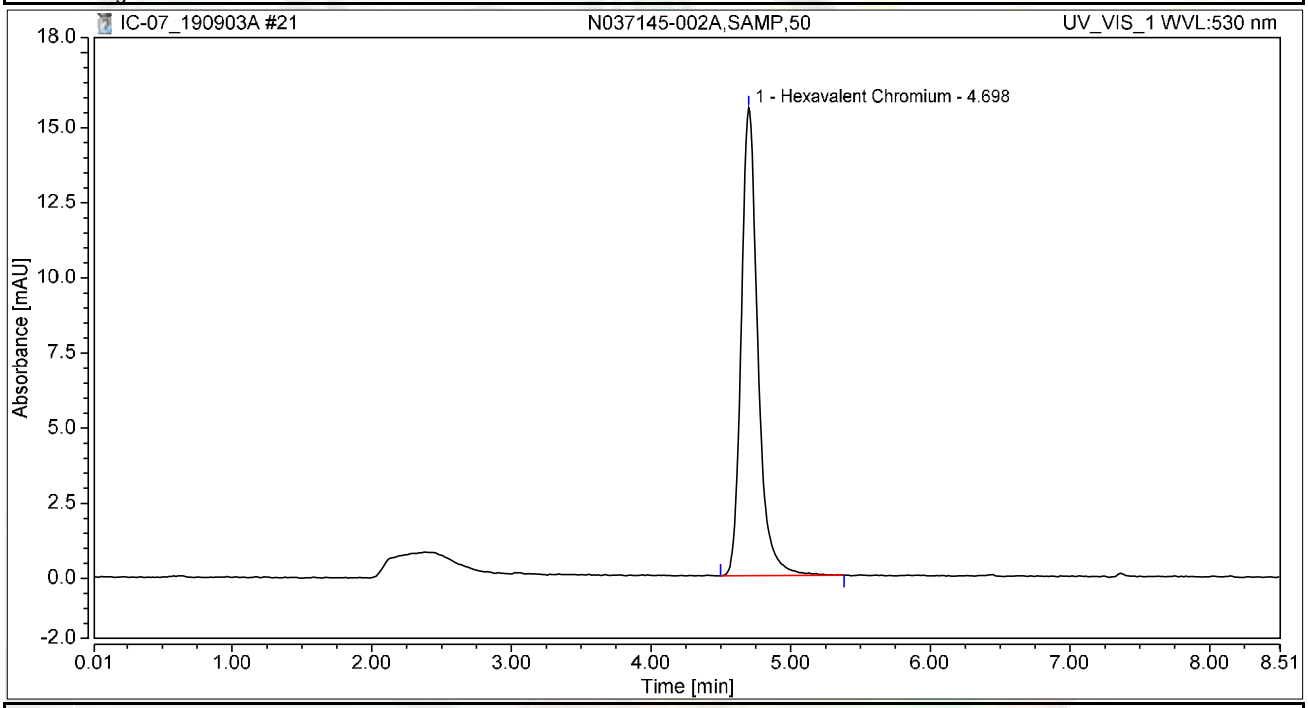
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	3.591	25.854	100.00	100.00	13.8384
Total:			**3.591**	**25.854**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 12:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

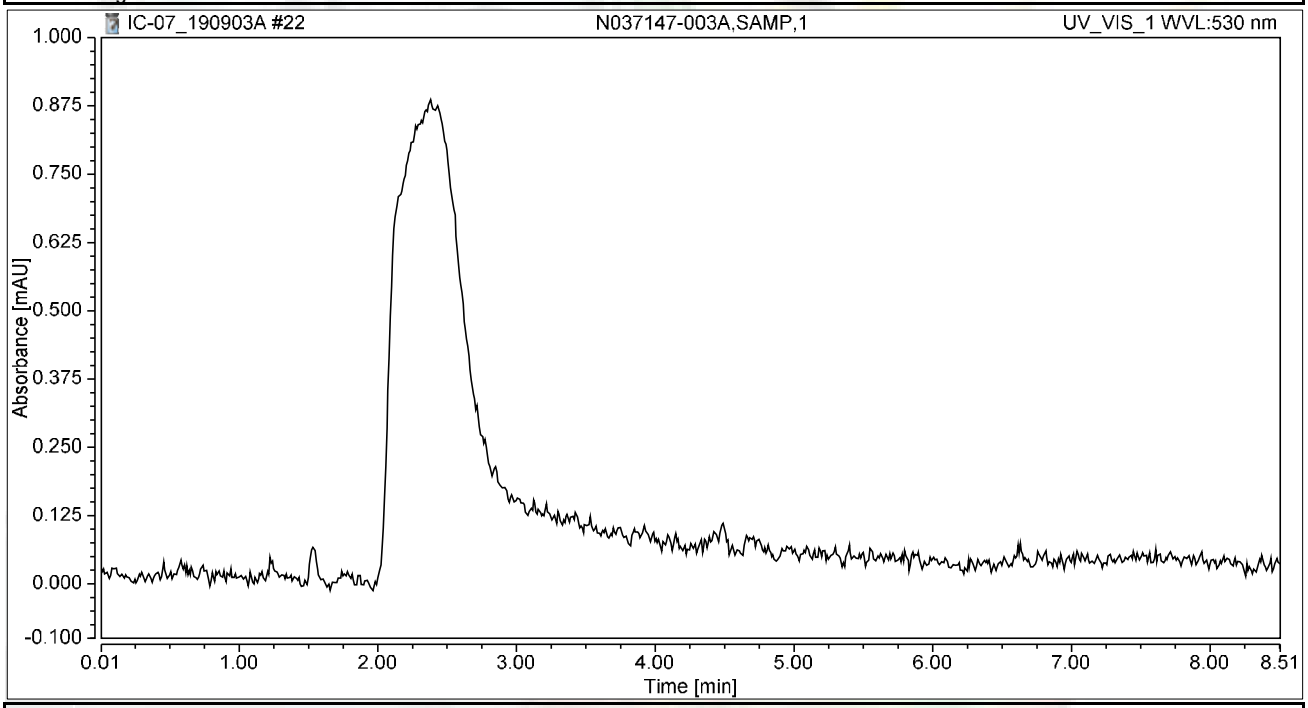
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.151	15.581	100.00	100.00	8.2904
Total:			**2.151**	**15.581**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037147-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

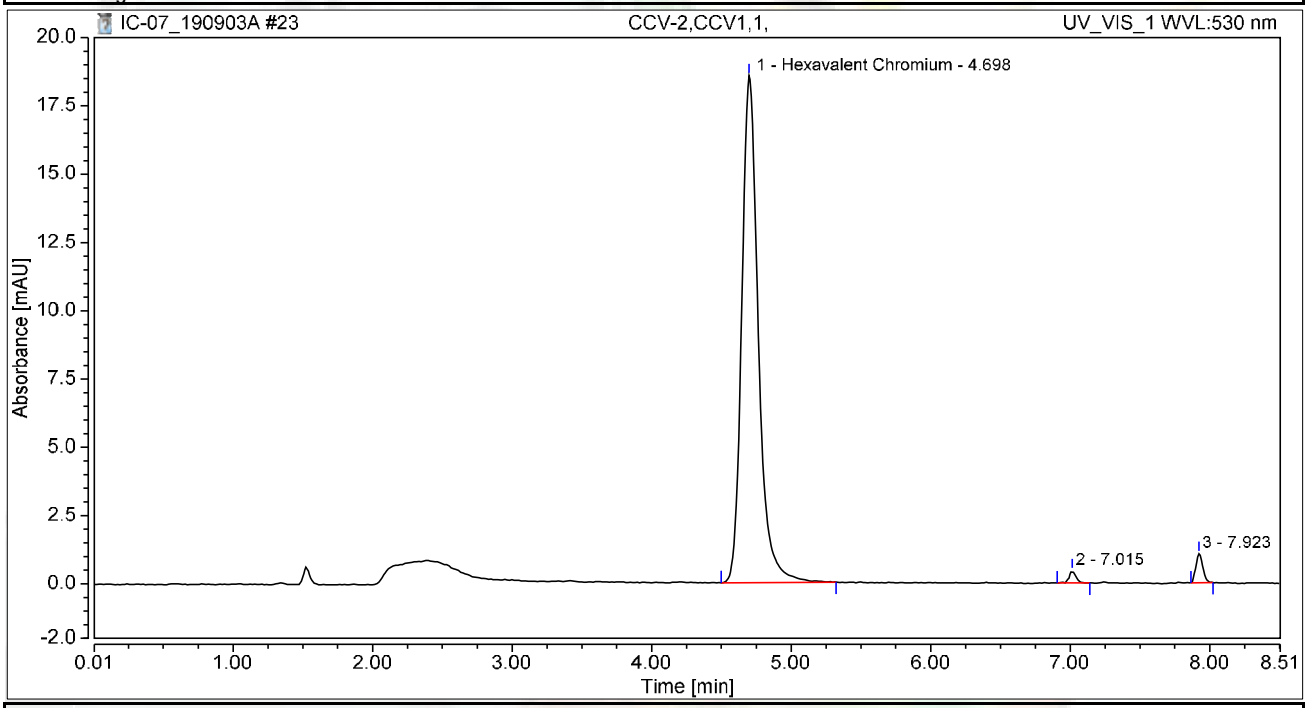
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 13:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

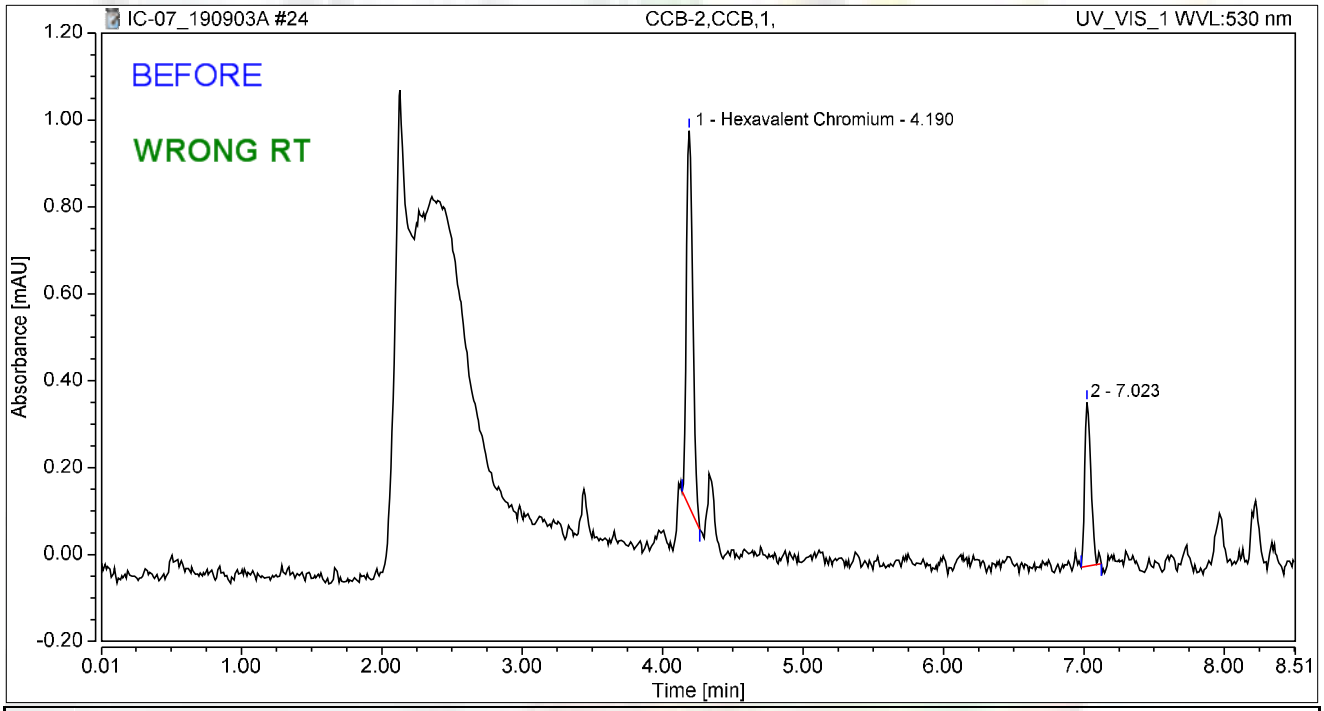
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.559	18.558	96.70	92.42	9.8602
2		7.015	0.027	0.456	1.01	2.27	n.a.
3		7.923	0.061	1.065	2.29	5.30	n.a.
Total:			**2.646**	**20.079**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

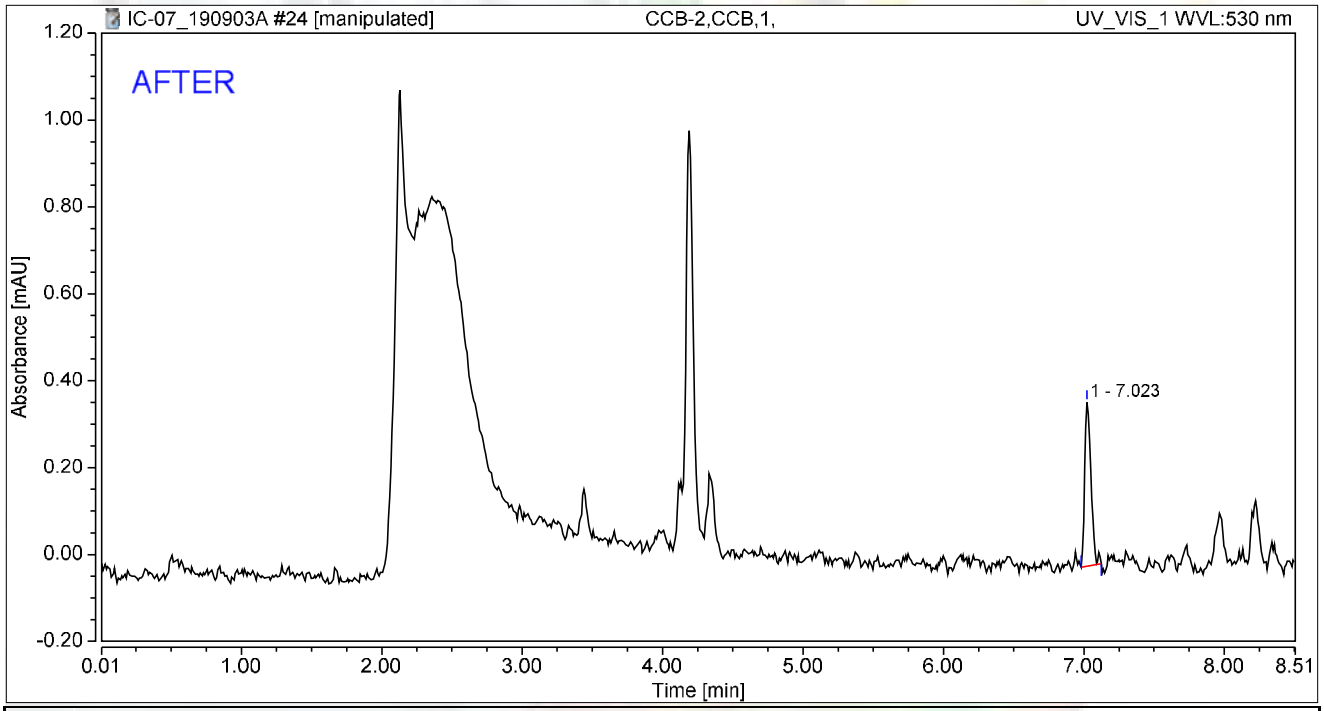
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.045	0.865	69.81	69.62	0.1735
2		7.023	0.019	0.377	30.19	30.38	n.a.
Total:			**0.064**	**1.242**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

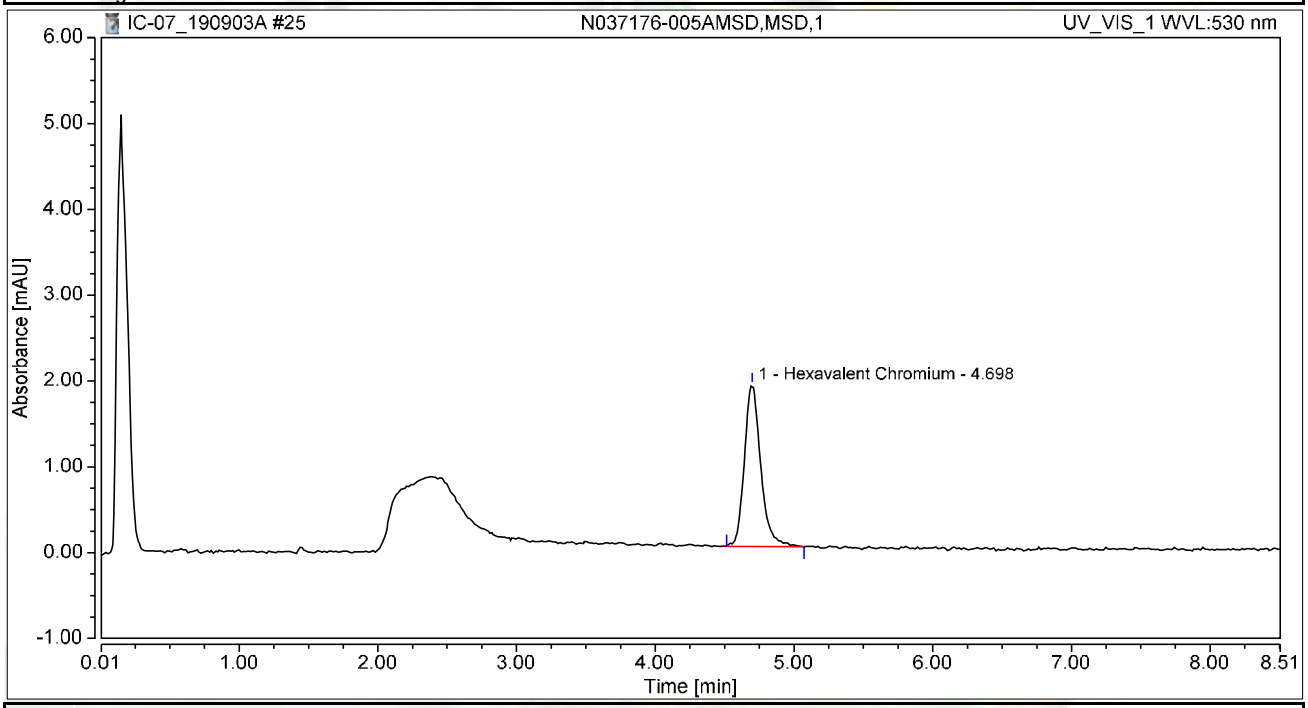
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.023	0.019	0.377	100.00	100.00	n.a.
Total:			**0.019**	**0.377**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005AMSD,MSD,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

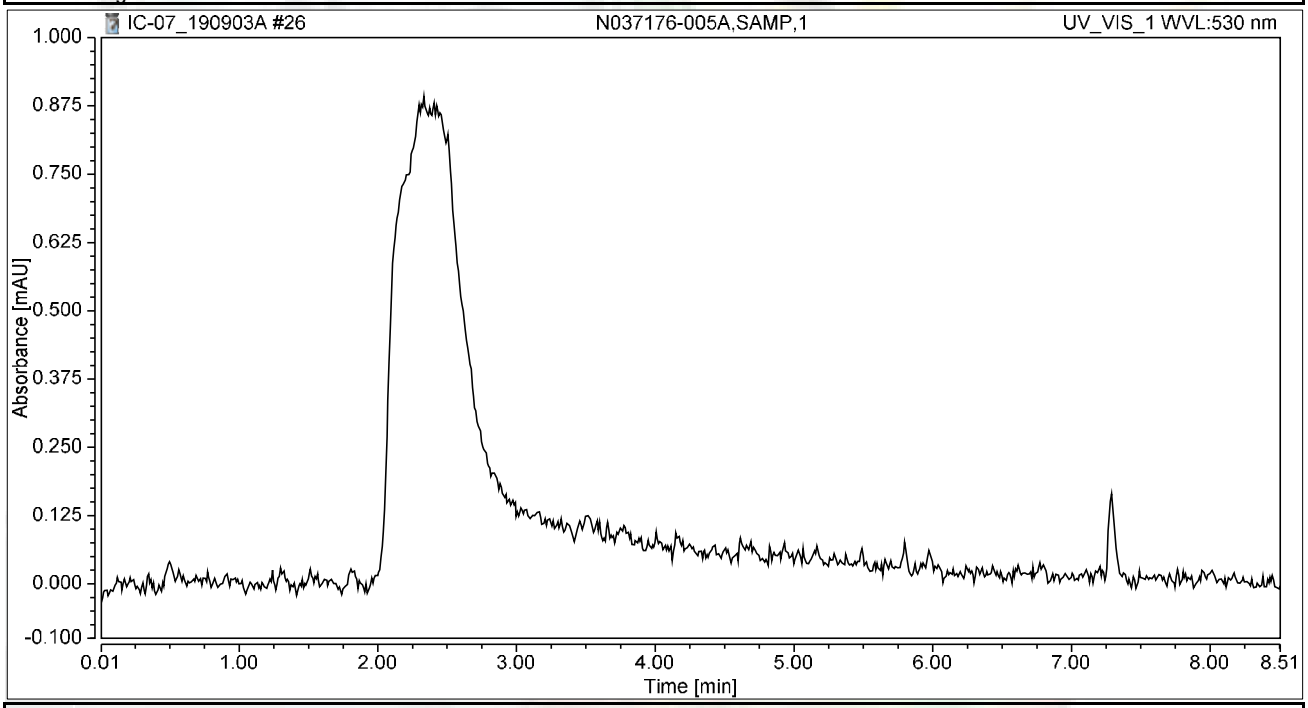
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.260	1.884	100.00	100.00	1.0007
Total:			**0.260**	**1.884**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

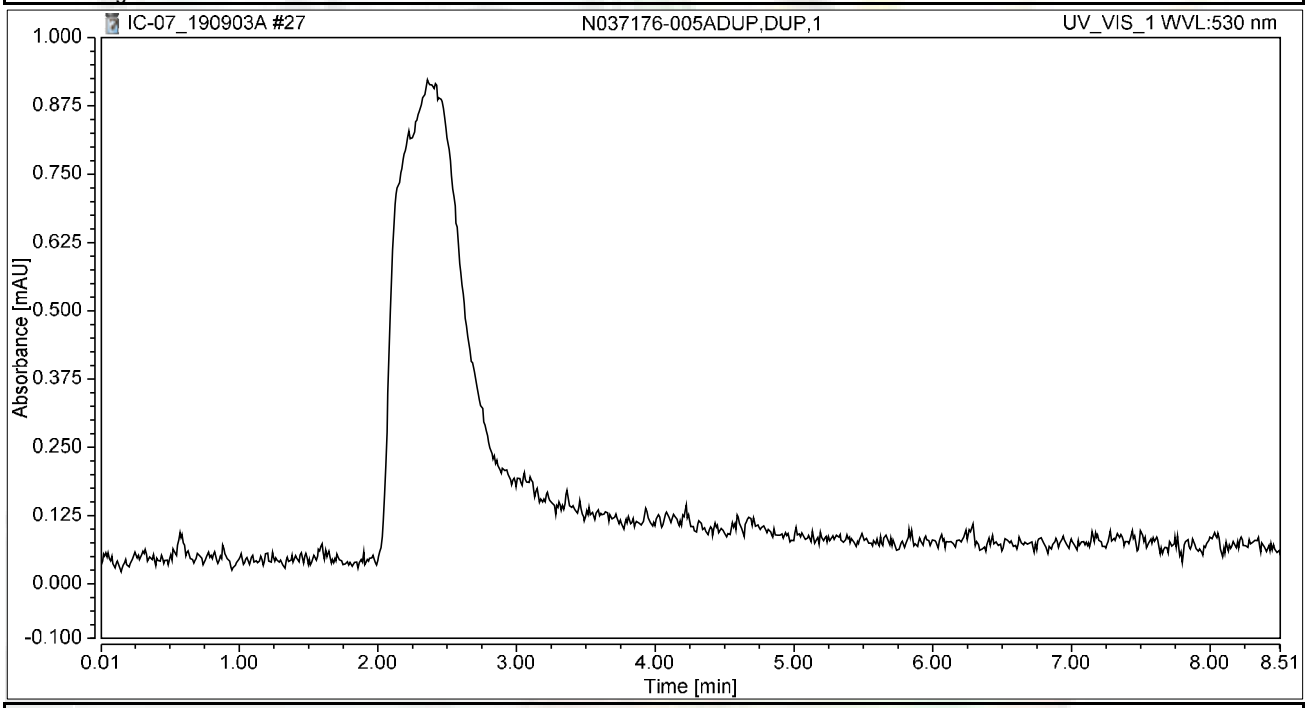
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-005ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

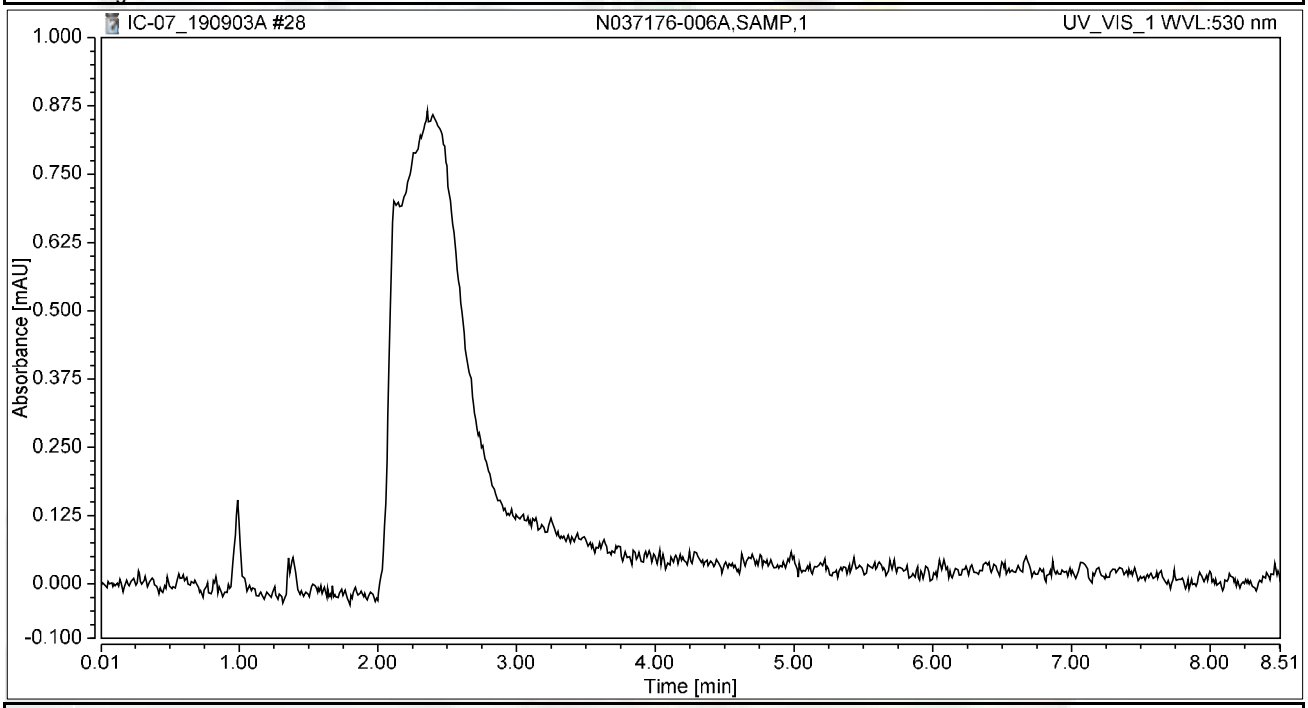
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037176-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

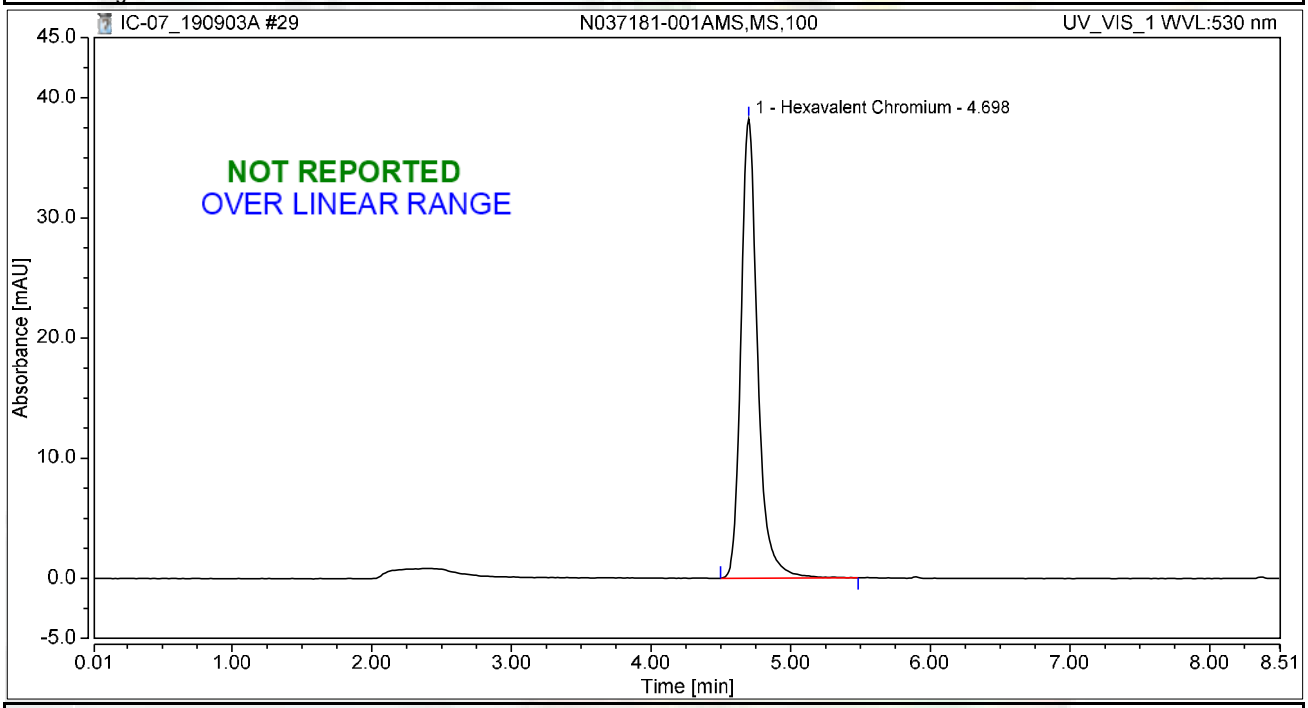
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001AMS,MS,100**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 14:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

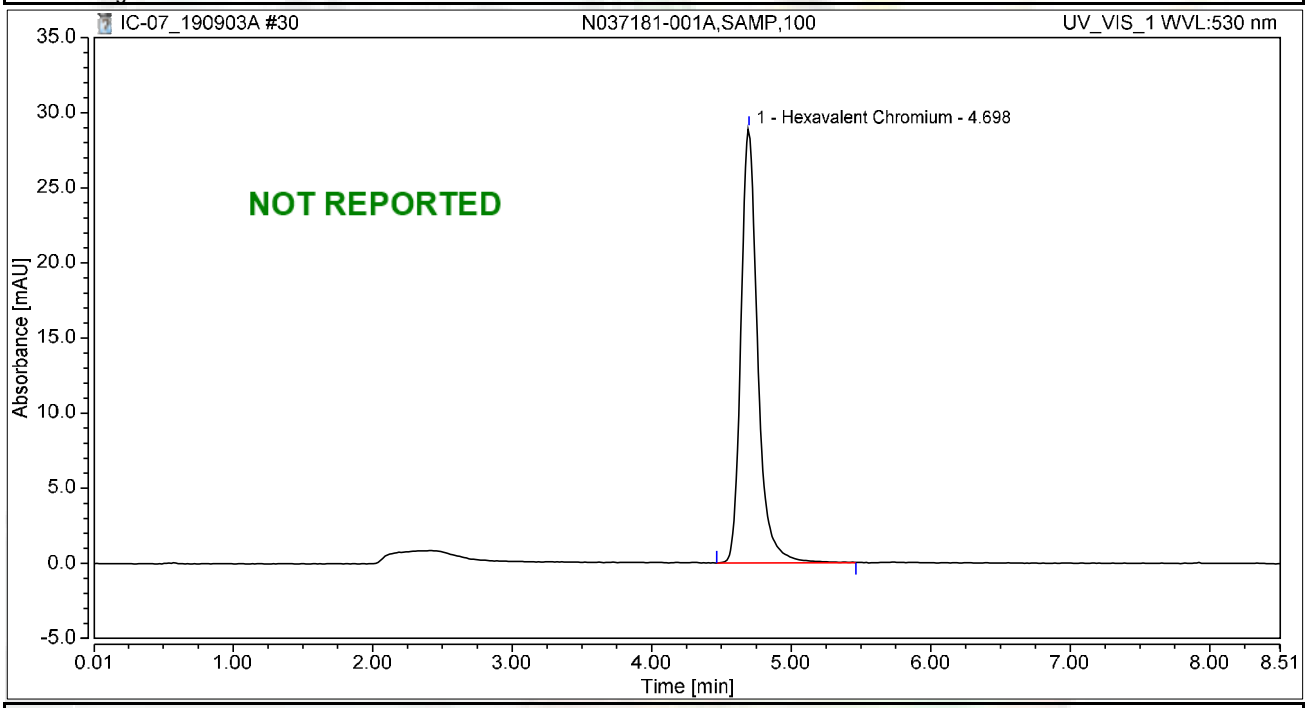
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.291	38.224	100.00	100.00	20.3903
Total:			**5.291**	**38.224**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

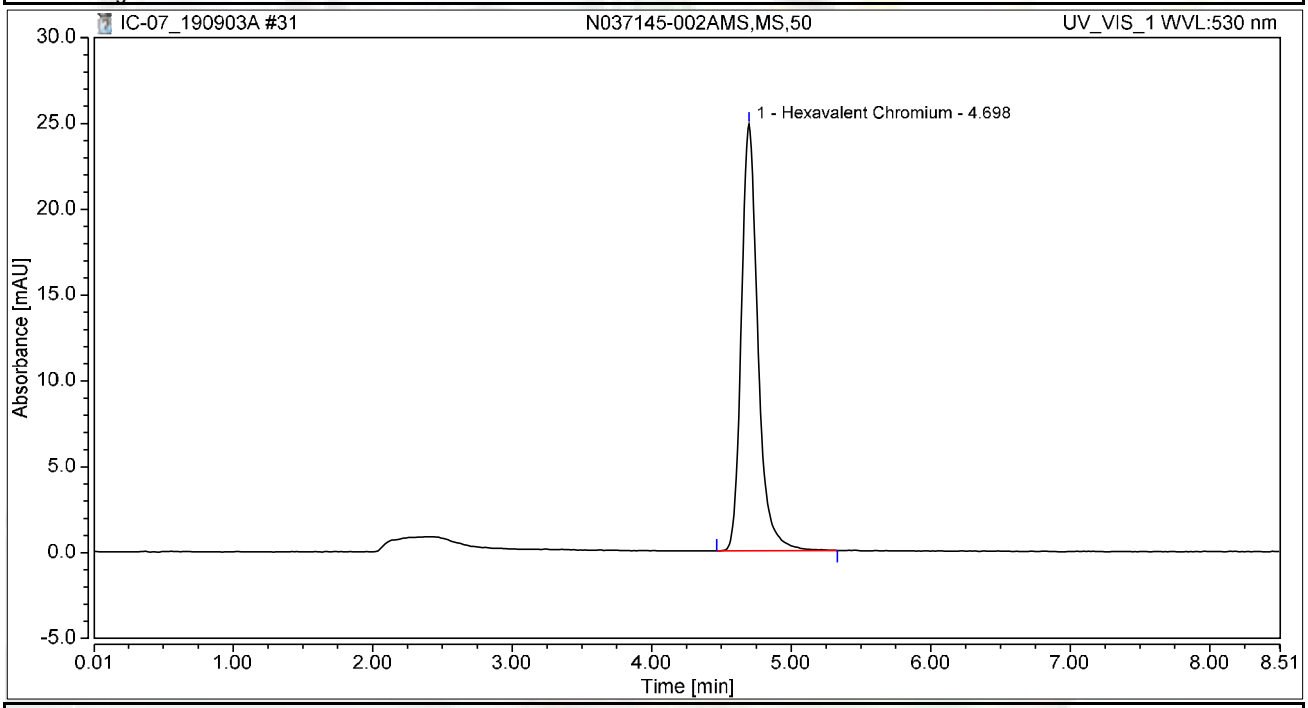
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	4.022	28.932	100.00	100.00	15.5001
Total:			**4.022**	**28.932**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037145-002AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

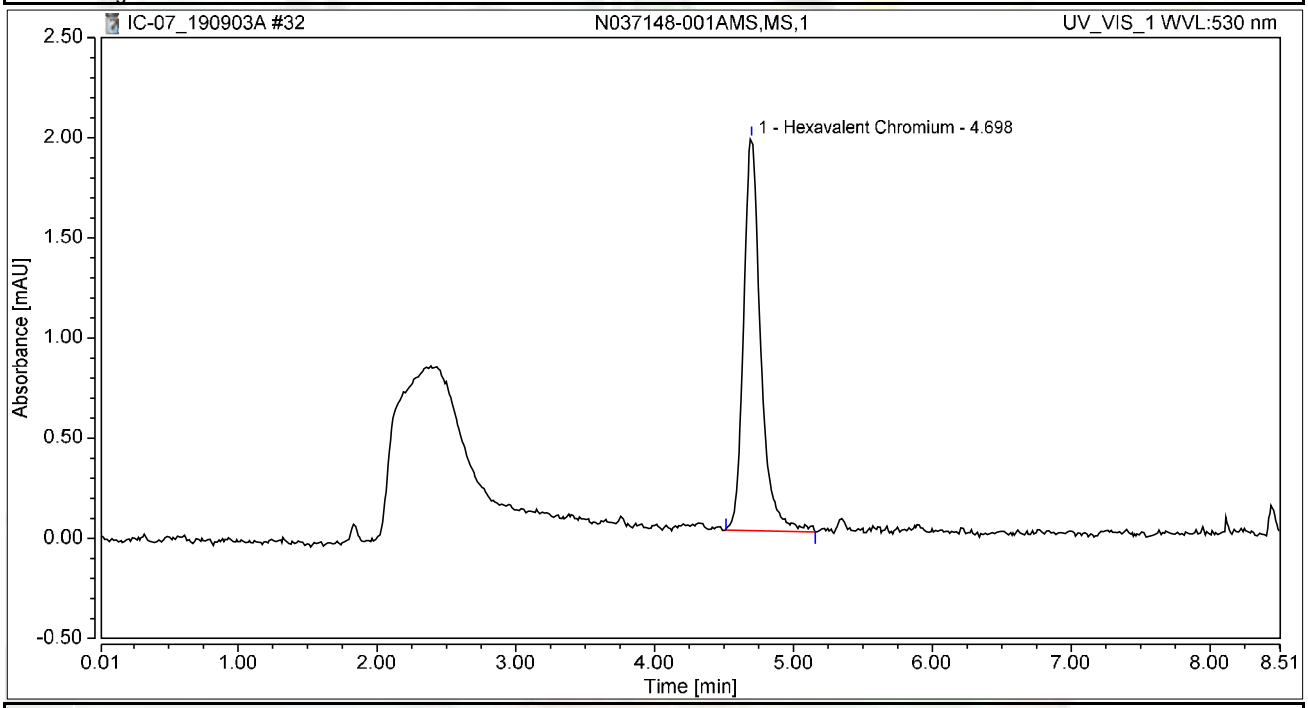
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	3.428	24.856	100.00	100.00	13.2108
Total:			**3.428**	**24.856**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

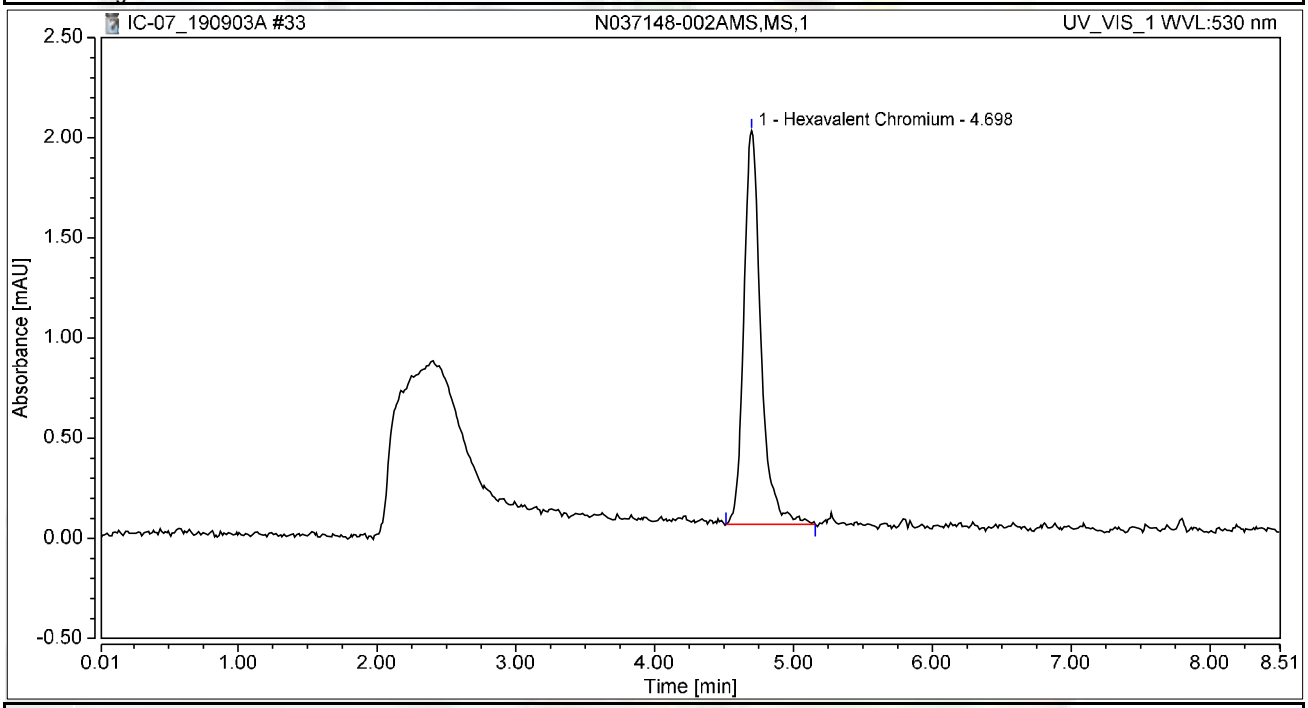
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.280	1.958	100.00	100.00	1.0791
Total:			**0.280**	**1.958**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

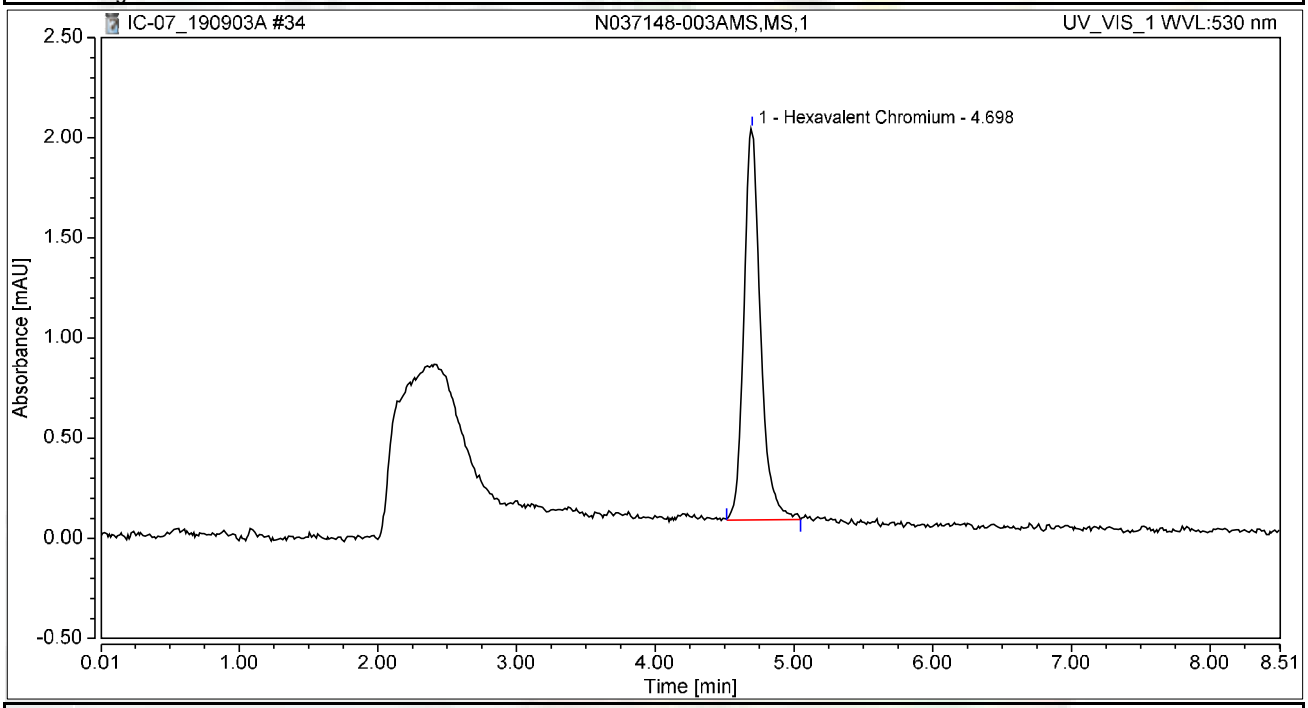
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.280	1.966	100.00	100.00	1.0790
Total:			**0.280**	**1.966**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

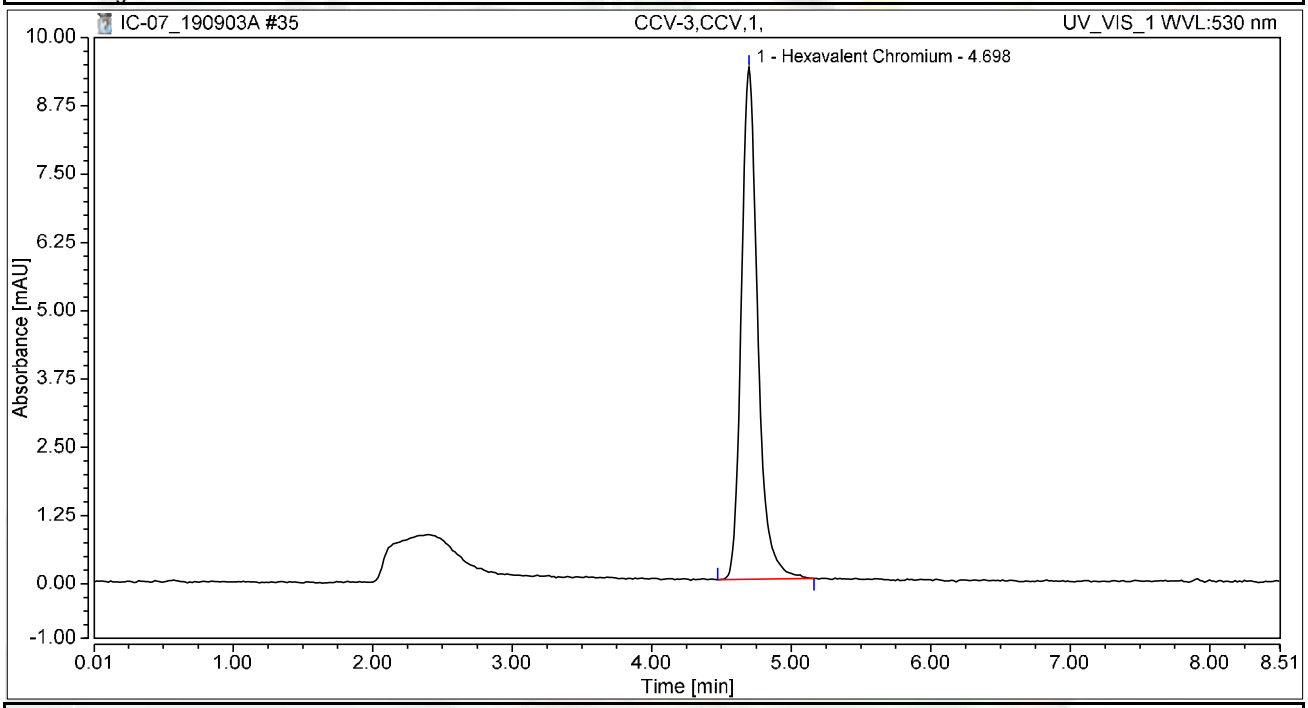
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.272	1.954	100.00	100.00	1.0483
Total:			**0.272**	**1.954**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 15:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

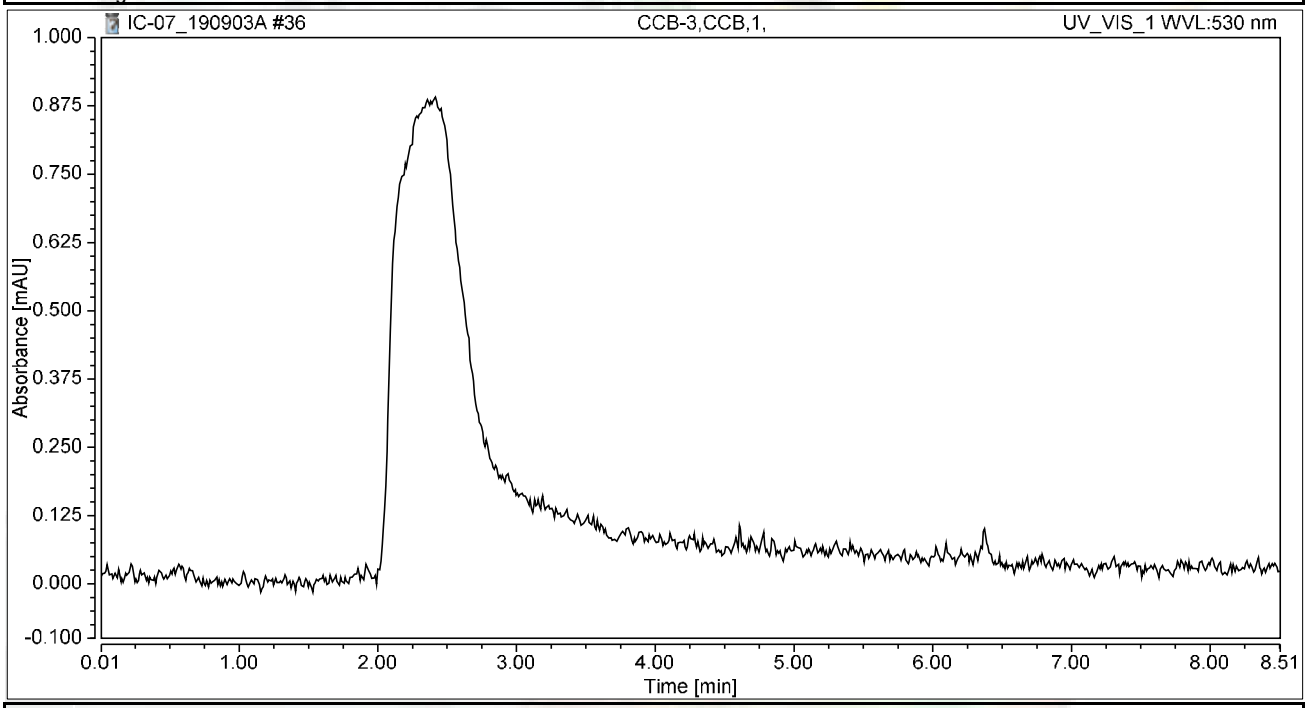
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.285	9.373	100.00	100.00	4.9533
Total:			**1.285**	**9.373**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

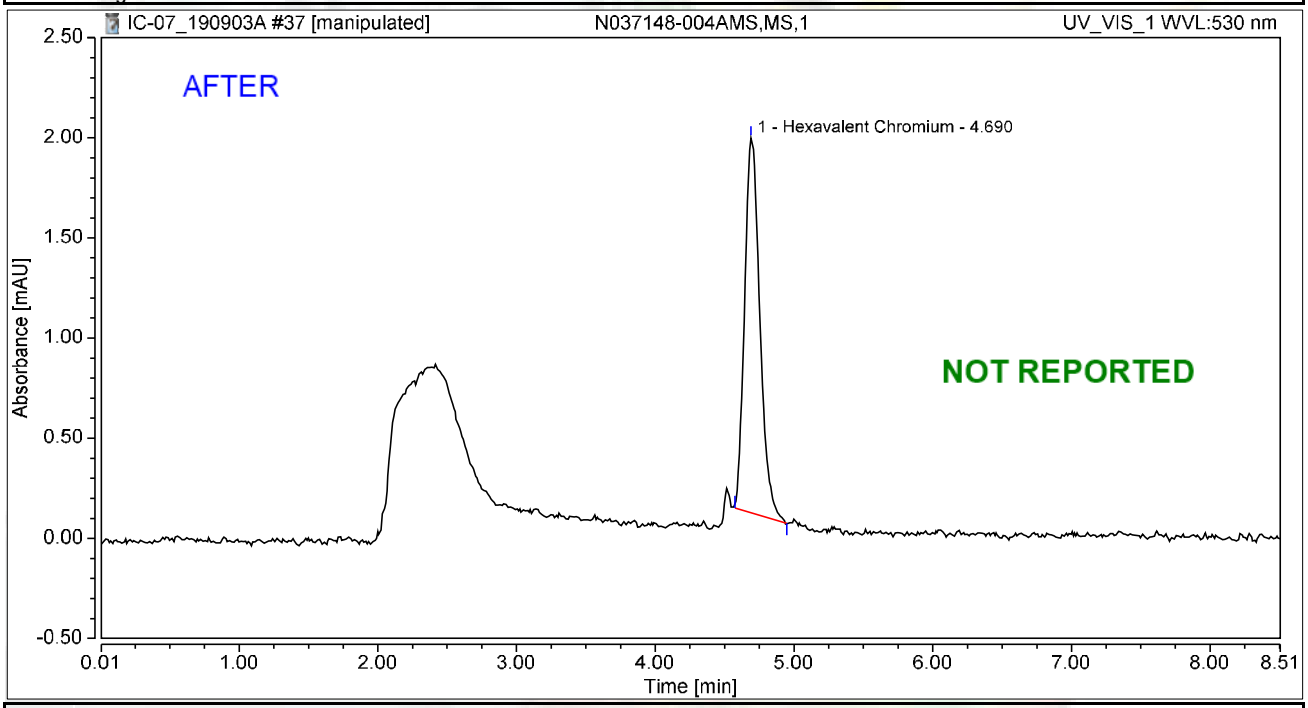
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.240	1.870	100.00	100.00	0.9231
Total:			**0.240**	**1.870**	**100.00**	**100.00**	

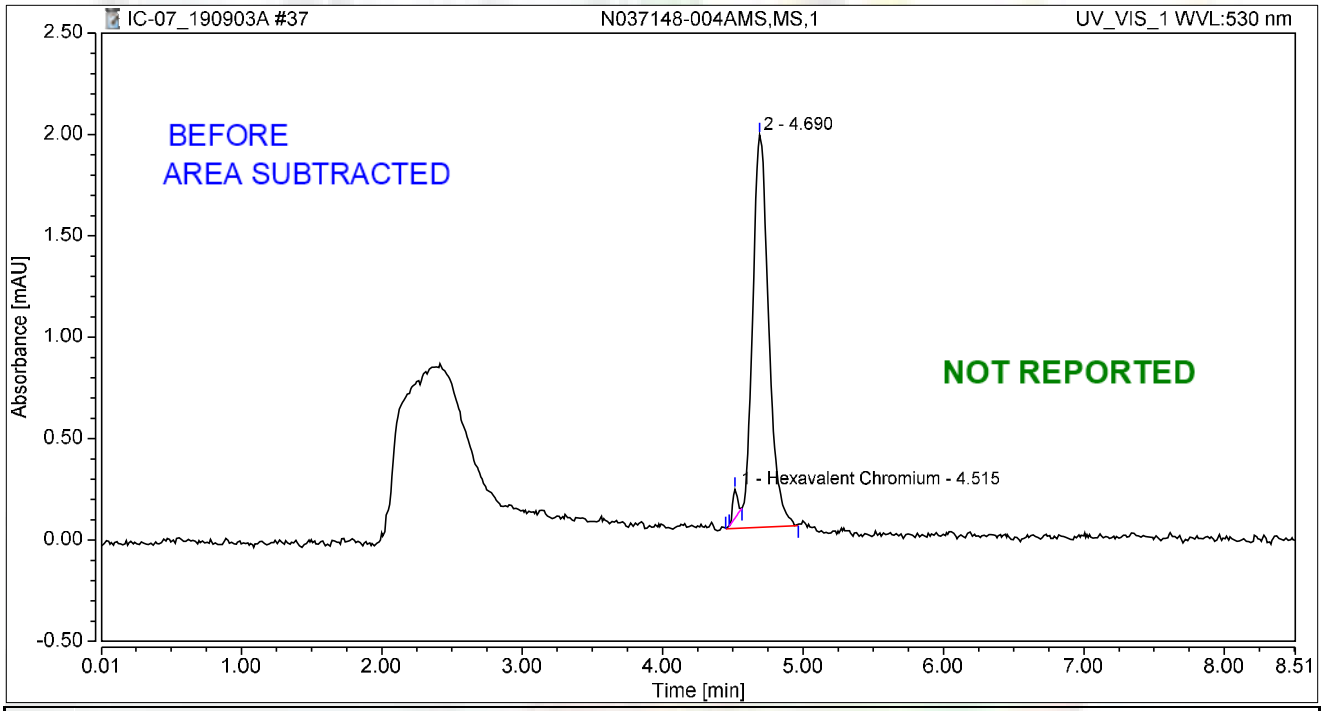
09/10/19

Chromatogram and Results

Injection Details

Injection Name:	**N037148-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.515	0.006	0.142	2.08	6.81	0.0216
2		4.690	0.264	1.935	97.92	93.19	n.a.
Total:			**0.269**	**2.077**	**100.00**	**100.00**	

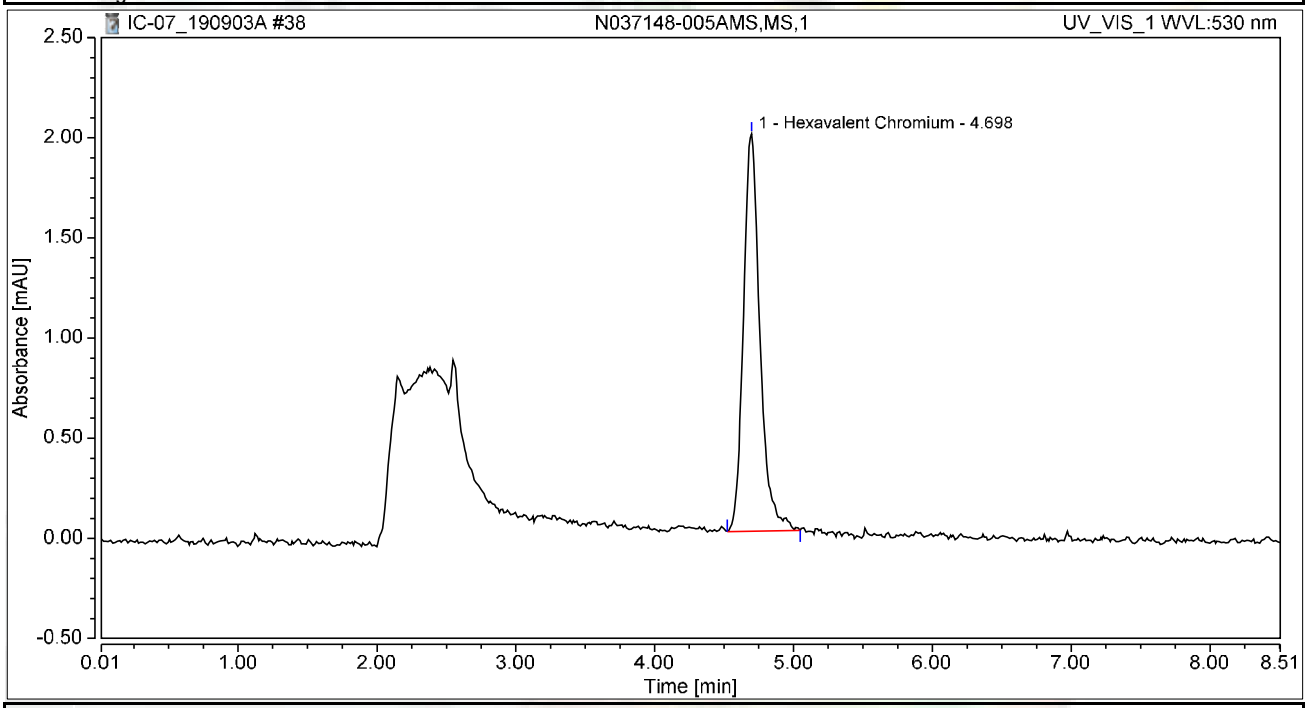
09/10/19

Chromatogram and Results

Injection Details

Injection Name:	**N037148-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

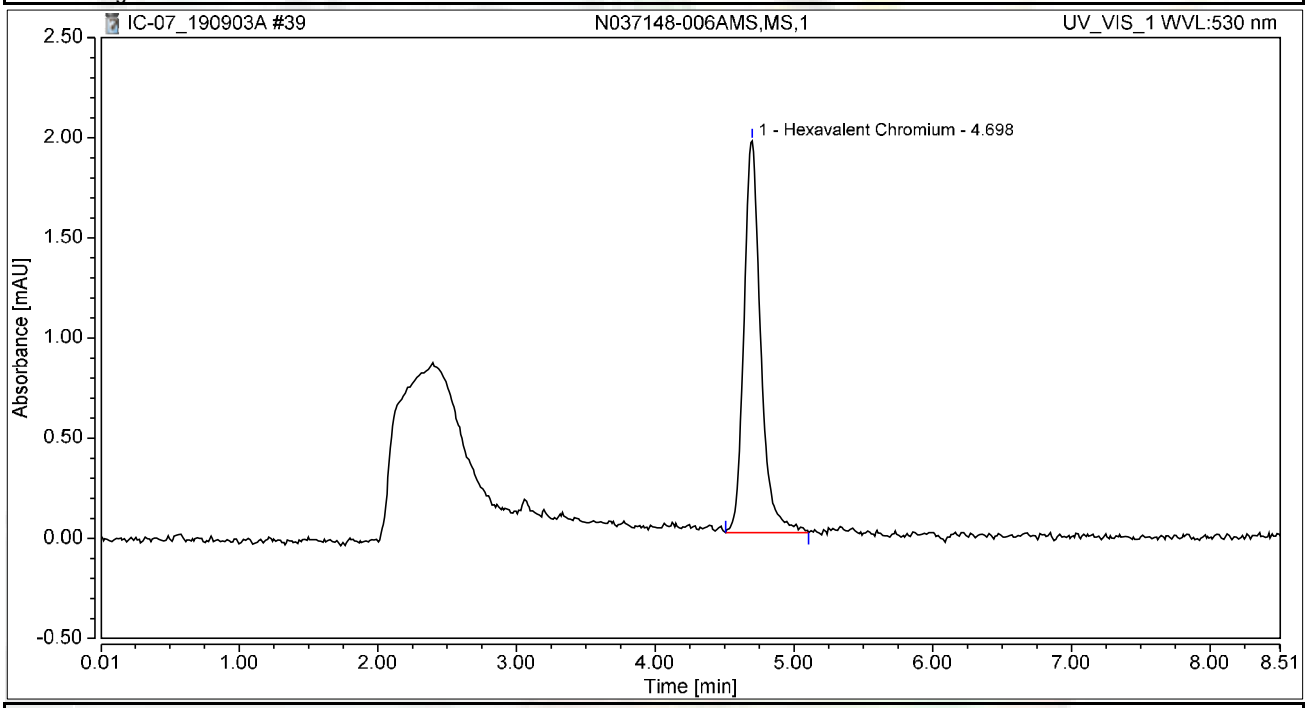
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.273	1.983	100.00	100.00	1.0537
Total:			**0.273**	**1.983**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

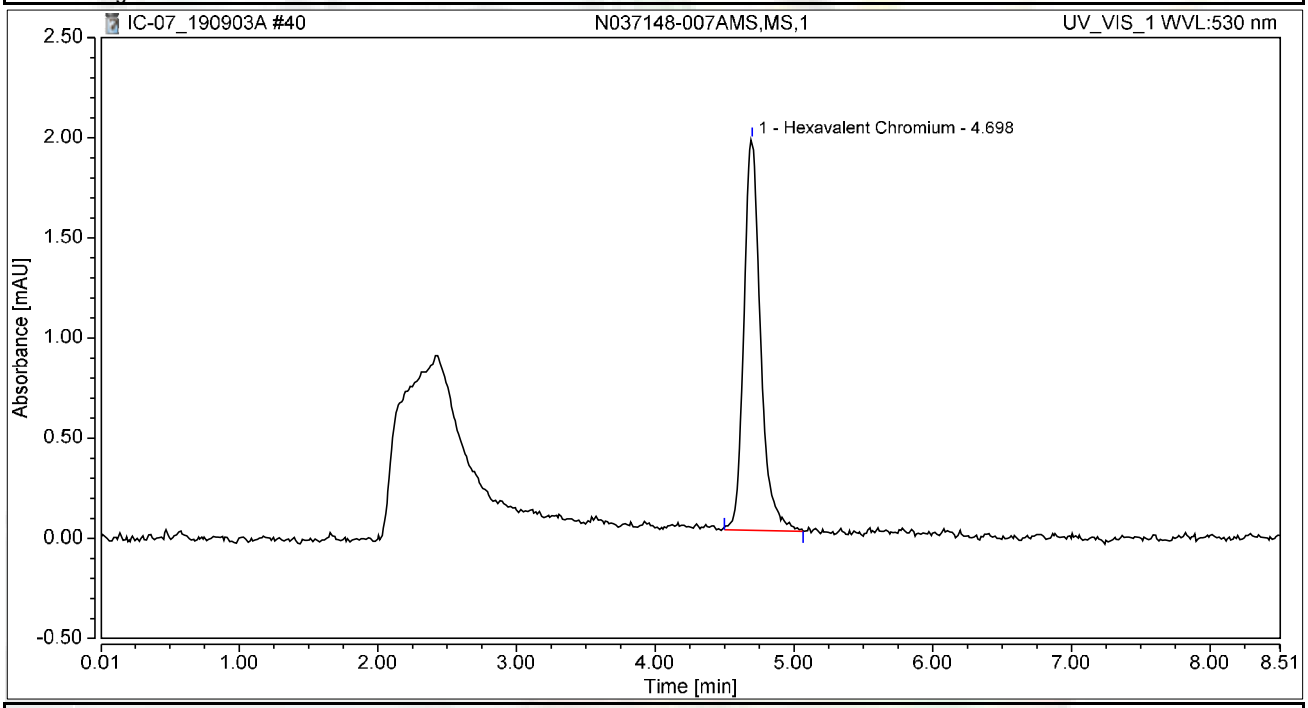
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.275	1.956	100.00	100.00	1.0593
Total:			**0.275**	**1.956**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

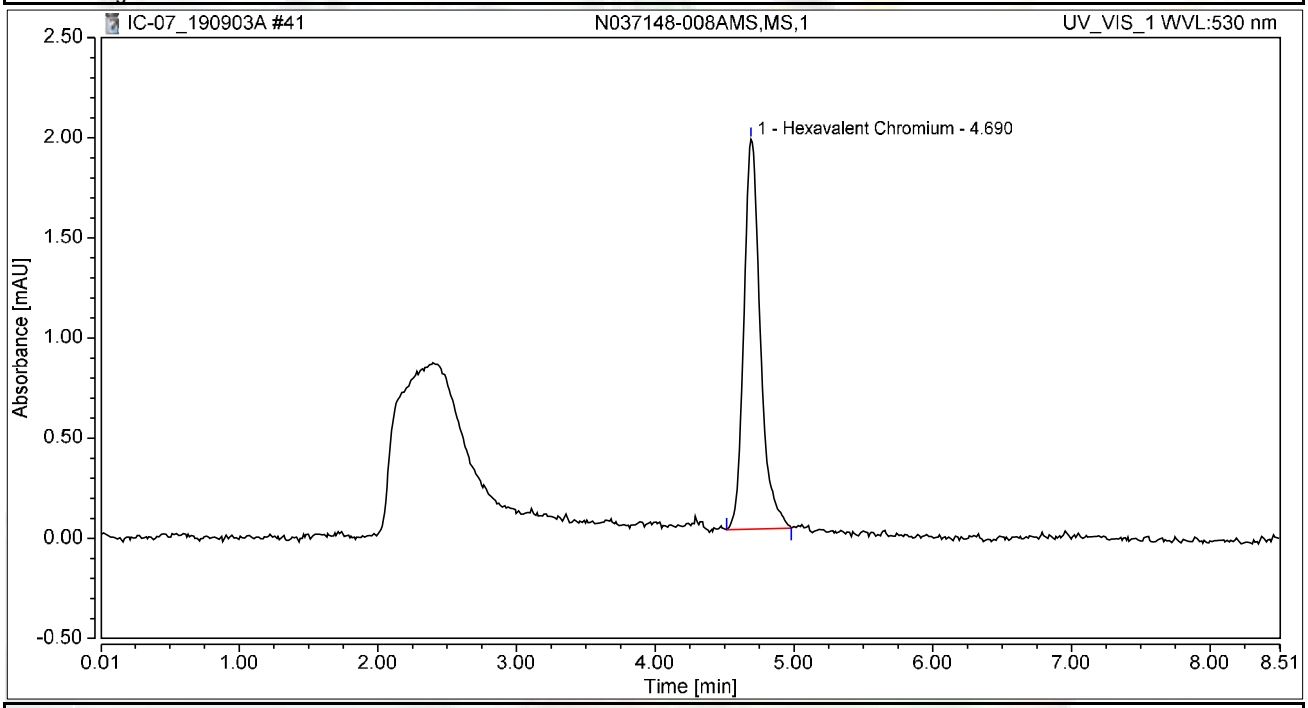
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.273	1.952	100.00	100.00	1.0519
Total:			**0.273**	**1.952**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

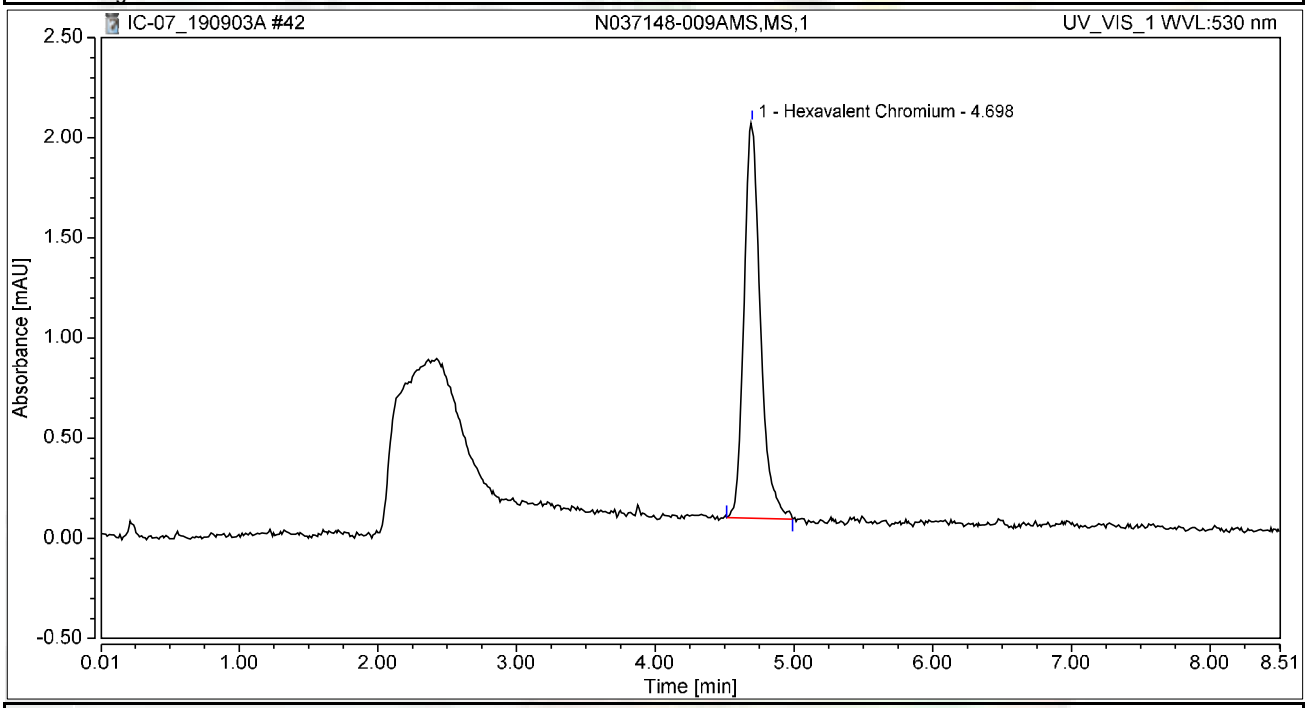
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.269	1.946	100.00	100.00	1.0385
Total:			**0.269**	**1.946**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

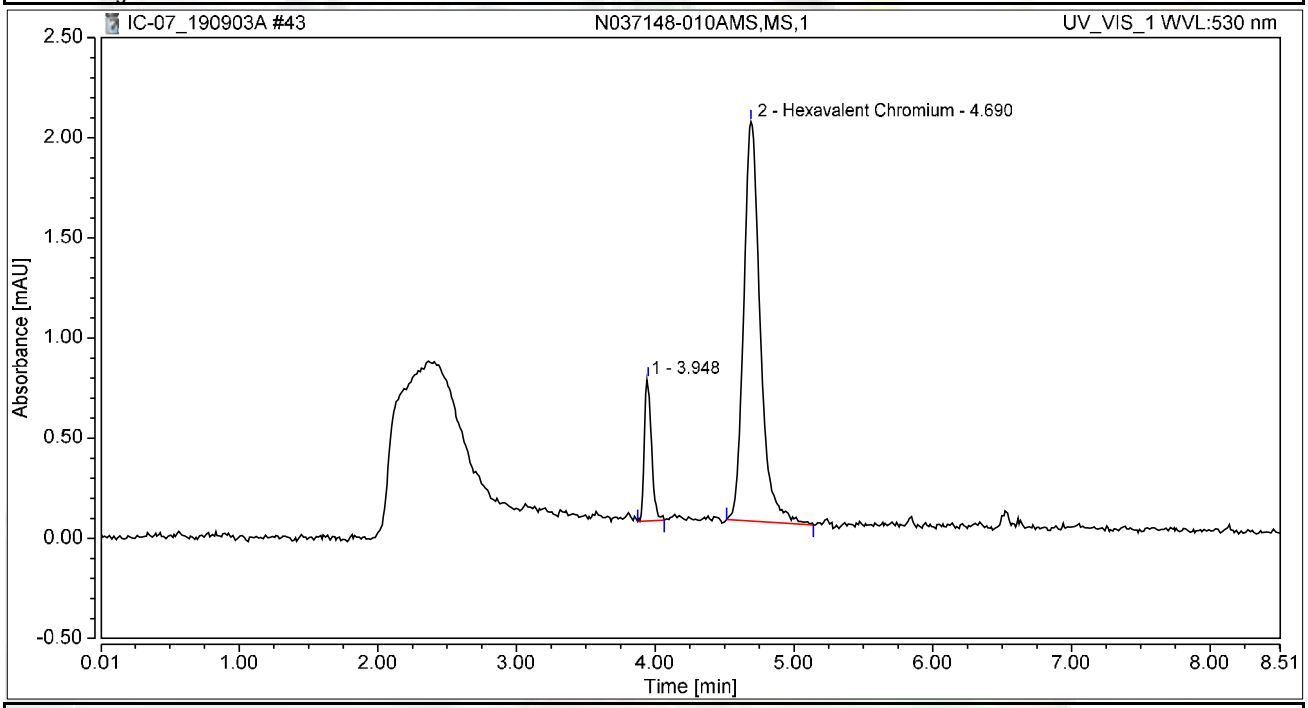
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.272	1.975	100.00	100.00	1.0465
Total:			**0.272**	**1.975**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

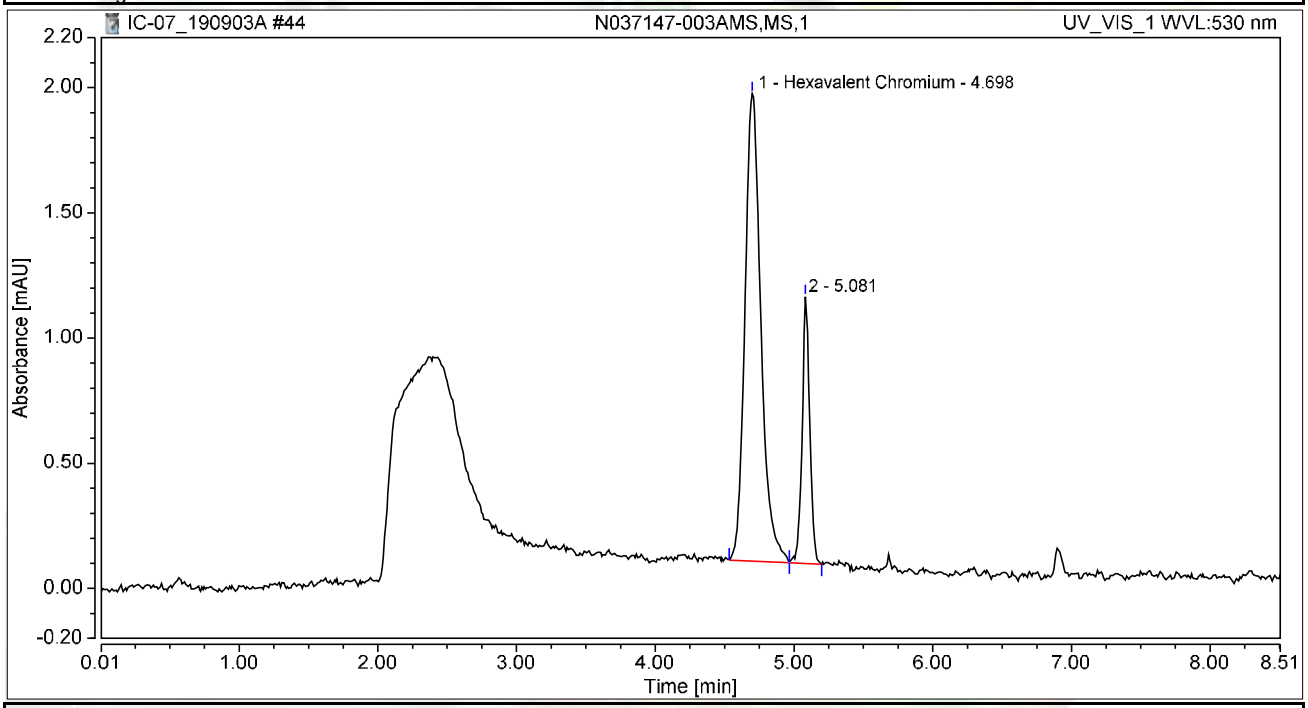
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.948	0.043	0.710	13.34	26.25	n.a.
2	Hexavalent Chromium	4.690	0.276	1.994	86.66	73.75	1.0654
Total:			**0.319**	**2.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037147-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

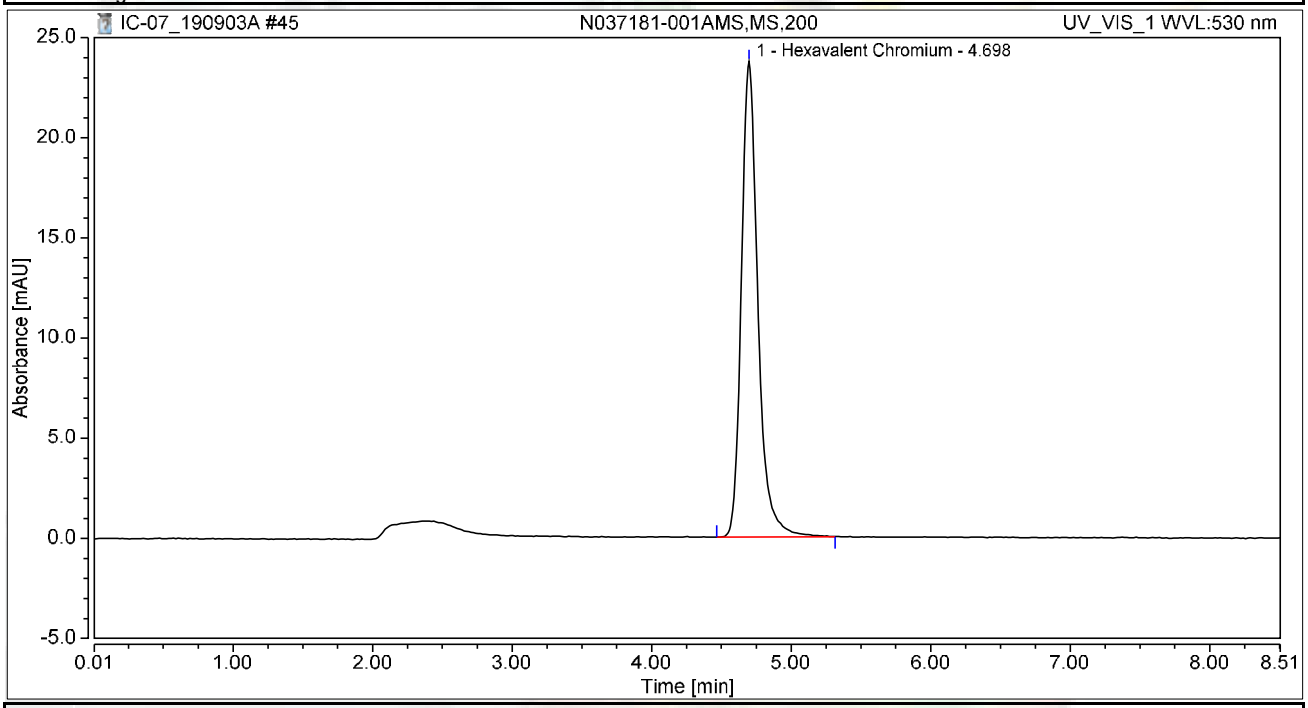
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.249	1.867	78.54	63.68	0.9606
2		5.081	0.068	1.065	21.46	36.32	n.a.
Total:			**0.317**	**2.932**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

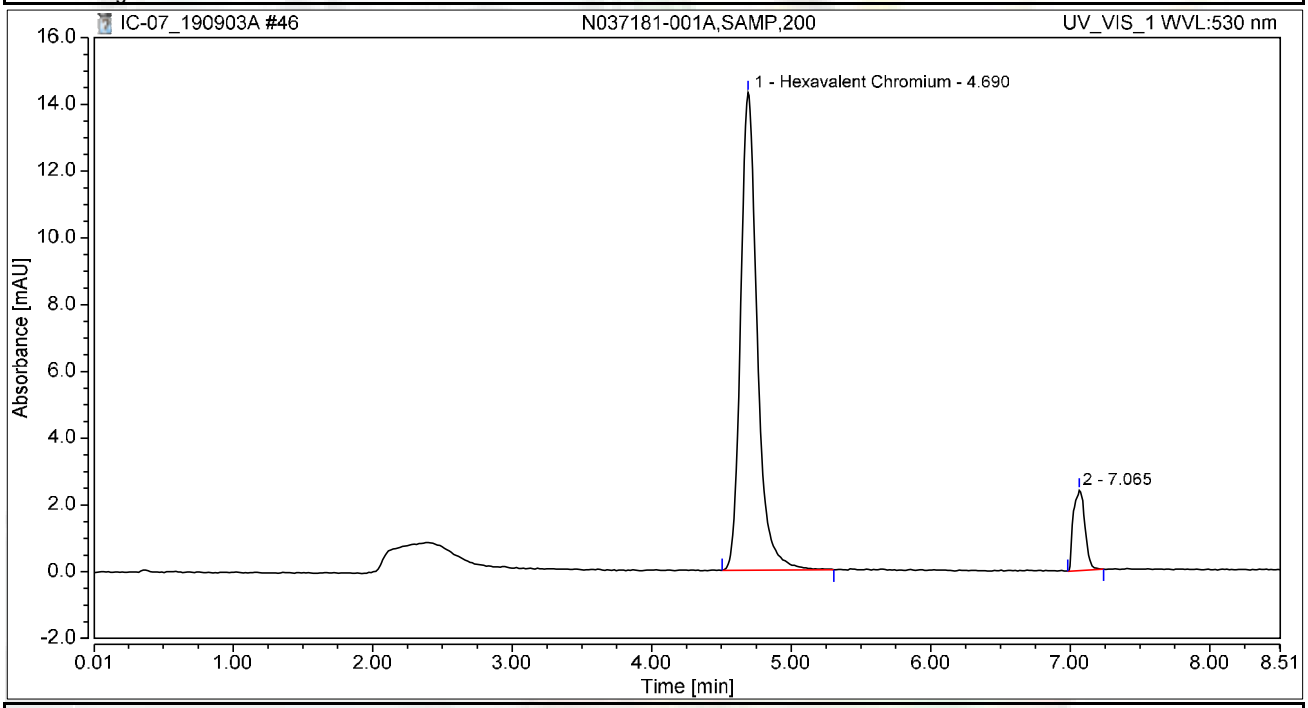
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	3.268	23.744	100.00	100.00	12.5928
Total:			**3.268**	**23.744**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037181-001A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

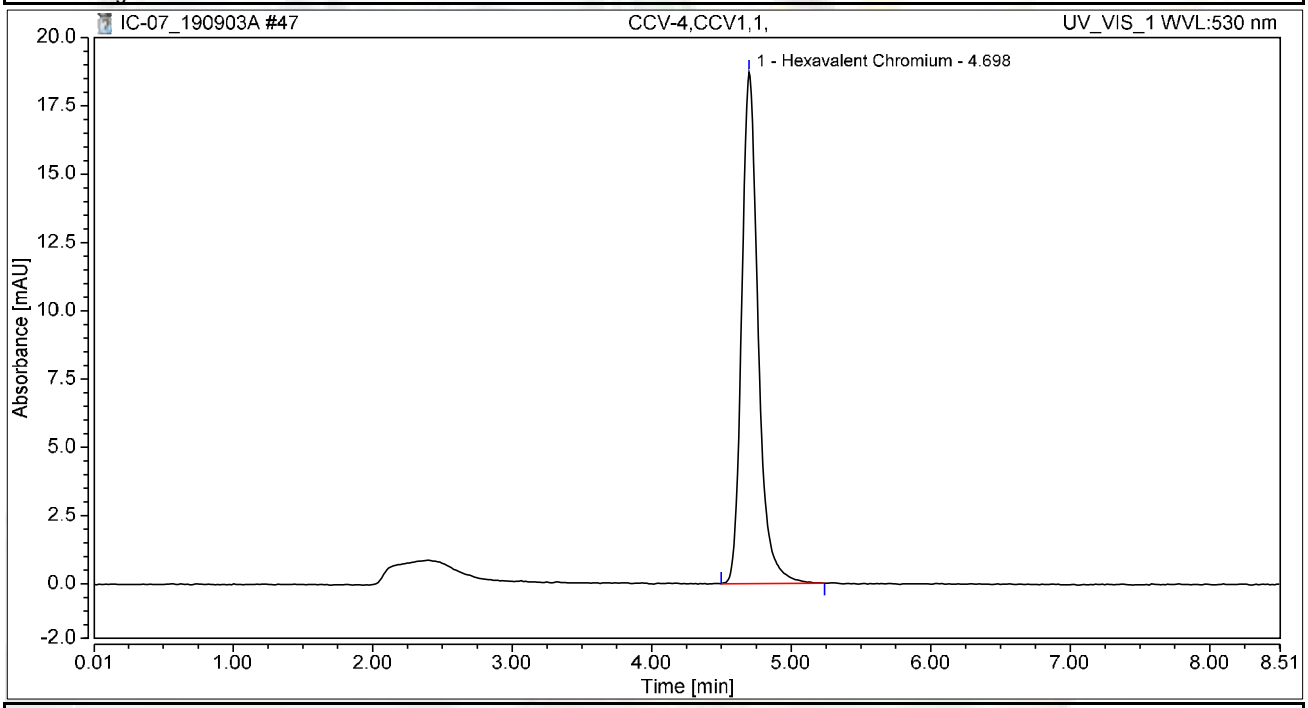
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.980	14.307	89.58	85.61	7.6321
2		7.065	0.230	2.405	10.42	14.39	n.a.
Total:			**2.211**	**16.713**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 17:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

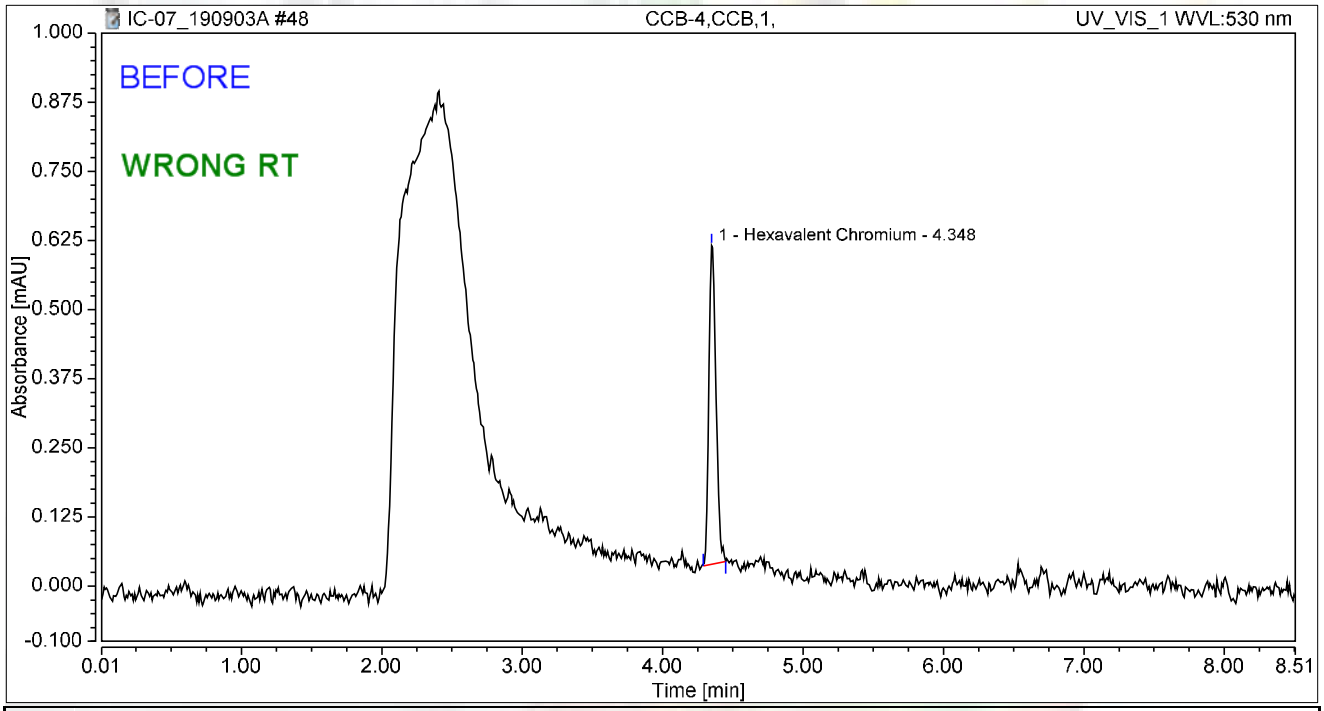
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.571	18.738	100.00	100.00	9.9063
Total:			**2.571**	**18.738**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

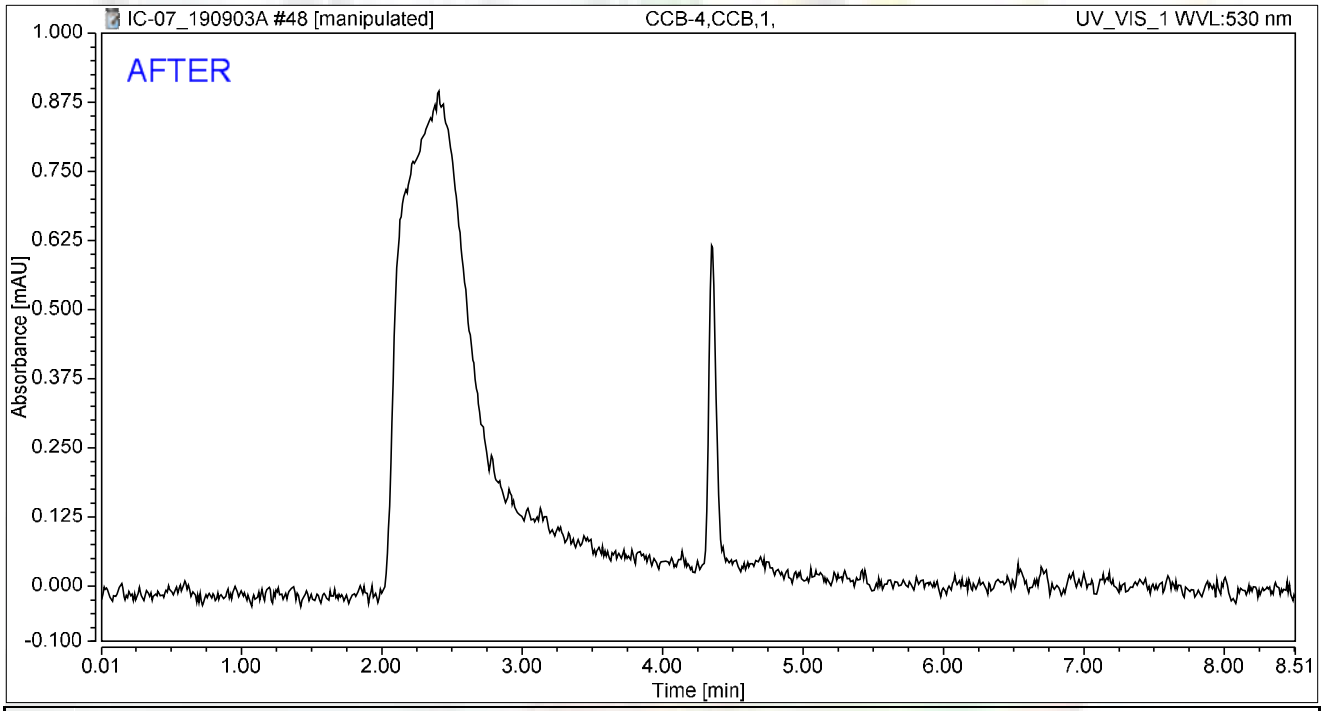
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.348	0.034	0.576	100.00	100.00	0.1308
Total:			**0.034**	**0.576**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

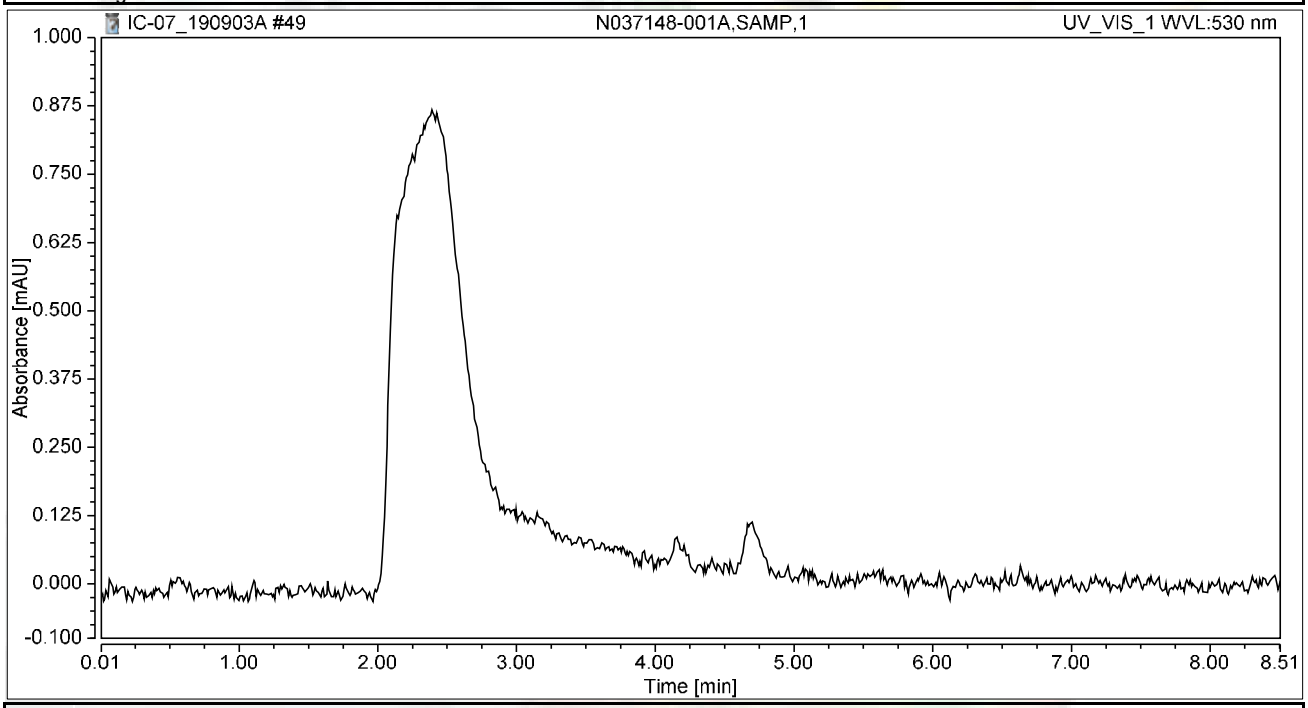
Reviewed by:
Nancy 9/16/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037148-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

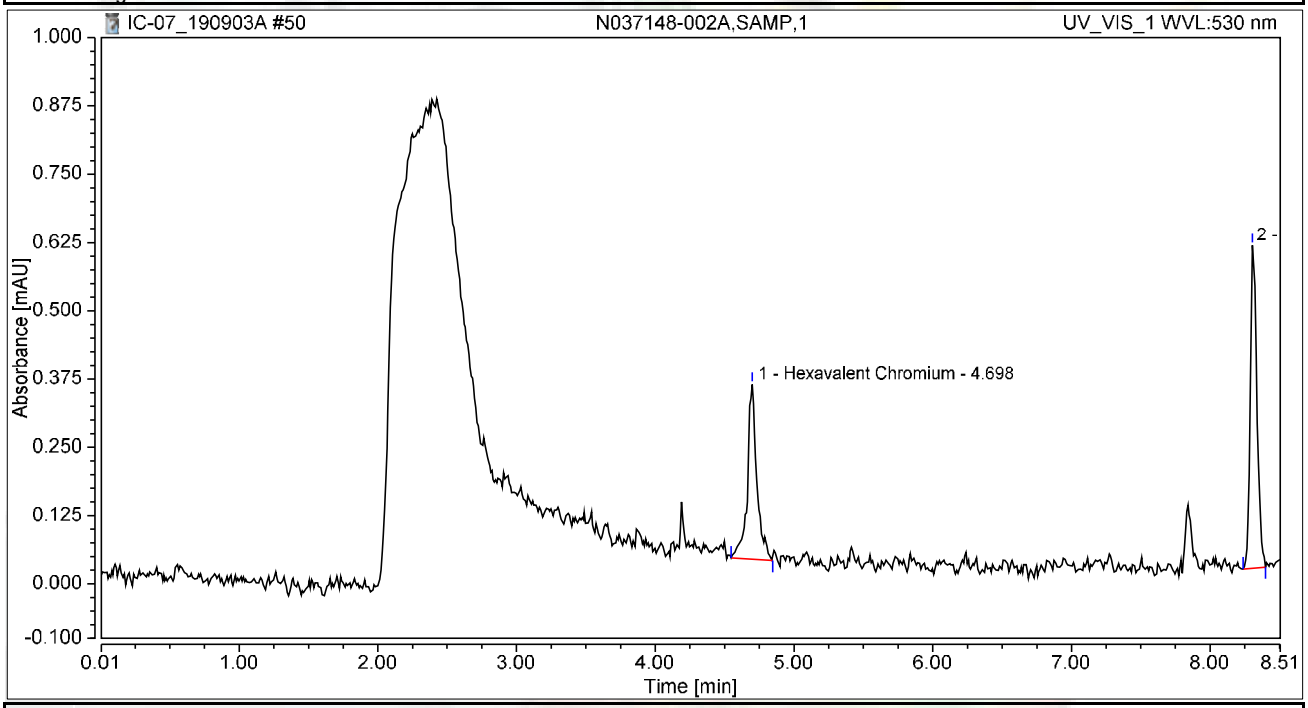
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

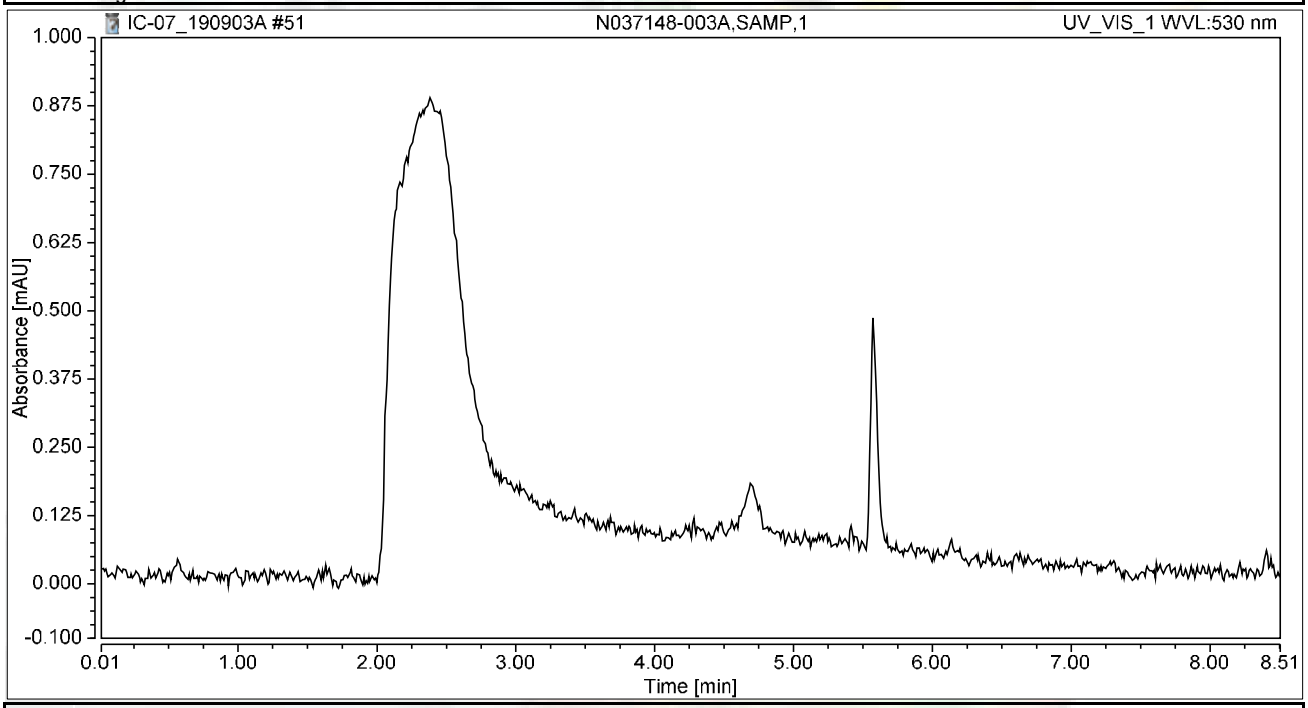
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.025	0.320	42.98	35.11	0.0972
2		8.306	0.033	0.591	57.02	64.89	n.a.
Total:			**0.059**	**0.911**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

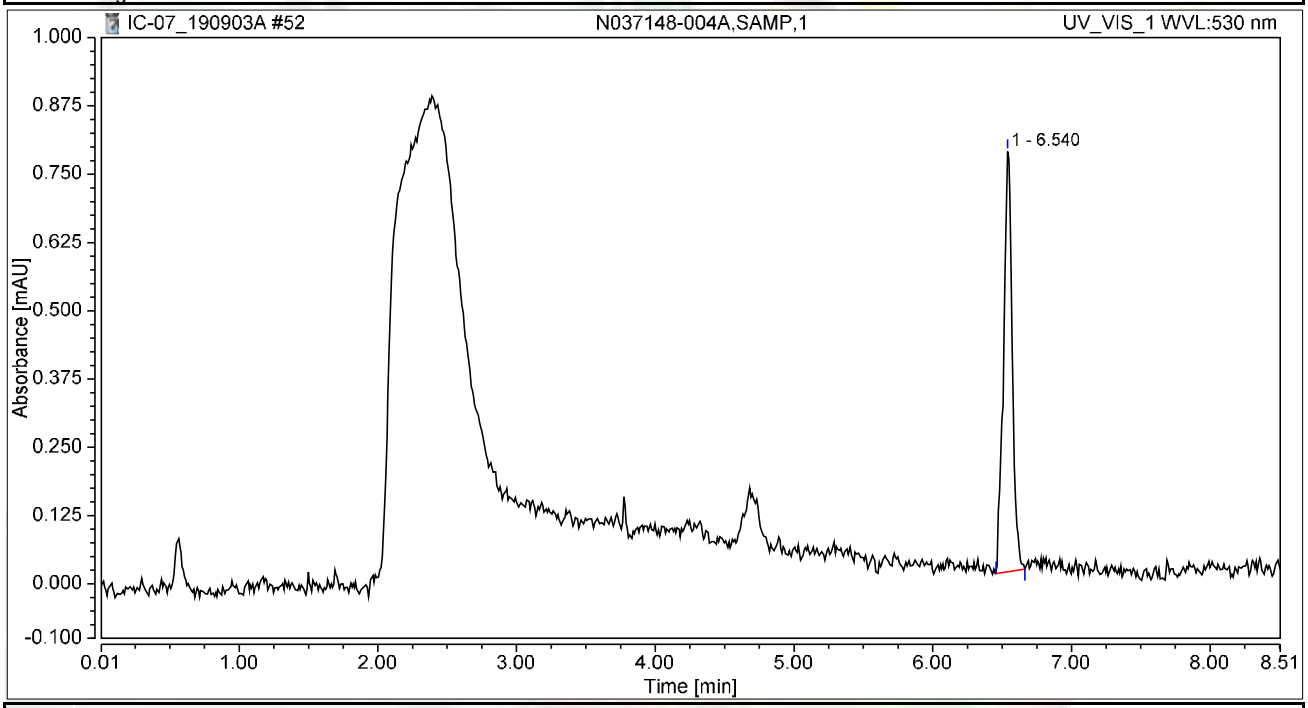
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

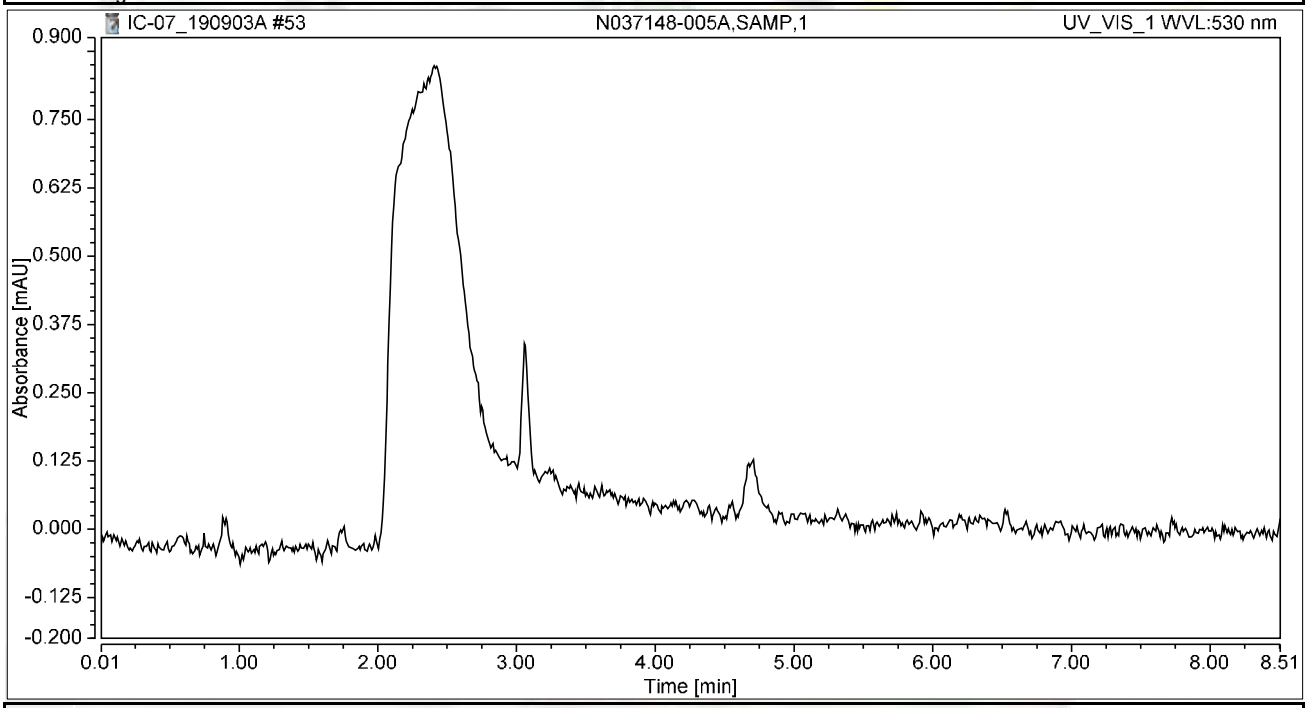
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.540	0.056	0.769	100.00	100.00	n.a.
Total:			**0.056**	**0.769**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 18:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

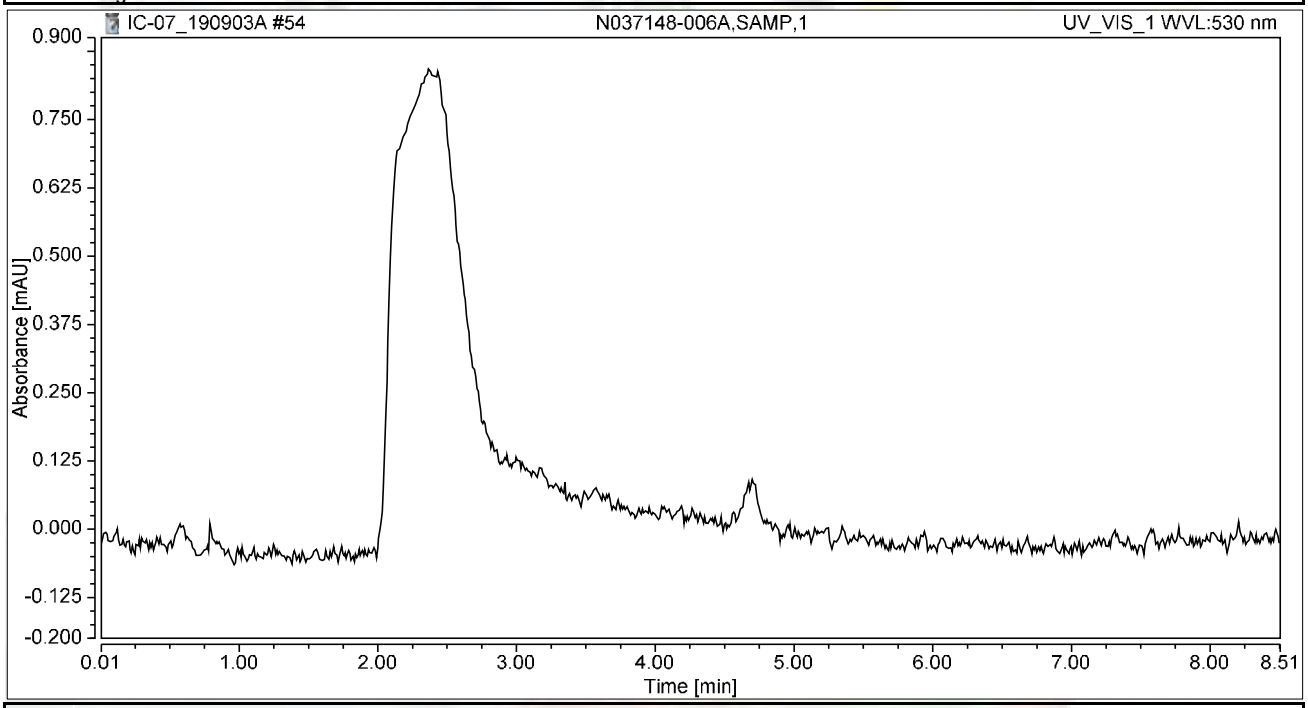
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

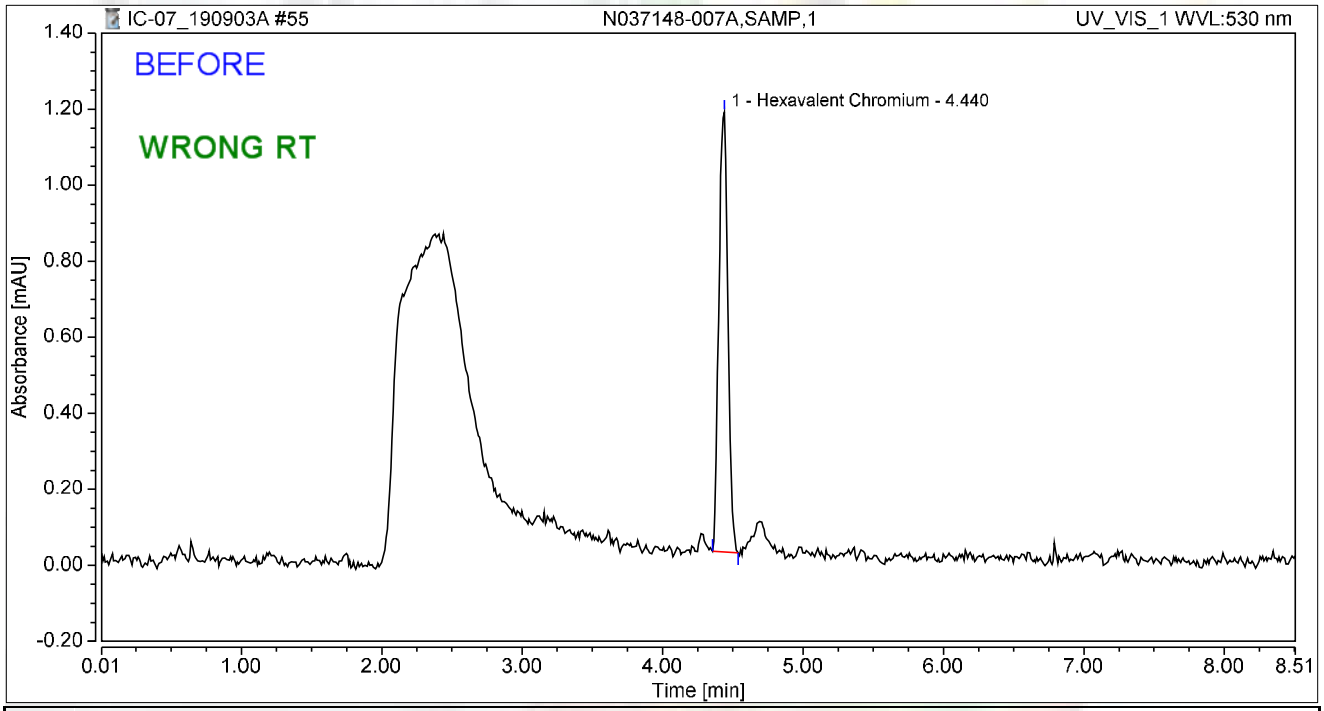
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

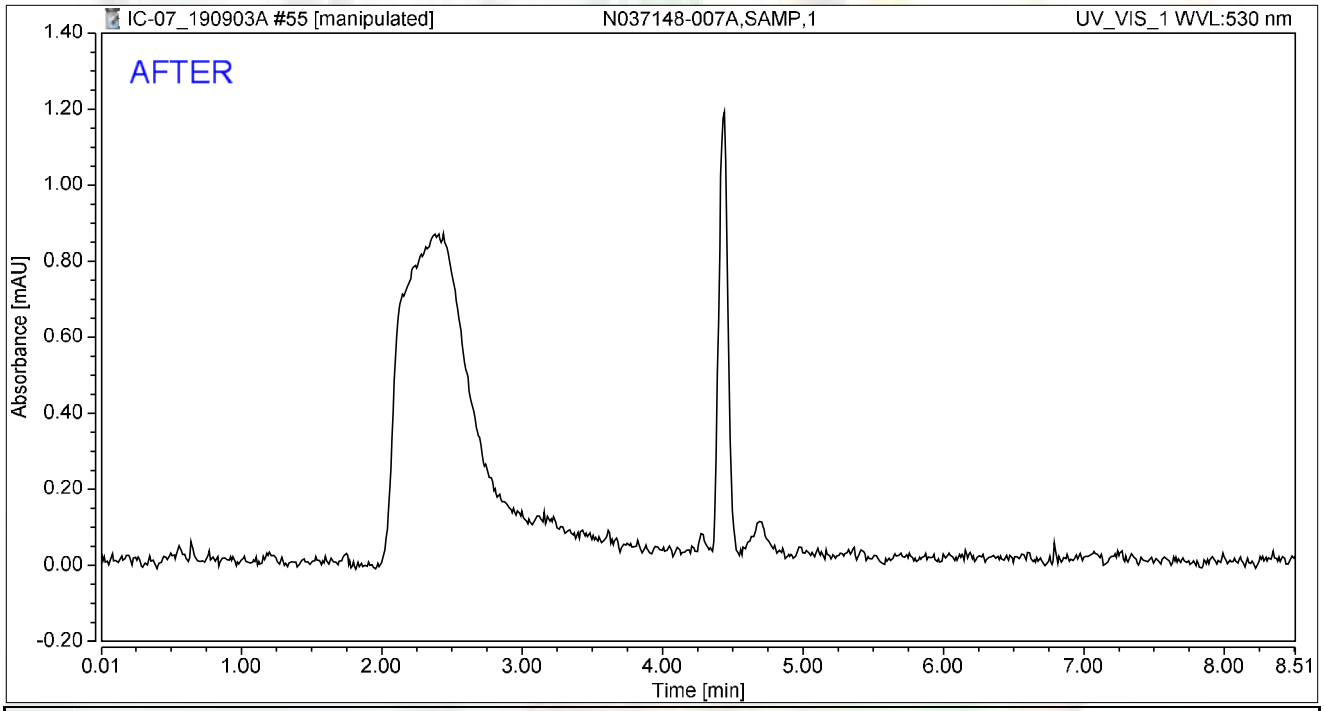
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.440	0.086	1.157	100.00	100.00	0.3308
Total:			**0.086**	**1.157**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

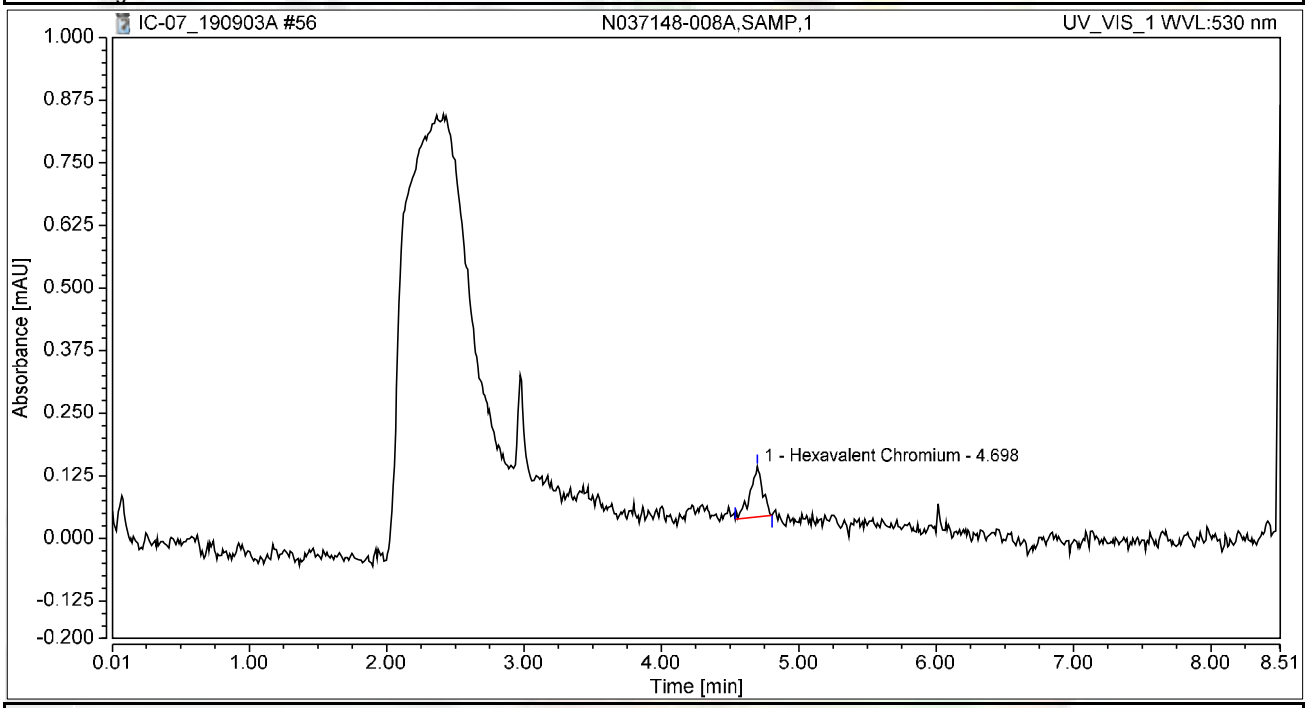
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-008A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

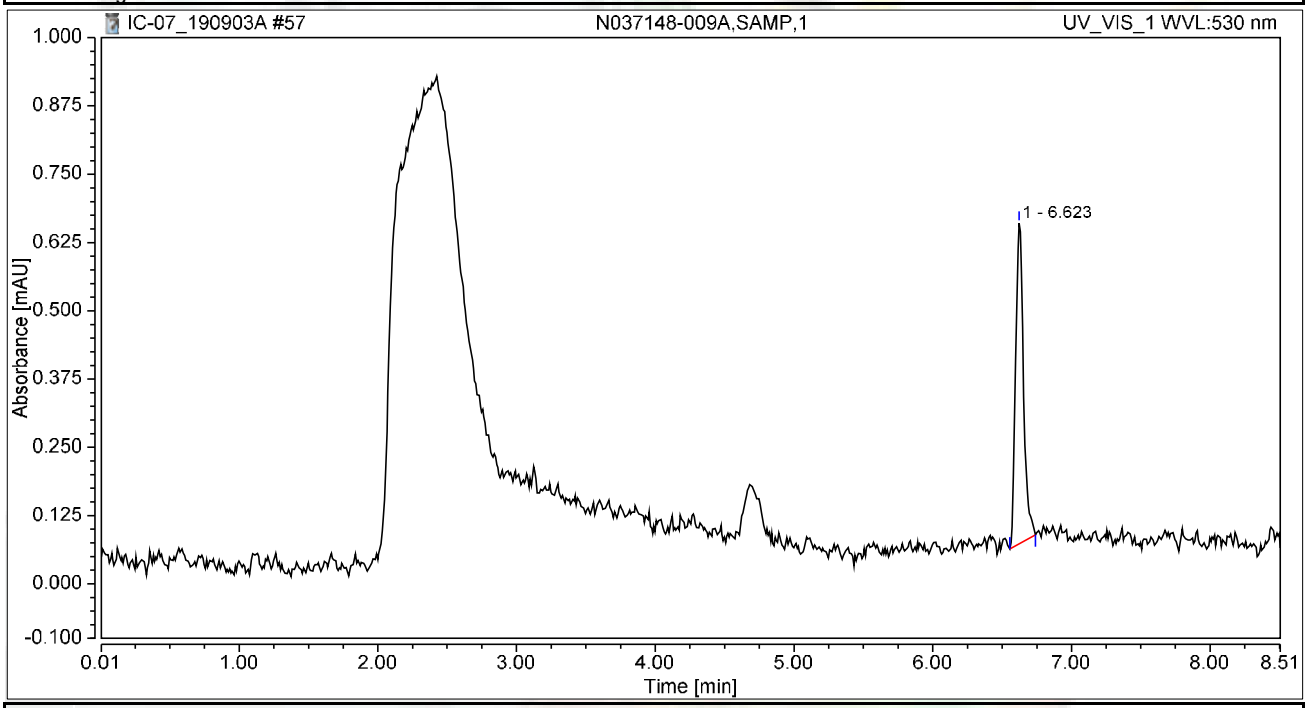
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.010	0.101	100.00	100.00	0.0402
Total:			**0.010**	**0.101**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

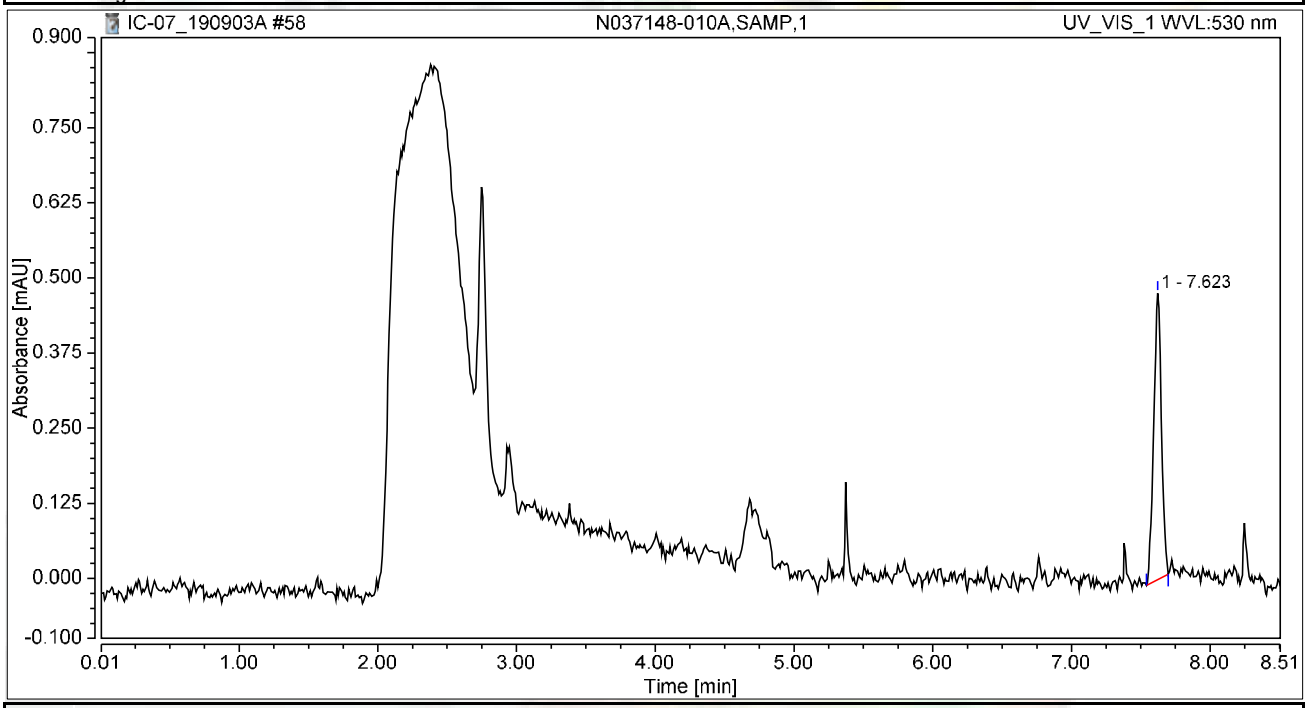
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.623	0.039	0.587	100.00	100.00	n.a.
Total:			**0.039**	**0.587**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

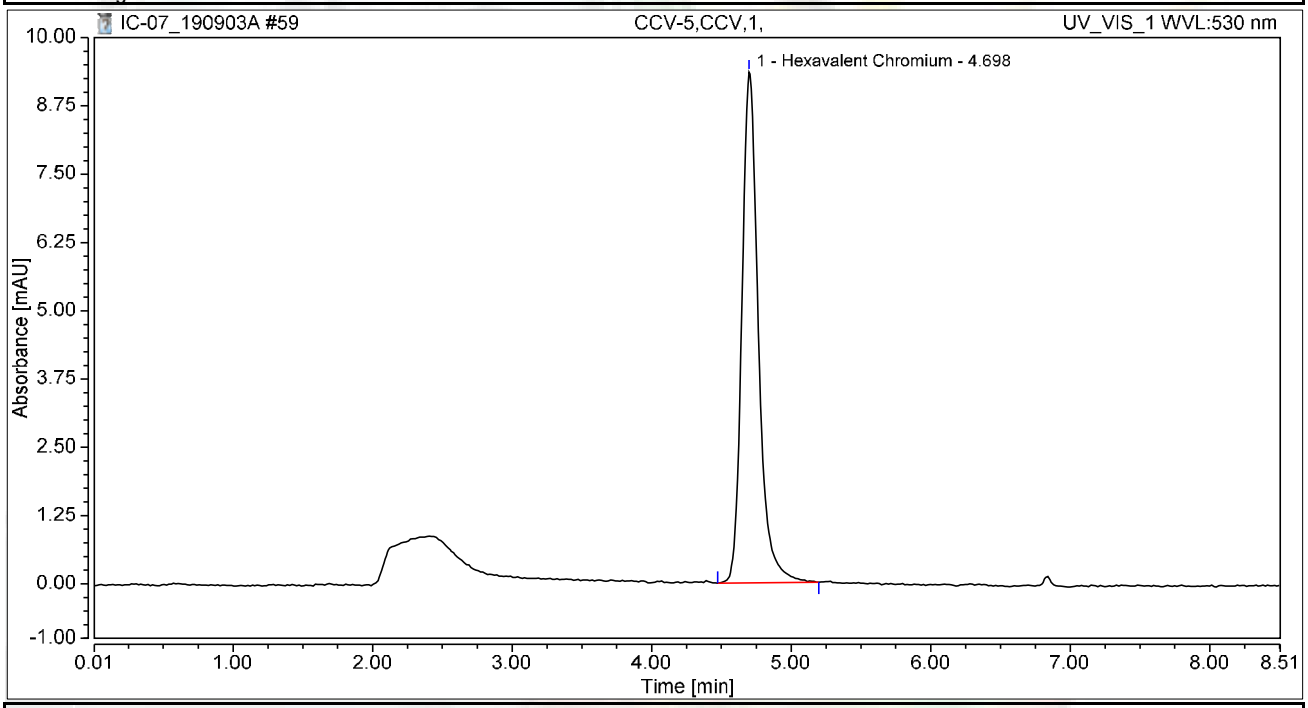
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.623	0.031	0.476	100.00	100.00	n.a.
Total:			**0.031**	**0.476**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

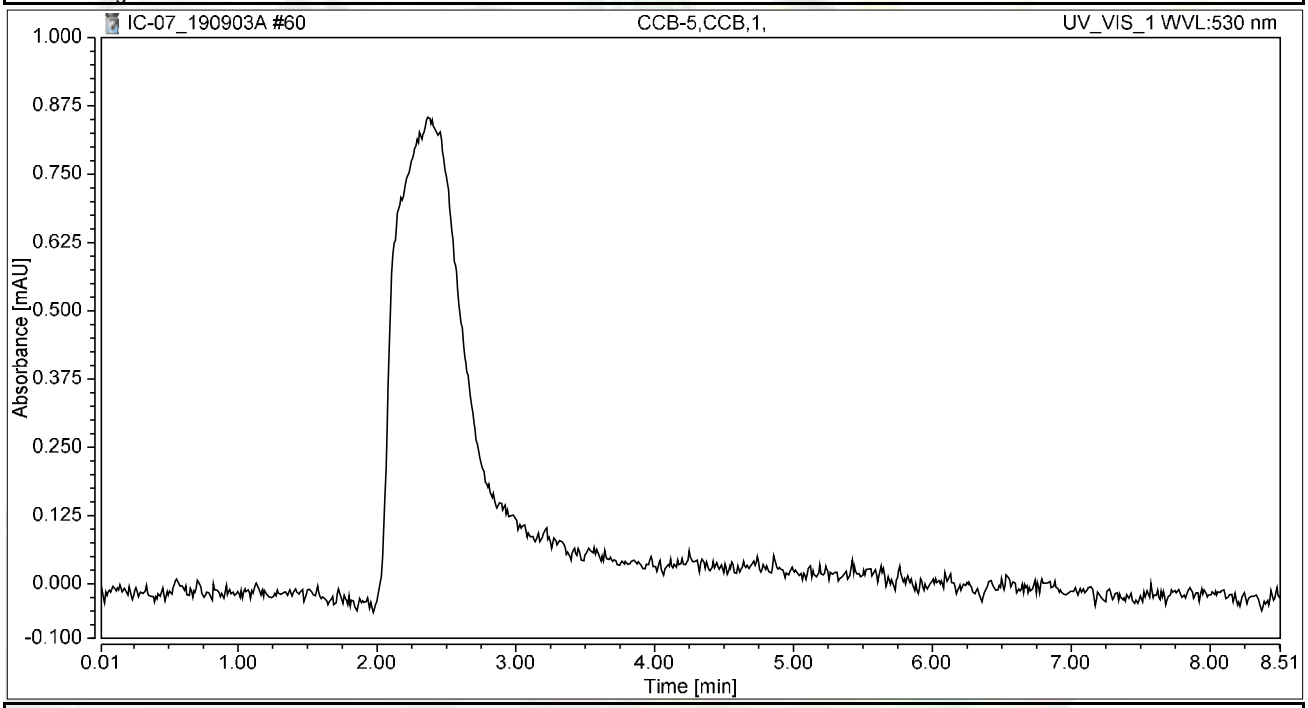
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.284	9.353	100.00	100.00	4.9470
Total:			**1.284**	**9.353**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 19:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

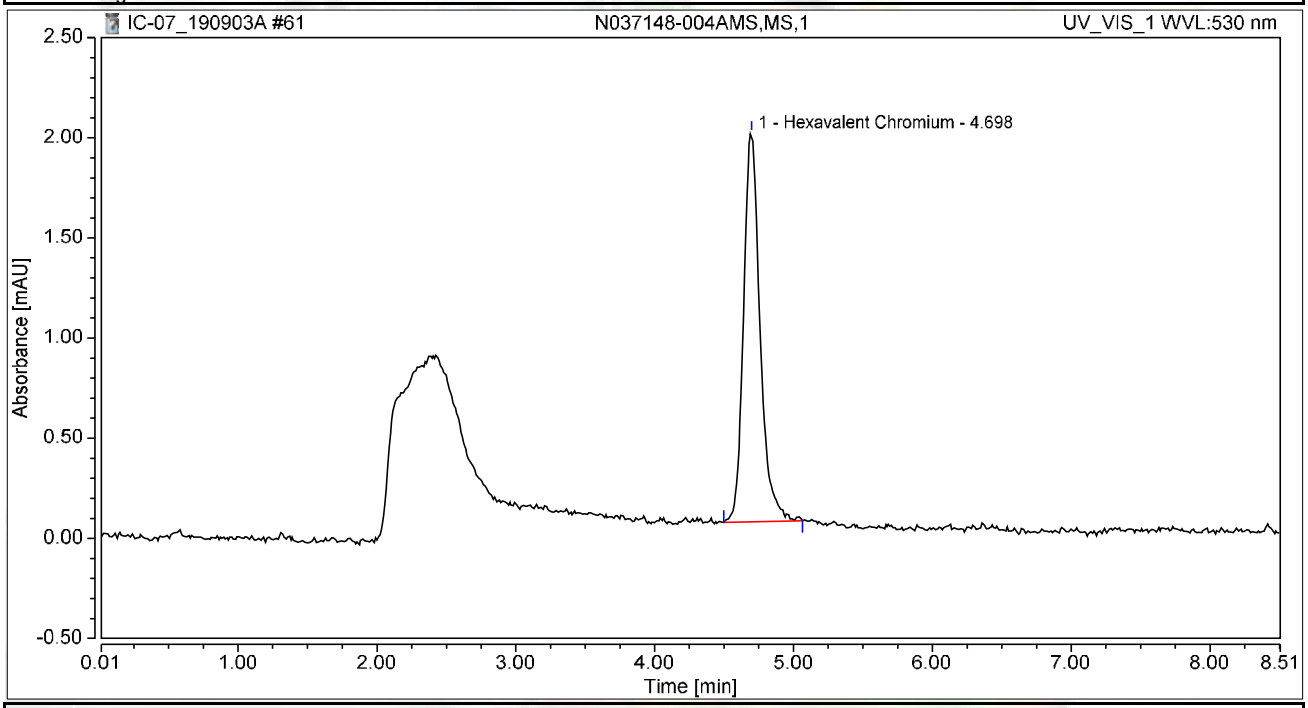
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

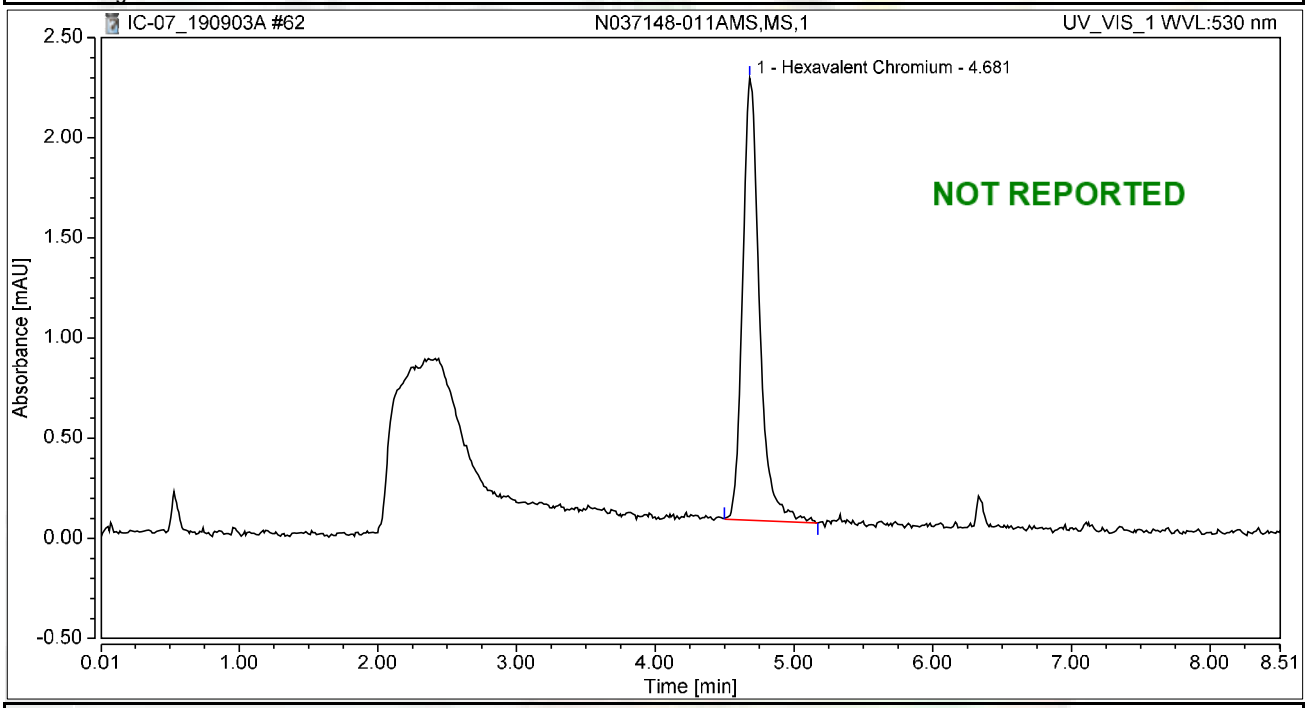
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.268	1.940	100.00	100.00	1.0337
Total:			**0.268**	**1.940**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-011AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

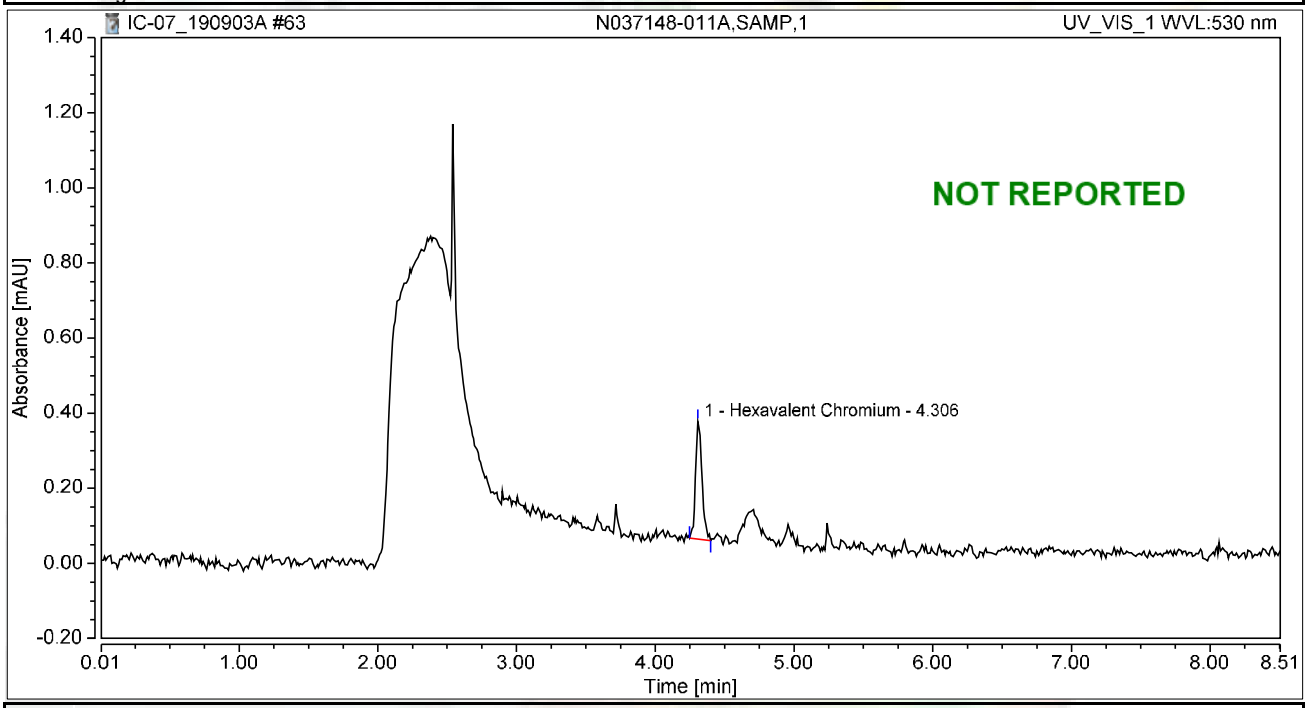
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.313	2.208	100.00	100.00	1.2045
Total:			**0.313**	**2.208**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-011A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

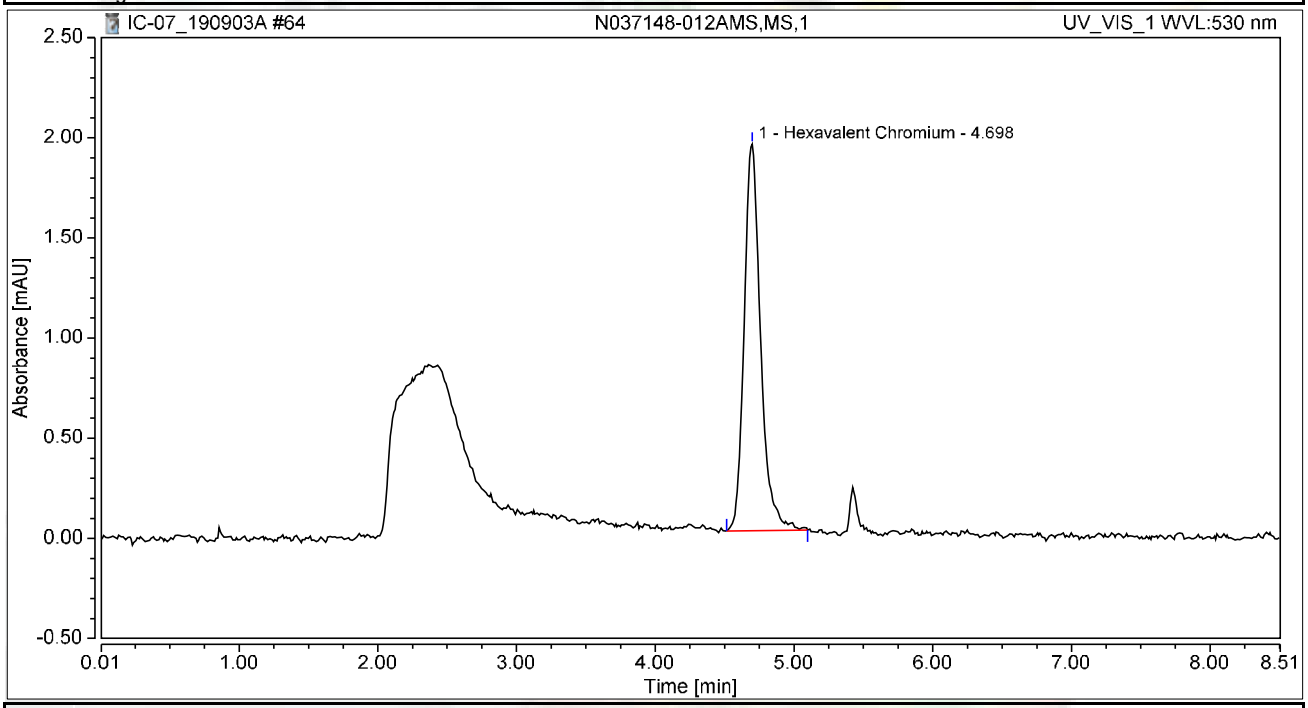
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.017	0.313	100.00	100.00	0.0640
Total:			**0.017**	**0.313**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

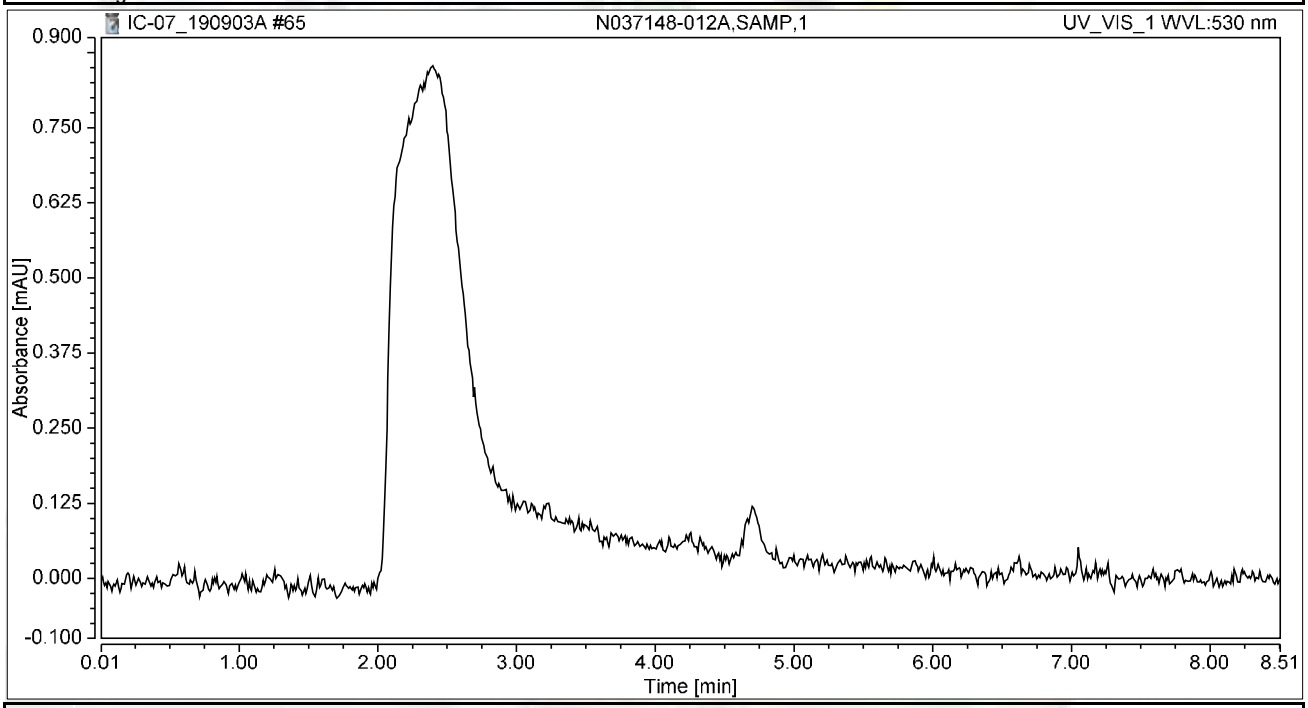
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.266	1.931	100.00	100.00	1.0247
Total:			**0.266**	**1.931**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

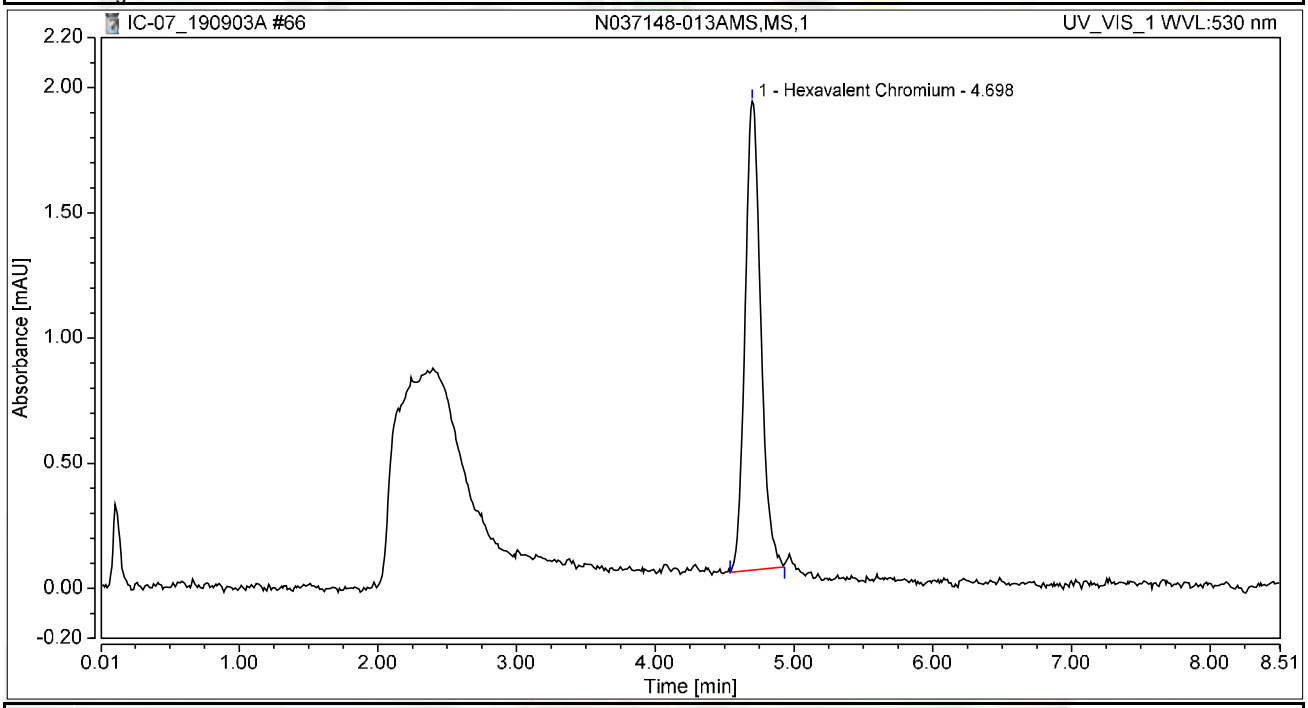
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 20:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

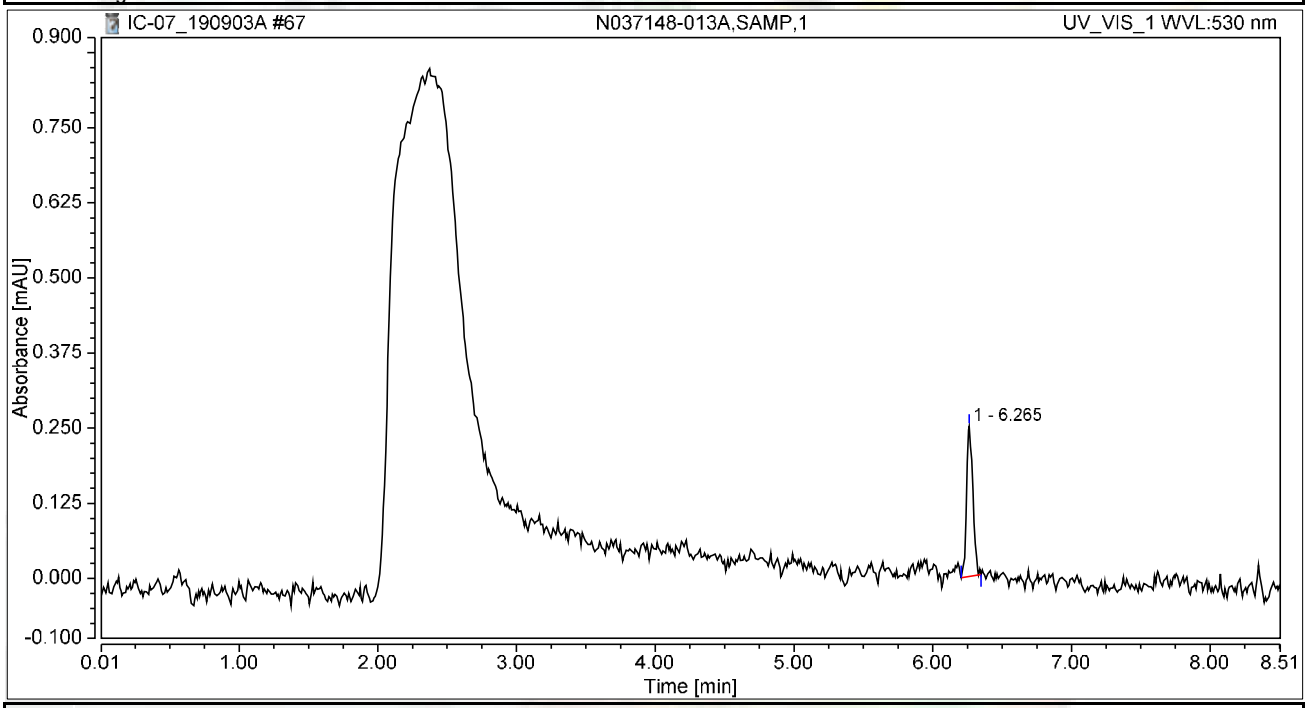
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.247	1.872	100.00	100.00	0.9529
Total:			**0.247**	**1.872**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

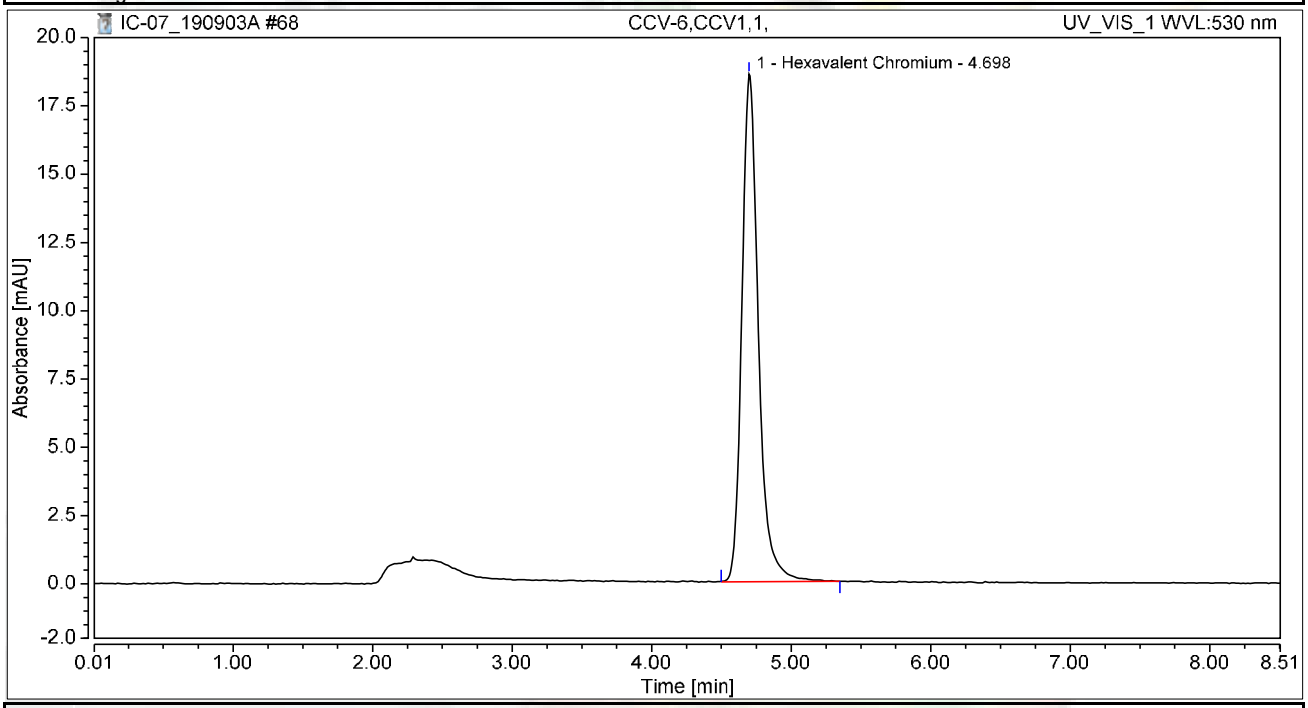
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.265	0.013	0.250	100.00	100.00	n.a.
Total:			**0.013**	**0.250**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

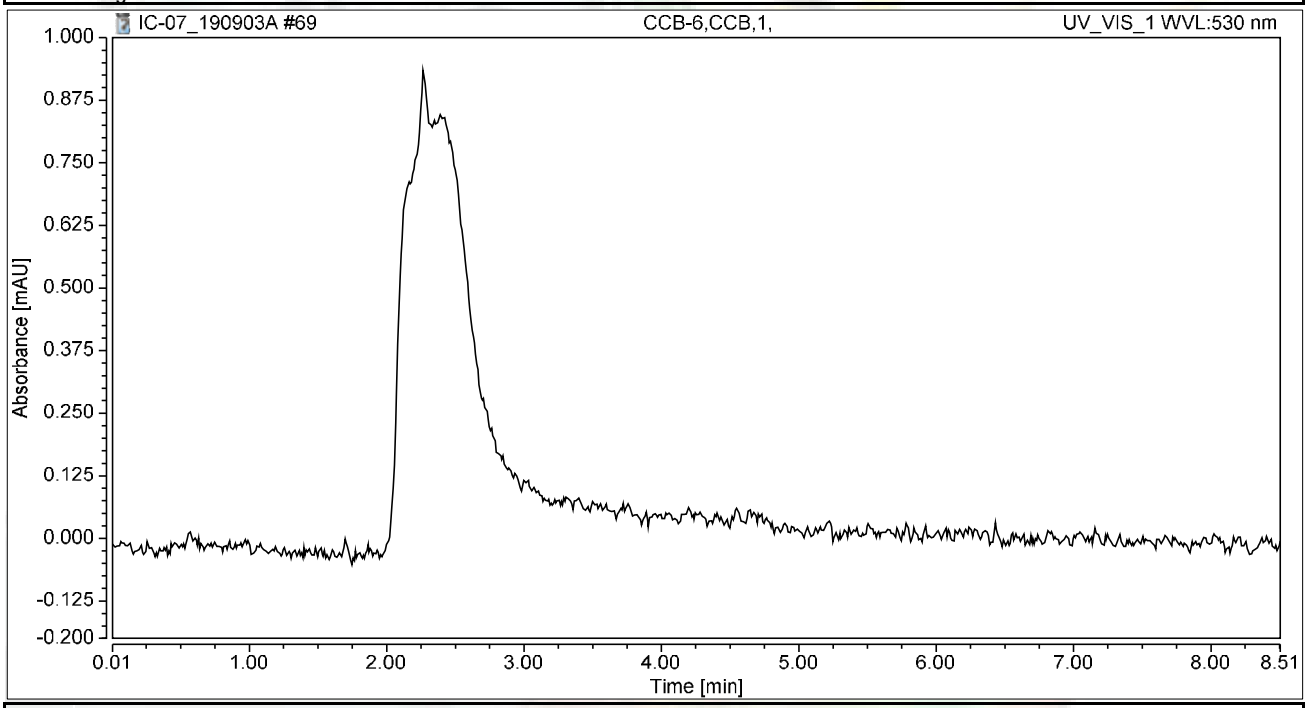
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.553	18.577	100.00	100.00	9.8367
Total:			**2.553**	**18.577**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

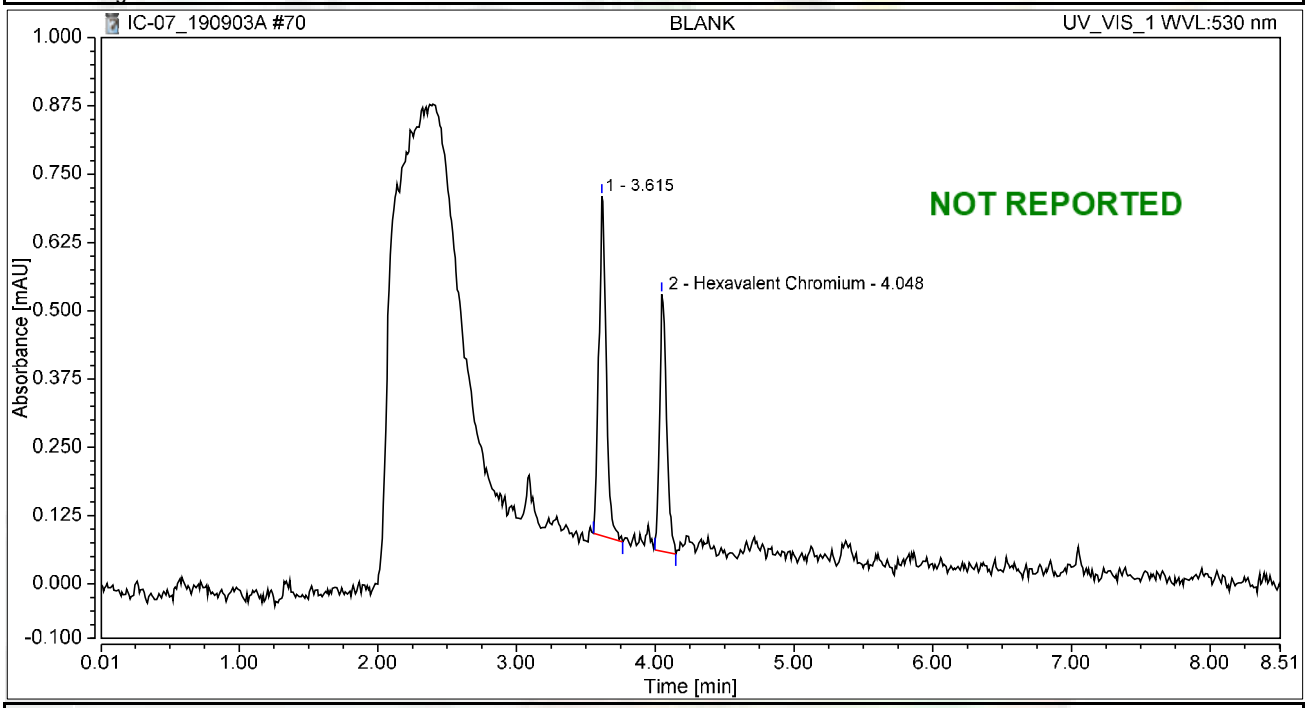
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Sep/19 21:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.615	0.038	0.622	58.15	56.95	n.a.
2	Hexavalent Chromium	4.048	0.028	0.470	41.85	43.05	0.1061
Total:			**0.066**	**1.092**	**100.00**	**100.00**	

RAW DATA

INJECTION LOG: 190909A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/09/19 12:21 PM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/09/19 12:32 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/09/19 12:42 PM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/09/19 1:08 PM	Reported
13	MB-R136358	MBLK	1	Hexavalent Chromium	09/09/19 1:20 PM	Reported
14	LCS-R136358	LCS	1	Hexavalent Chromium	09/09/19 1:29 PM	Reported
15	N037374-001AMS	MS	1	Hexavalent Chromium	09/09/19 1:41 PM	Reported
16	N037374-002AMS	MS	1	Hexavalent Chromium	09/09/19 1:52 PM	Reported
17	N037376-001AMS	MS	1	Hexavalent Chromium	09/09/19 2:02 PM	Not Reported
18	N037356-001AMS	MS	1	Hexavalent Chromium	09/09/19 2:11 PM	Reported
19	N037356-002AMS	MS	1	Hexavalent Chromium	09/09/19 2:21 PM	Reported
20	N037374-001A	SAMP	1	Hexavalent Chromium	09/09/19 2:30 PM	Reported
21	N037374-002A	SAMP	1	Hexavalent Chromium	09/09/19 2:40 PM	Reported
22	N037356-001A	SAMP	1	Hexavalent Chromium	09/09/19 2:49 PM	Not Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/09/19 2:58 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/09/19 3:07 PM	Reported
25	N037376-001AMS	MS	1	Hexavalent Chromium	09/09/19 3:17 PM	Not Reported
26	N037356-002A	SAMP	1	Hexavalent Chromium	09/09/19 3:26 PM	Reported
27	N037376-001AMS	MS	5	Hexavalent Chromium	09/09/19 3:41 PM	Reported
28	N037376-001A	SAMP	5	Hexavalent Chromium	09/09/19 3:54 PM	Reported
29	N037356-002AMSD	MSD	1	Hexavalent Chromium	09/09/19 4:05 PM	Reported
30	N037374-001ADUP	DUP	1	Hexavalent Chromium	09/09/19 4:15 PM	Reported
31	N037148-011AMS	MS	1	Hexavalent Chromium	09/09/19 4:24 PM	Reported
32	N037184-002AMS	MS	1	Hexavalent Chromium	09/09/19 4:34 PM	Reported
33	N037186-002AMS	MS	1	Hexavalent Chromium	09/09/19 4:43 PM	Reported
34	N037355-001BMS	MS	1	Hexavalent Chromium	09/09/19 4:53 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/09/19 5:02 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/09/19 5:12 PM	Reported
37	N037241-001AMS	MS	1	Hexavalent Chromium	09/09/19 5:28 PM	Reported
38	N037148-011A	SAMP	1	Hexavalent Chromium	09/09/19 5:39 PM	Reported
39	N037184-002A	SAMP	1	Hexavalent Chromium	09/09/19 5:49 PM	Reported
40	N037186-002A	SAMP	1	Hexavalent Chromium	09/09/19 5:58 PM	Reported
41	N037355-001B	SAMP	1	Hexavalent Chromium	09/09/19 6:08 PM	Reported
42	N037241-001A	SAMP	1	Hexavalent Chromium	09/09/19 6:17 PM	Reported

INJECTION LOG: 190909A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037356-001A	SAMP	1	Hexavalent Chromium	09/09/19 6:27 PM	Reported
44	CCV-4	CCV1	1	Hexavalent Chromium	09/09/19 6:36 PM	Reported
45	CCB-4	CCB	1	Hexavalent Chromium	09/09/19 6:45 PM	Reported
46	BLANK	BLANK	1	Hexavalent Chromium	09/09/19 6:55 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190909A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/Sep/19 09:22:05**
No. of Injections:	**49**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/09/2019 12:21	Finished	BLANK
10	CCV1,CCV,1,	2	1000	Unknown		09/09/2019 12:32	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/09/2019 12:42	Finished	PQL @ 0.2ppb
12	CCB1,CCB,1,	5	1000	Unknown		09/09/2019 13:08	Finished	CCB R190701B
13	MB-H2O,MBLK,1,	6	1000	Unknown		09/09/2019 13:20	Finished	MB R190701B
14	LCS-H2O,LCS,1,	7	1000	Unknown		09/09/2019 13:29	Finished	LCS @5ppb, IWST-190702B
15	N037374-001AMS,MS	8	1000	Unknown		09/09/2019 13:41	Finished	MS (1ppb), IWST-190702B,10
16	N037374-002AMS,MS	9	1000	Unknown		09/09/2019 13:52	Finished	MS (1ppb), IWST-190702B,10
17	N037376-001AMS,MS	10	1000	Unknown		09/09/2019 14:02	Finished	MS (1ppb), IWST-190702B,10
18	N037356-001AMS,MS	11	1000	Unknown		09/09/2019 14:11	Finished	MS (1ppb), IWST-190702B,10
19	N037356-002AMS,MS	12	1000	Unknown		09/09/2019 14:21	Finished	MS (1ppb), IWST-190702B,10
20	N037374-001A,SAMP	13	1000	Unknown		09/09/2019 14:30	Finished	SAMP,10mL
21	N037374-002A,SAMP	14	1000	Unknown		09/09/2019 14:40	Finished	SAMP,10mL
22	N037356-001A,SAMP	16	1000	Unknown		09/09/2019 14:49	Finished	SAMP,10mL
23	CCV-2,CCV1,1,	17	1000	Unknown		09/09/2019 14:58	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	18	1000	Unknown		09/09/2019 15:07	Finished	CCB R190701B
25	N037376-001AMS,MS	19	1000	Unknown		09/09/2019 15:17	Finished	MS (1ppb), IWST-190702B,10
26	N037356-002A,SAMP	20	1000	Unknown		09/09/2019 15:26	Finished	SAMP,10mL
27	N037376-001AMS,MS	22	1000	Unknown		09/09/2019 15:41	Finished	MS (1ppb), IWST-190702B,2>1
28	N037376-001A,SAMP	23	1000	Unknown		09/09/2019 15:54	Finished	SAMP,2>10mL
29	N037356-002AMSD,M	24	1000	Unknown		09/09/2019 16:05	Finished	MSD (1ppb), IWST-190702B,10
30	N037374-001ADUP,D	25	1000	Unknown		09/09/2019 16:15	Finished	DUP,10mL
31	N037148-011AMS,MS	26	1000	Unknown		09/09/2019 16:24	Finished	MS (1ppb), IWST-190702B,10
32	N037184-002AMS,MS	27	1000	Unknown		09/09/2019 16:34	Finished	MS (1ppb), IWST-190702B,10
33	N037186-002AMS,MS	28	1000	Unknown		09/09/2019 16:43	Finished	MS (1ppb), IWST-190702B,10
34	N037355-001BMS,MS	29	1000	Unknown		09/09/2019 16:53	Finished	MS (1ppb), IWST-190702B,10
35	CCV-3,CCV,1,	30	1000	Unknown		09/09/2019 17:02	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	31	1000	Unknown		09/09/2019 17:12	Finished	CCB R190701B
37	N037241-001BMS,MS	32	1000	Unknown		09/09/2019 17:28	Finished	MS (1ppb), IWST-190702B,10
38	N037148-011A,SAMP	33	1000	Unknown		09/09/2019 17:39	Finished	SAMP,10mL
39	N037184-002A,SAMP	34	1000	Unknown		09/09/2019 17:49	Finished	SAMP,10mL
40	N037186-002A,SAMP	35	1000	Unknown		09/09/2019 17:58	Finished	SAMP,10mL
41	N037355-001B,SAMP	36	1000	Unknown		09/09/2019 18:08	Finished	SAMP,10mL
42	N037241-001B,SAMP	37	1000	Unknown		09/09/2019 18:17	Finished	SAMP,10mL
43	N037356-001A,SAMP	38	1000	Unknown		09/09/2019 18:27	Finished	SAMP,10mL
44	CCV-4,CCV1,1,	40	1000	Unknown		09/09/2019 18:36	Finished	CCV @10ppb, IWST-190702A
45	CCB-4,CCB,1,	41	1000	Unknown		09/09/2019 18:45	Finished	CCB R190701B
46	BLANK	42	1000	Unknown		09/09/2019 18:55	Finished	BLANK
47	SHUTDOWN	43	1000	Unknown		09/09/2019 19:04	Finished	
48	Eluent: R190909A	44	1000	Unknown		n.a.	Finished	Eluent
49	PCR: R190909B	45	1000	Unknown		n.a.	Finished	Post-Column Reagent

N037241-001B

09/10/19

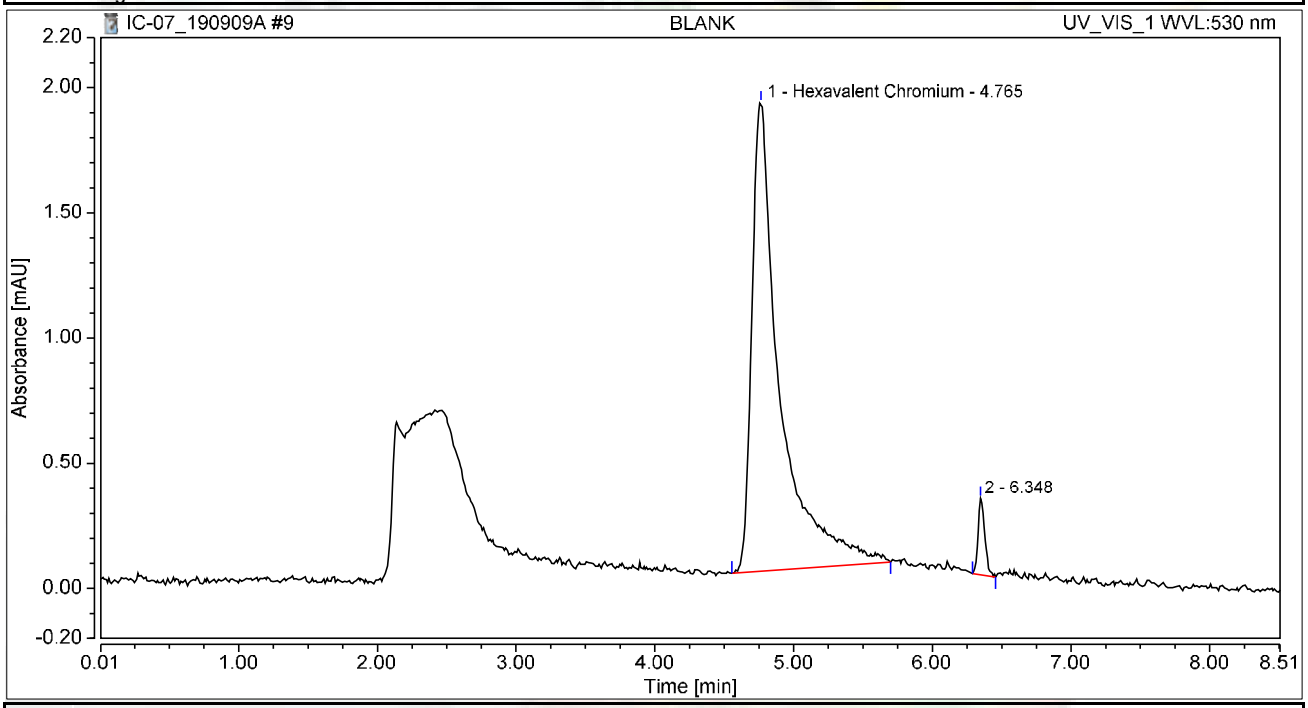
9/10/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 12:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	0.437	1.870	96.21	85.96	1.6844
2		6.348	0.017	0.306	3.79	14.04	n.a.
Total:			**0.454**	**2.176**	**100.00**	**100.00**	

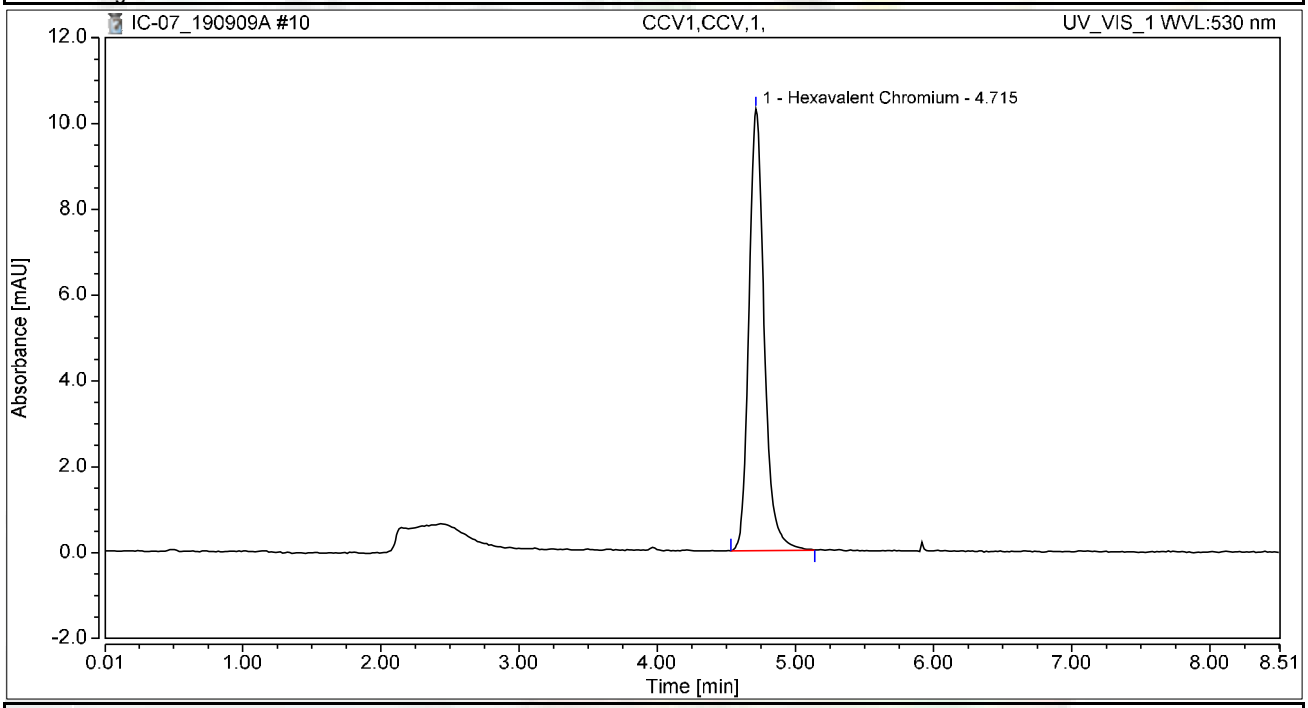
not reported

Chromatogram and Results

Injection Details

Injection Name:	**CCV1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

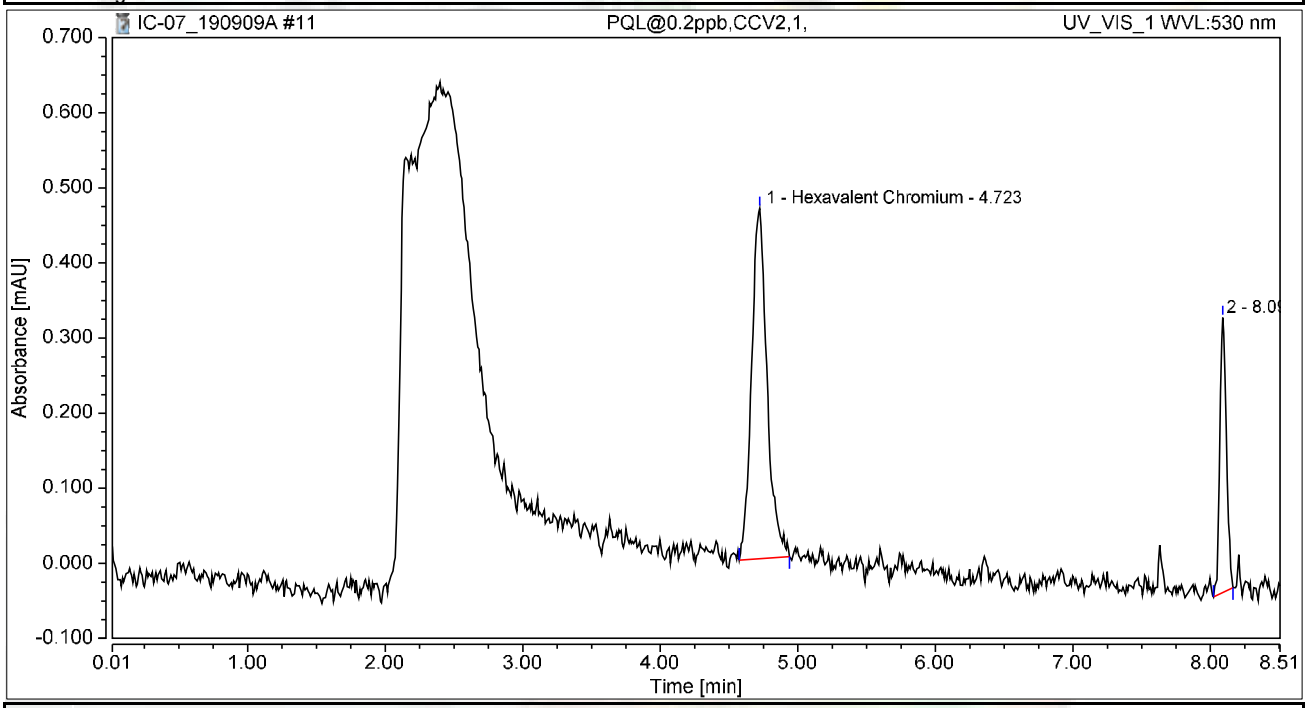
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.322	10.292	100.00	100.00	5.0937
Total:			**1.322**	**10.292**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 12:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

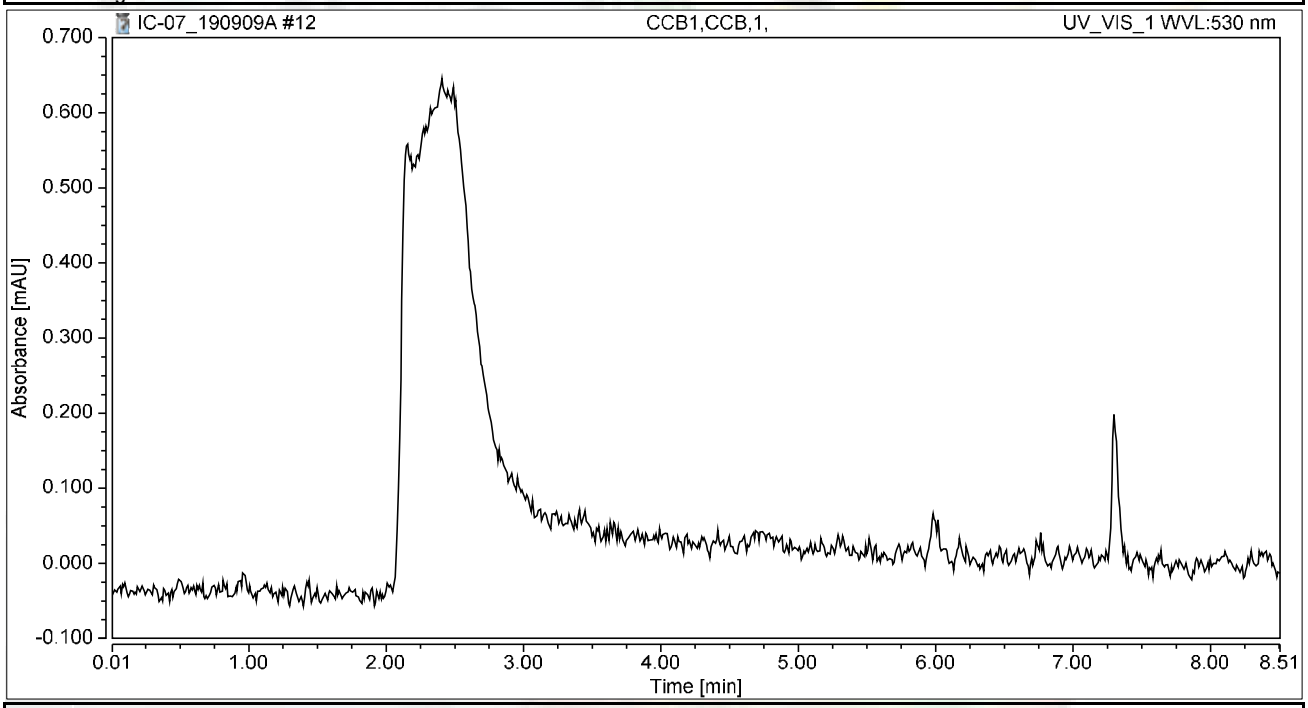
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.061	0.466	74.81	55.99	0.2342
2		8.090	0.020	0.366	25.19	44.01	n.a.
Total:			**0.081**	**0.833**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 13:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

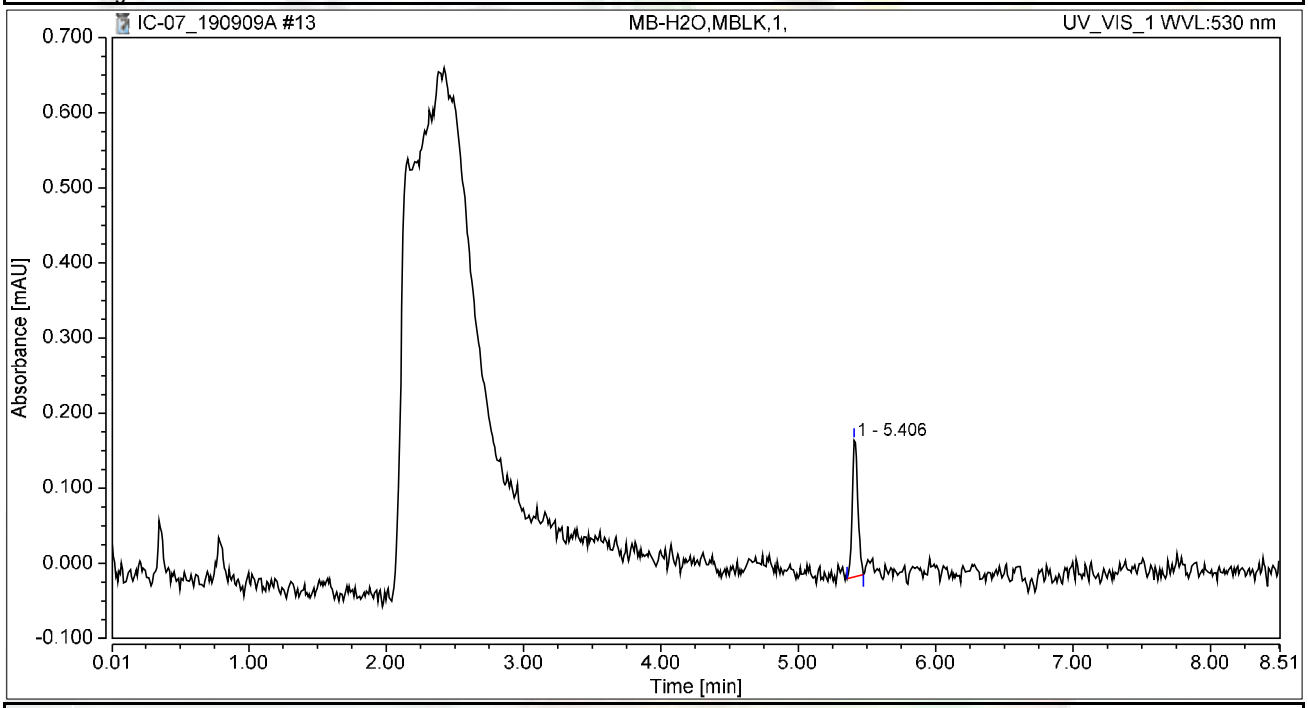
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 13:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

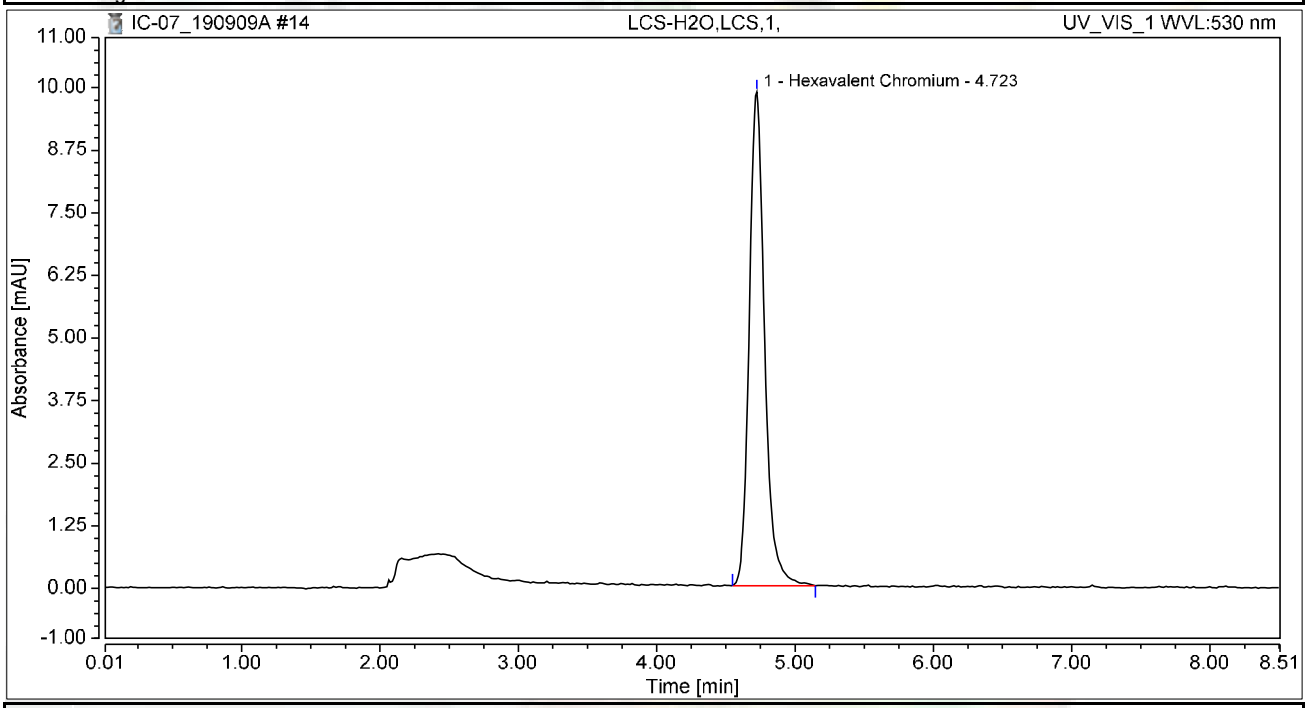
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.406	0.009	0.182	100.00	100.00	n.a.
Total:			**0.009**	**0.182**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 13:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

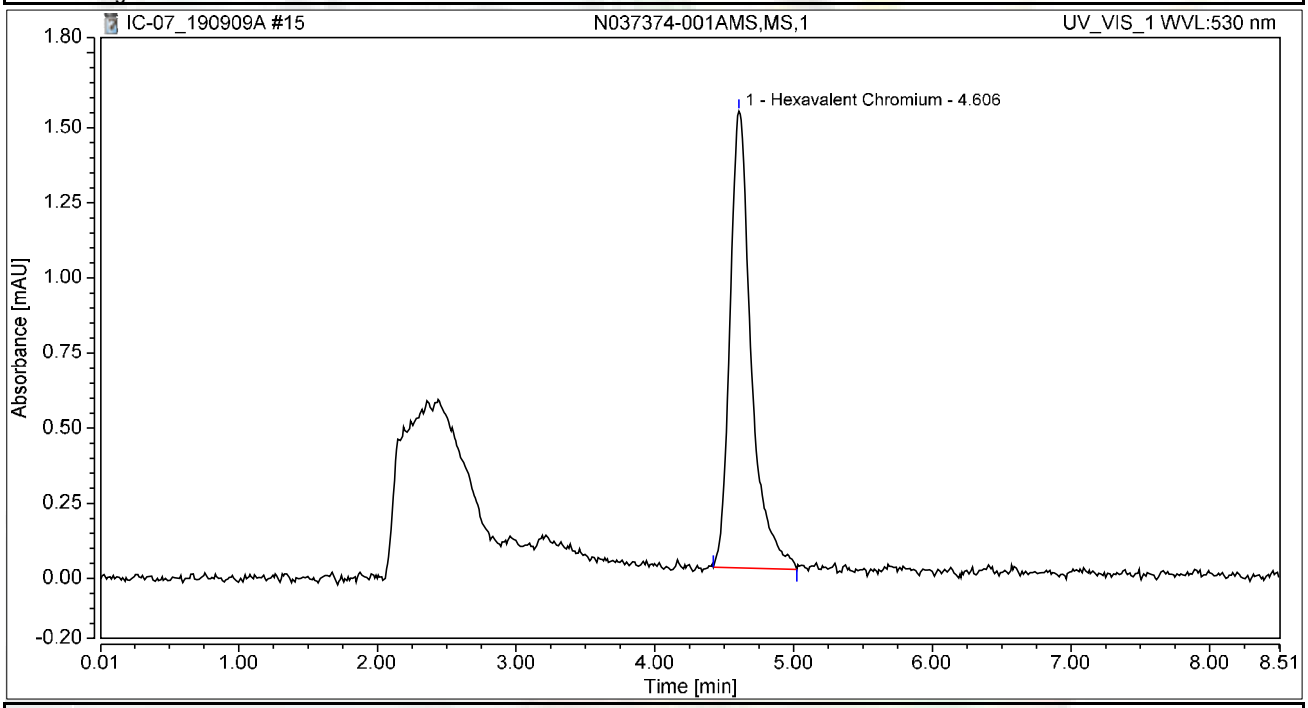
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.273	9.861	100.00	100.00	4.9060
Total:			**1.273**	**9.861**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037374-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 13:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

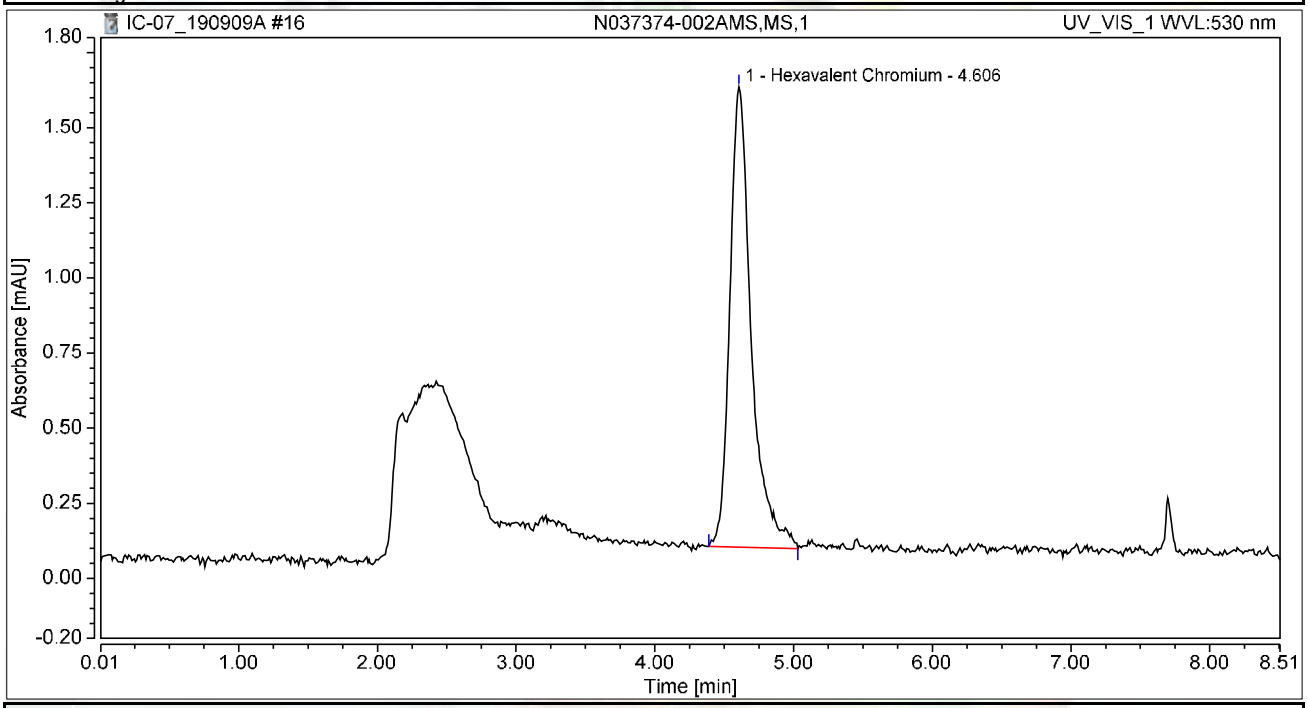
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.271	1.520	100.00	100.00	1.0431
Total:			**0.271**	**1.520**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037374-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 13:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

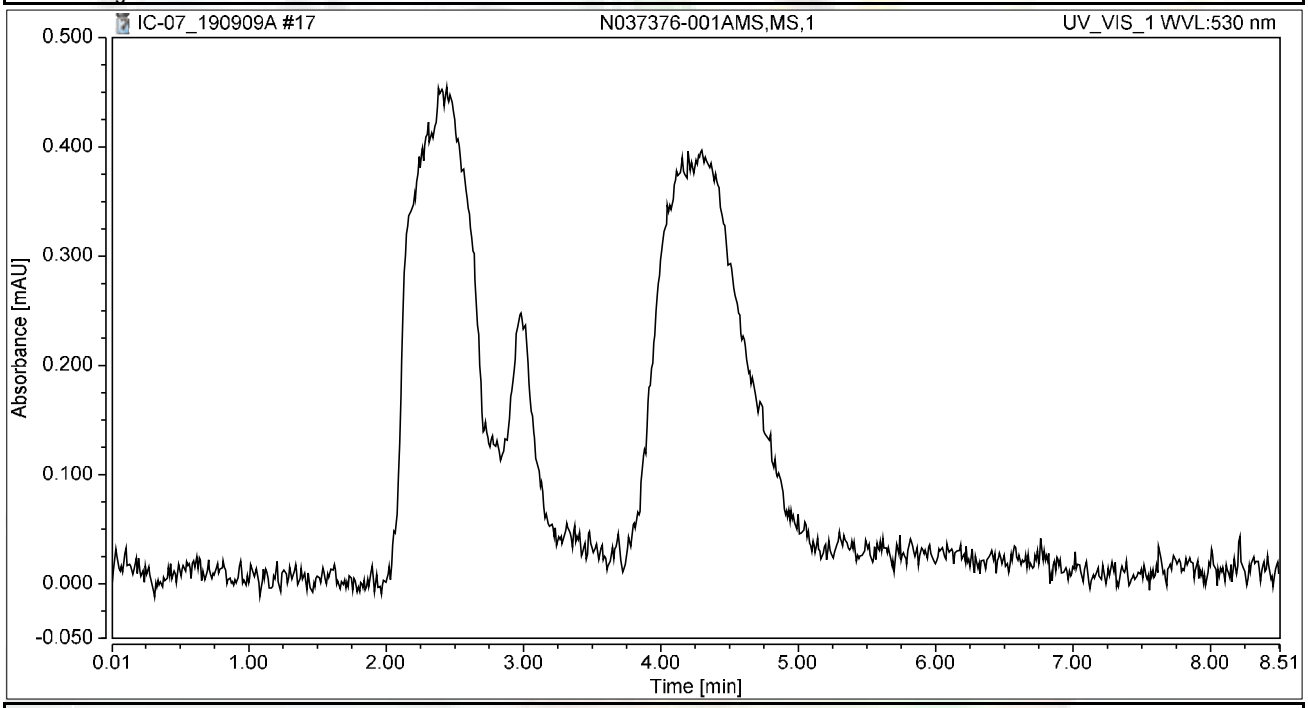
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.274	1.532	100.00	100.00	1.0546
Total:			**0.274**	**1.532**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037376-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 14:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

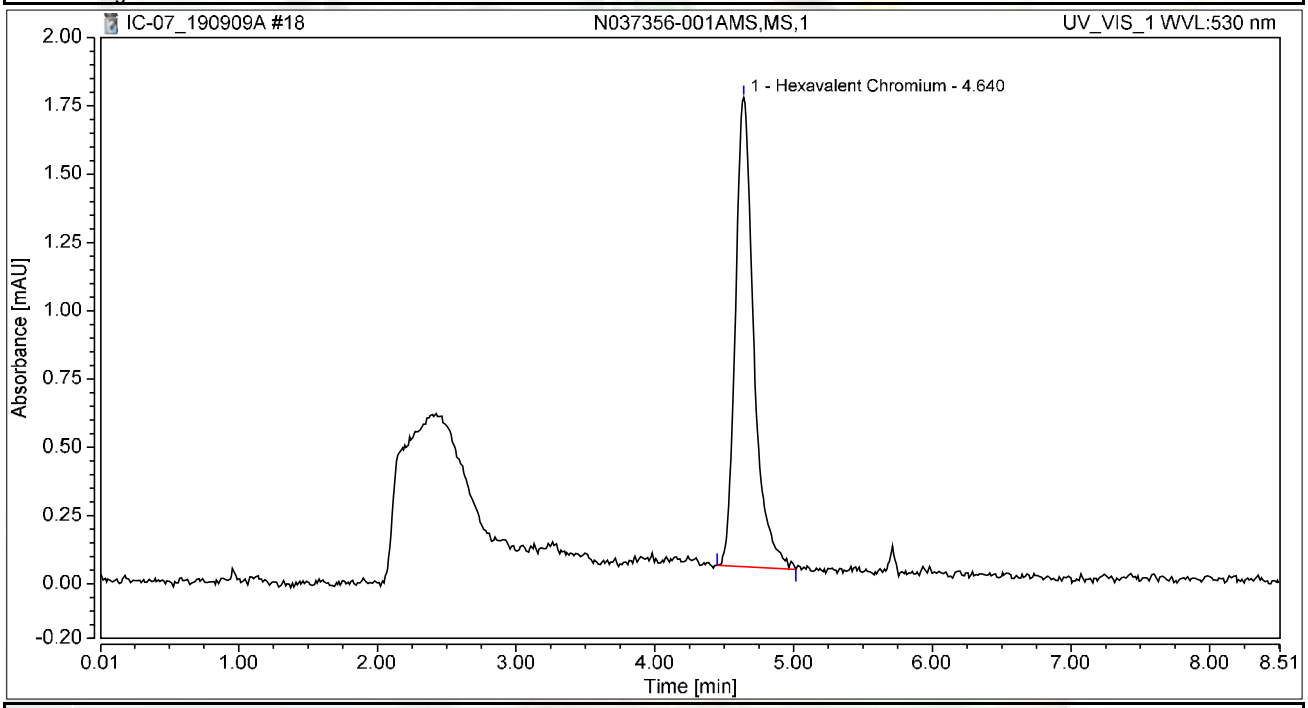
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037356-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

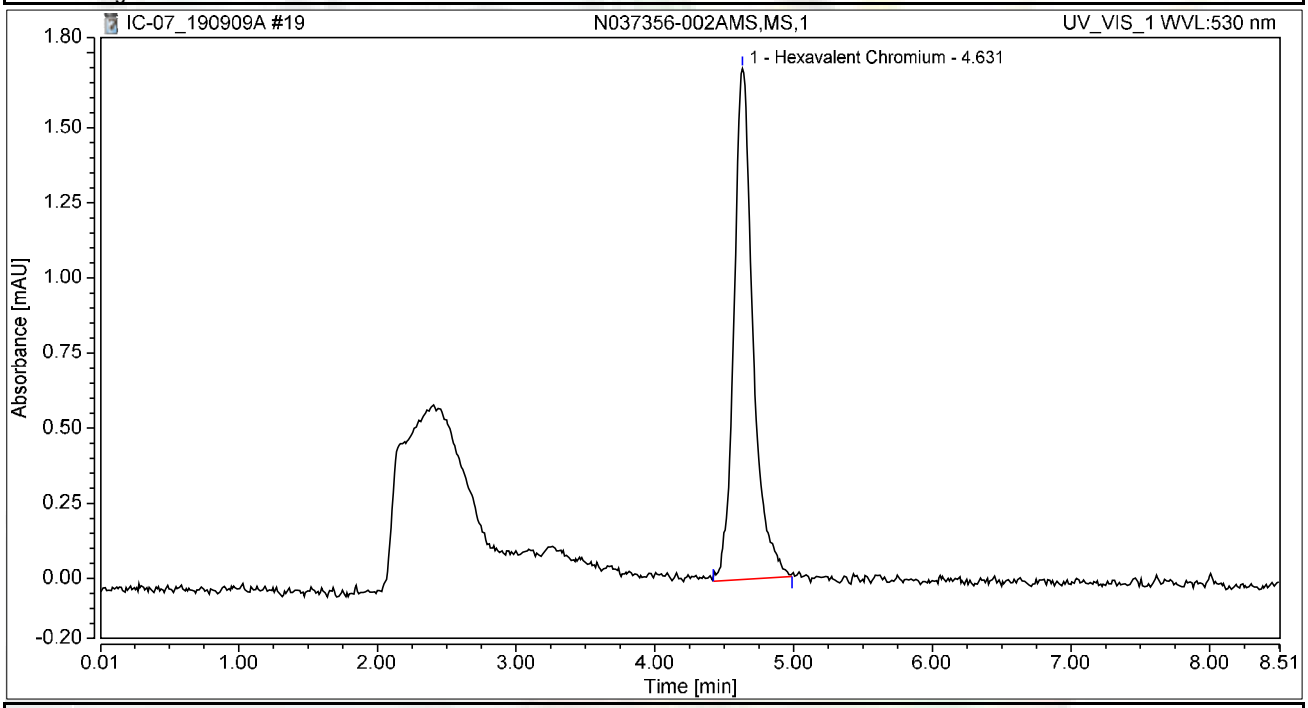
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.640	0.264	1.719	100.00	100.00	1.0188
Total:			**0.264**	**1.719**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037356-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 14:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

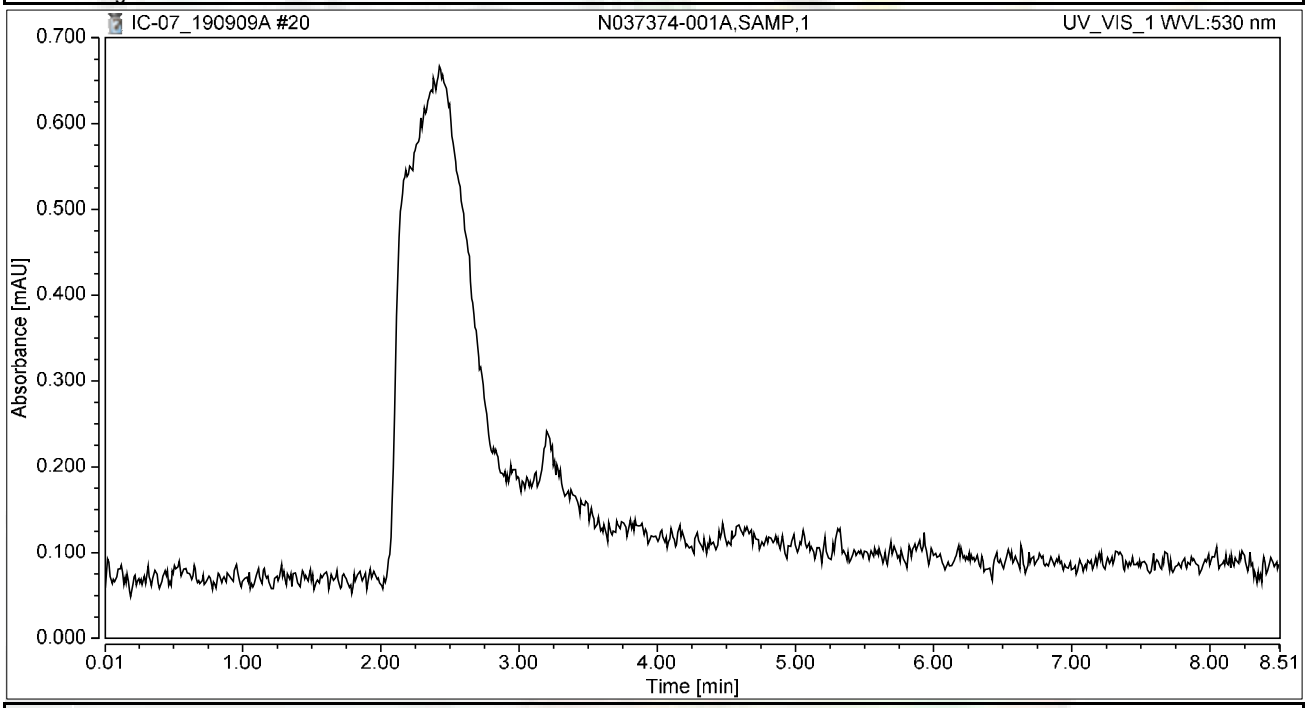
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	0.270	1.700	100.00	100.00	1.0406
Total:			**0.270**	**1.700**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037374-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 14:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

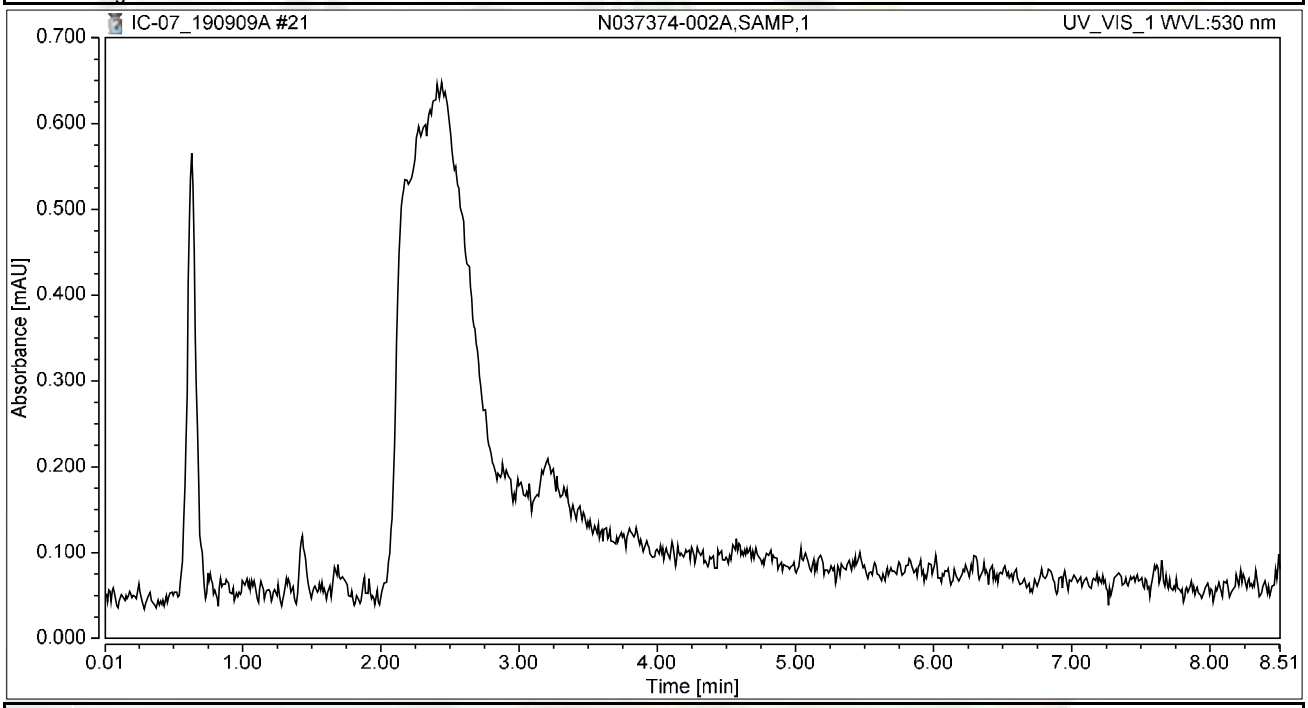
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037374-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 14:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

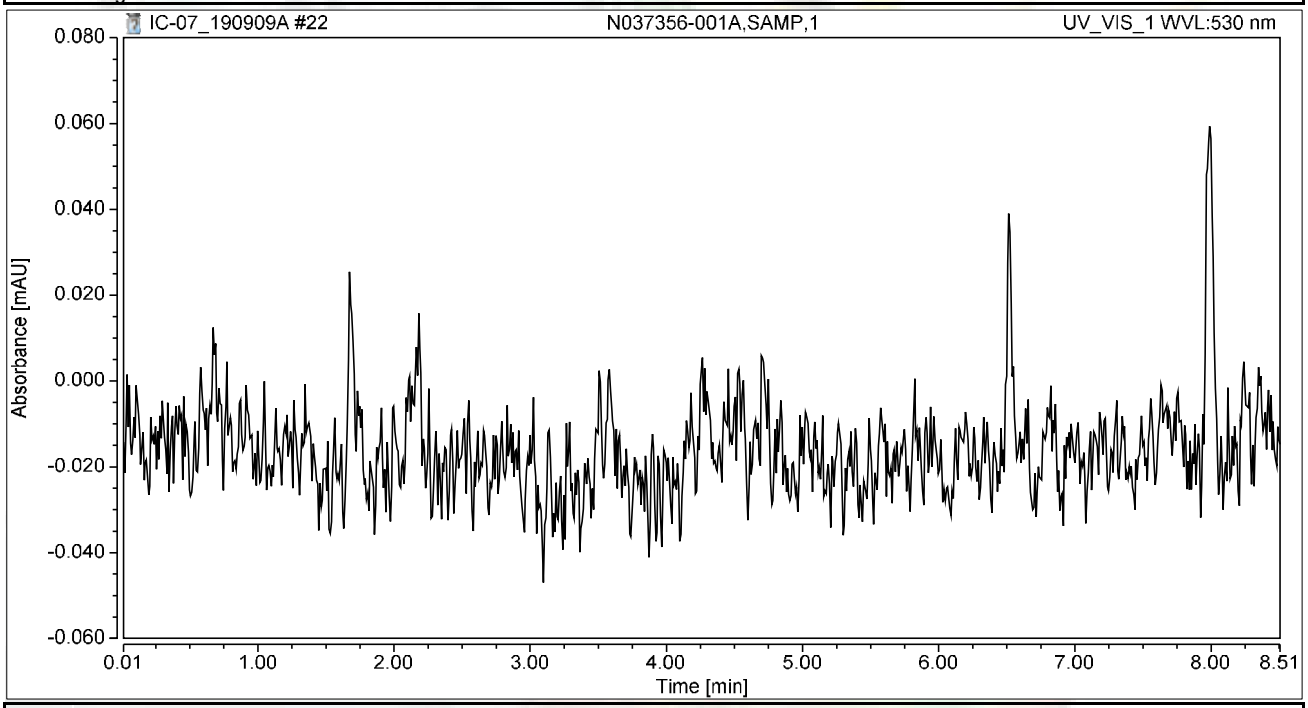
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037356-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 14:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

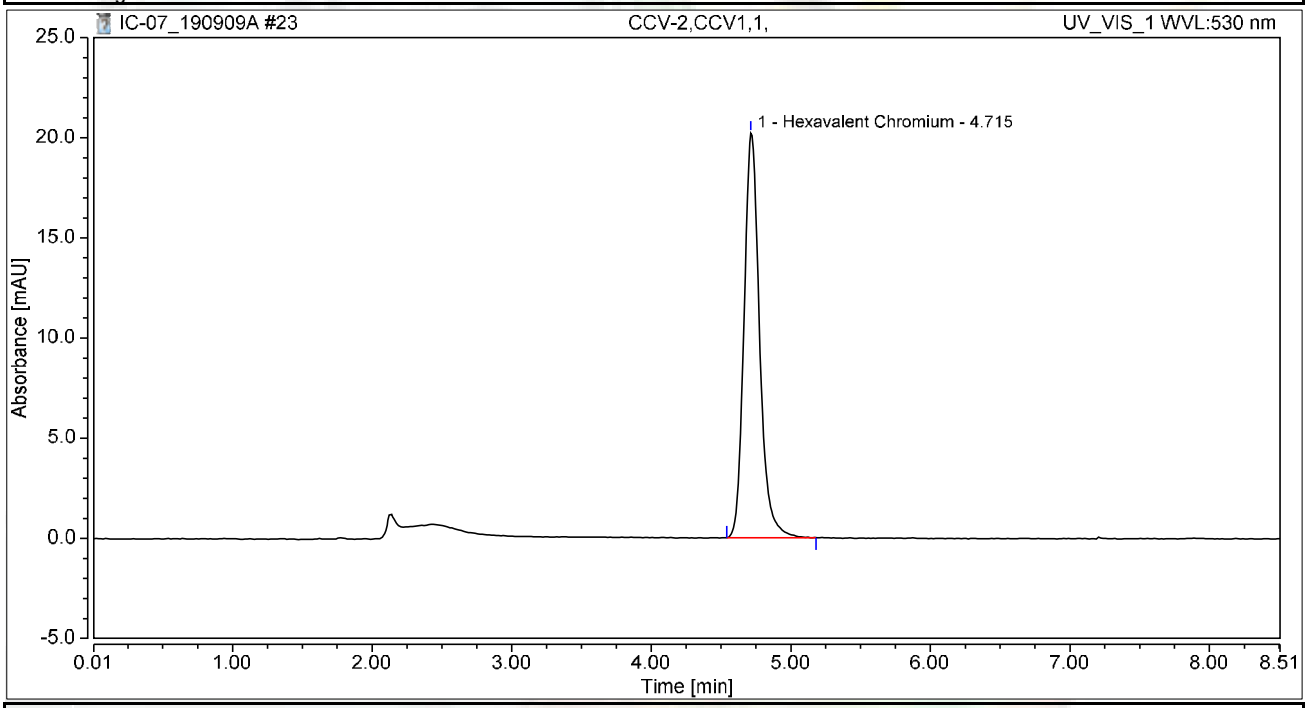
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 14:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

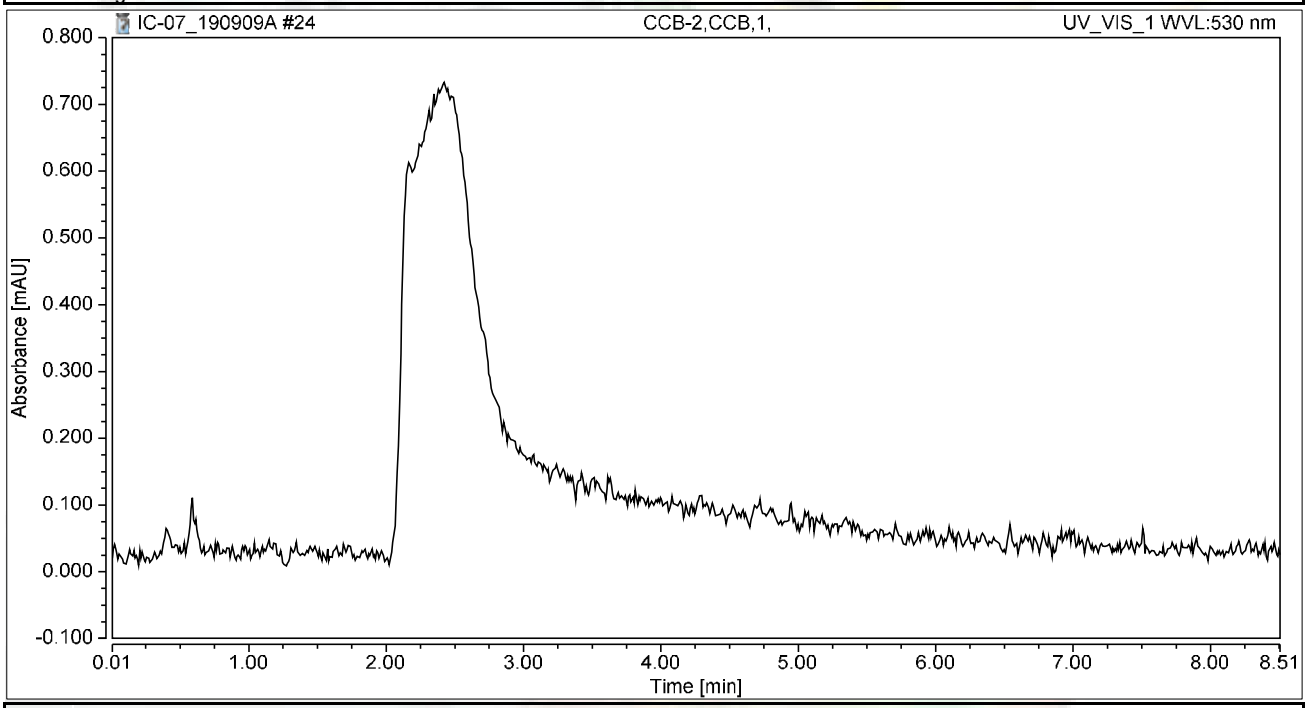
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.621	20.214	100.00	100.00	10.0987
Total:			**2.621**	**20.214**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 15:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

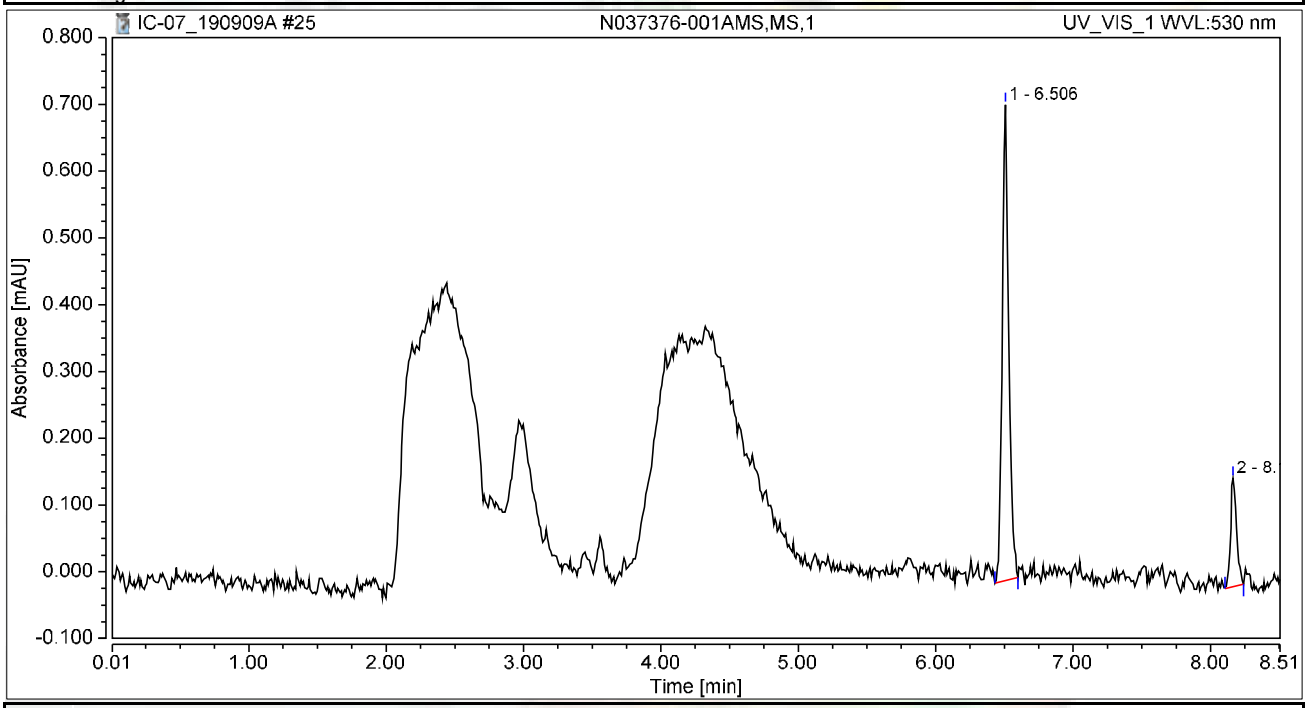
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037376-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 15:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

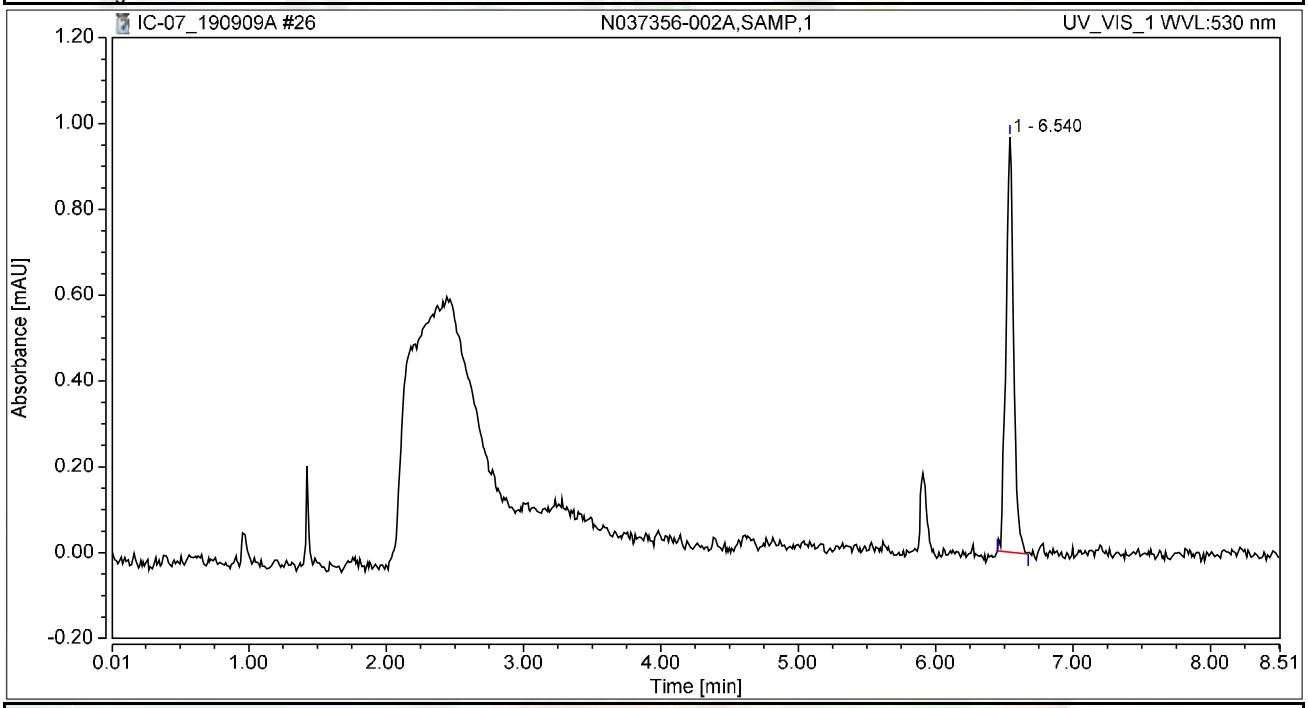
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.506	0.039	0.713	82.45	81.47	n.a.
2		8.165	0.008	0.162	17.55	18.53	n.a.
Total:			**0.047**	**0.875**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037356-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 15:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

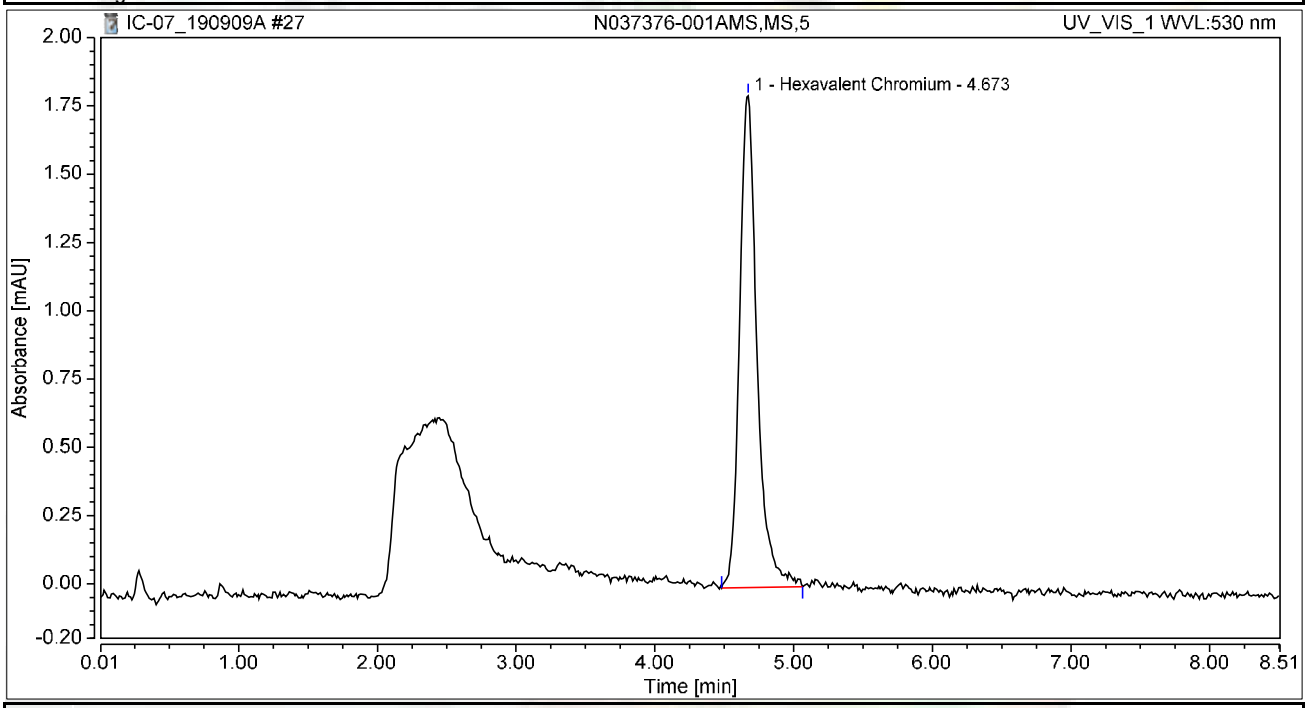
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.540	0.062	0.967	100.00	100.00	n.a.
Total:			**0.062**	**0.967**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037376-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 15:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

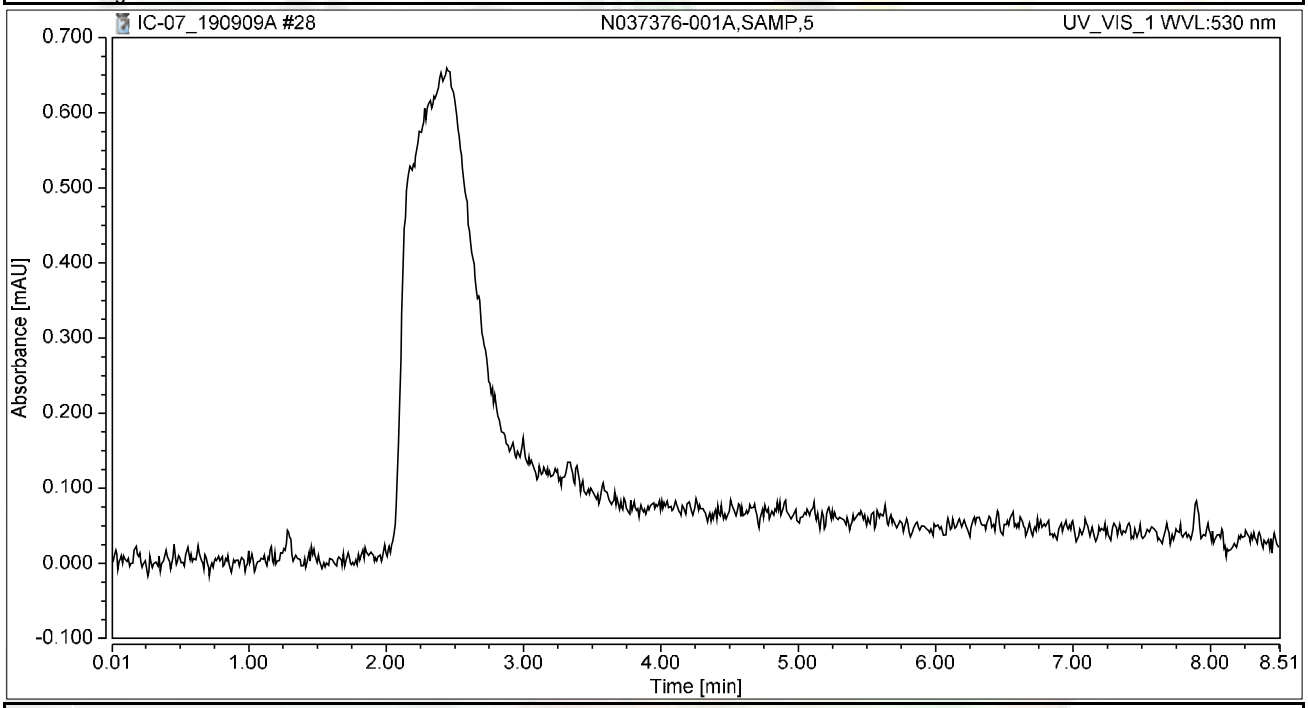
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.263	1.801	100.00	100.00	1.0152
Total:			**0.263**	**1.801**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037376-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 15:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

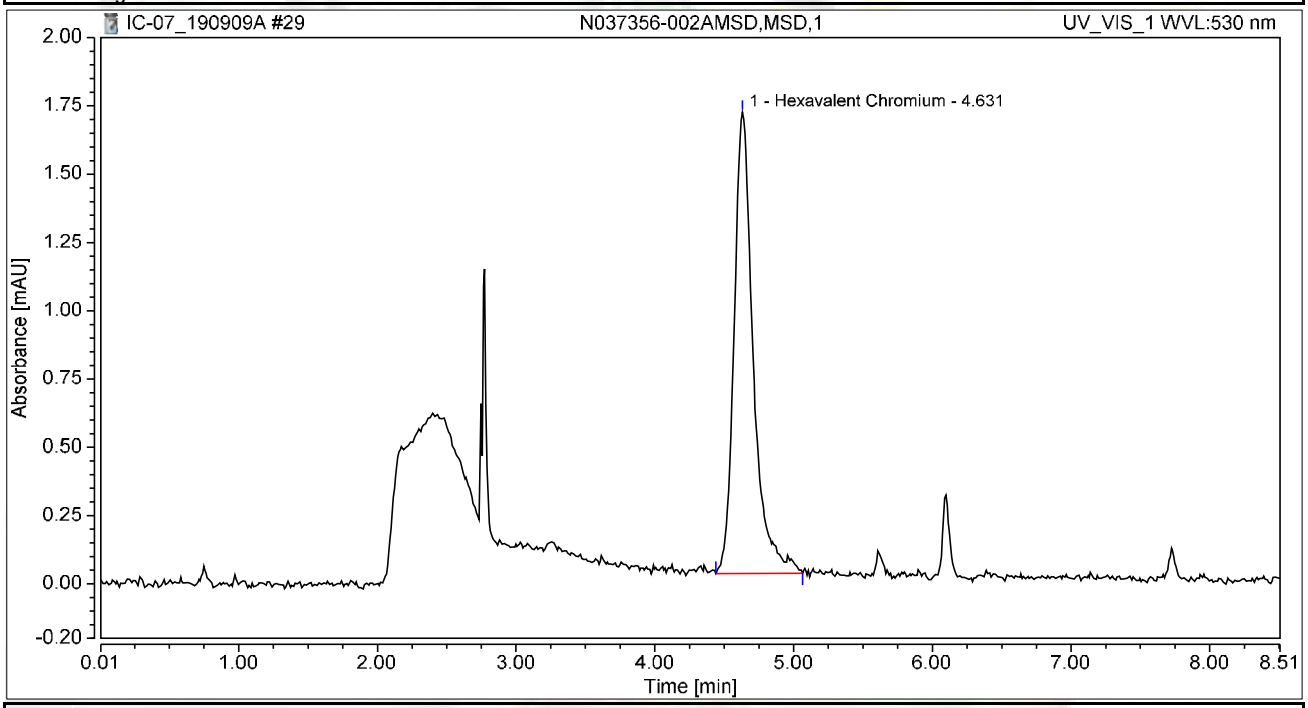
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037356-002AMSD,MSD,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

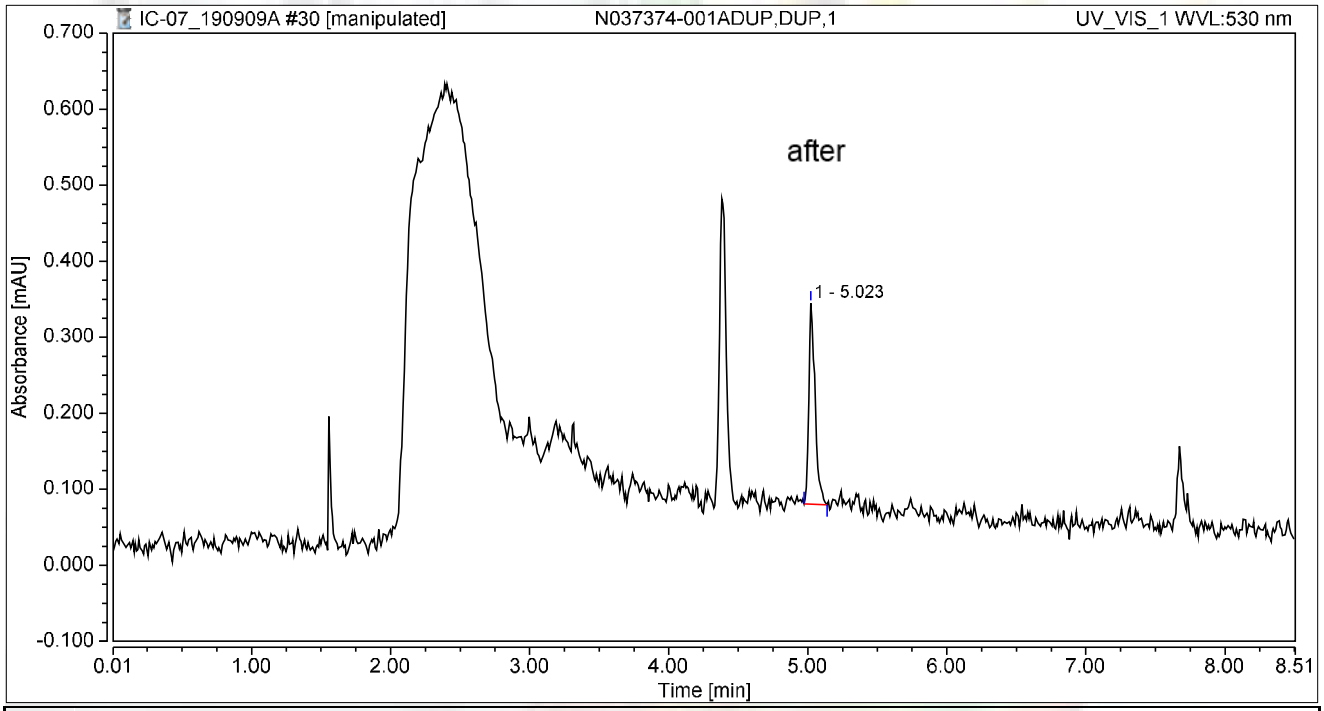
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	0.270	1.689	100.00	100.00	1.0397
Total:			**0.270**	**1.689**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037374-001ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 16:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.023	0.014	0.264	100.00	100.00	n.a.
Total:			**0.014**	**0.264**	**100.00**	**100.00**	

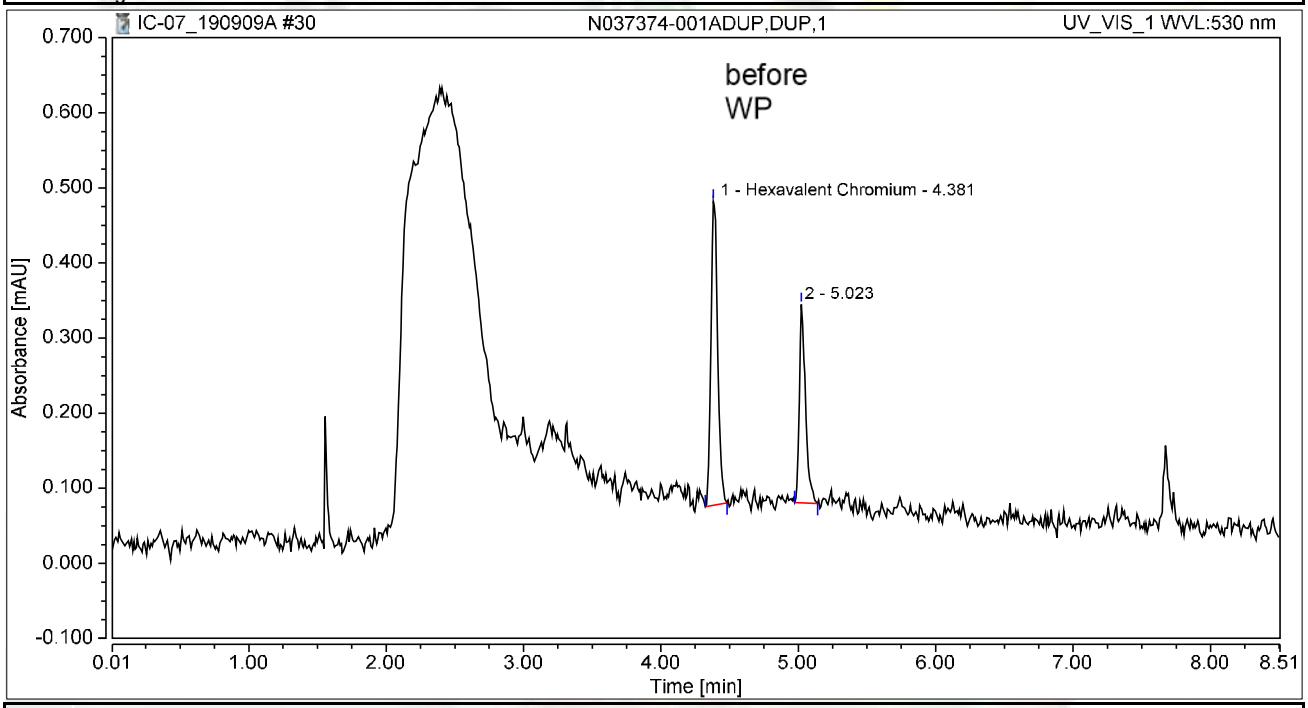
09/10/19

Chromatogram and Results

Injection Details

Injection Name:	**N037374-001ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 16:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.381	0.023	0.405	62.13	60.50	0.0878
2		5.023	0.014	0.264	37.87	39.50	n.a.
Total:			**0.037**	**0.669**	**100.00**	**100.00**	

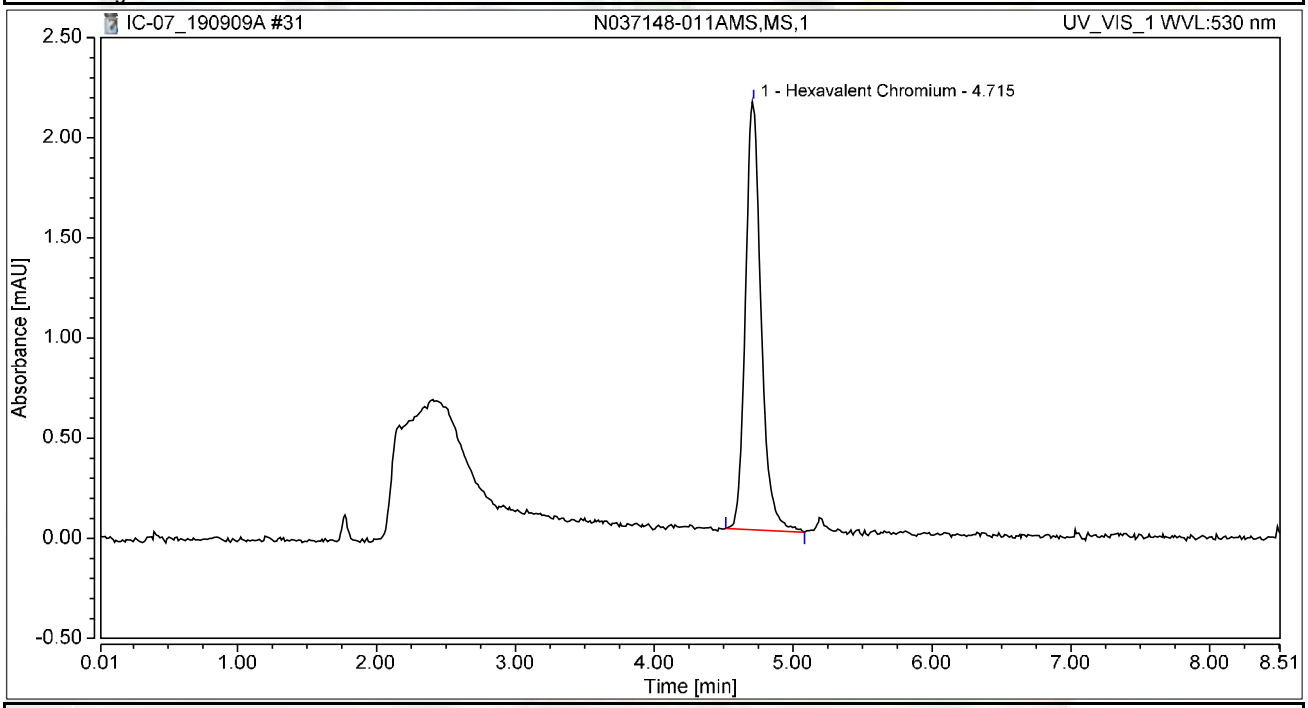
09/10/19

Chromatogram and Results

Injection Details

Injection Name:	**N037148-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 16:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

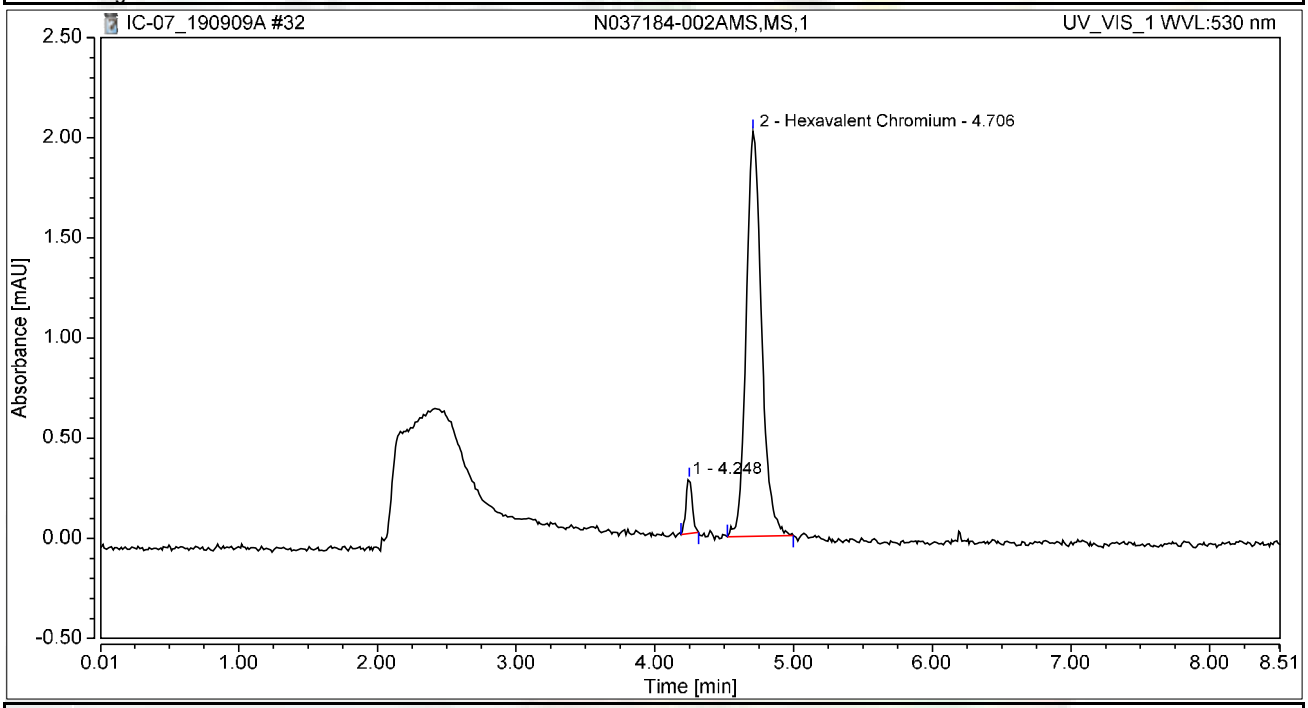
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.280	2.138	100.00	100.00	1.0807
Total:			**0.280**	**2.138**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037184-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 16:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

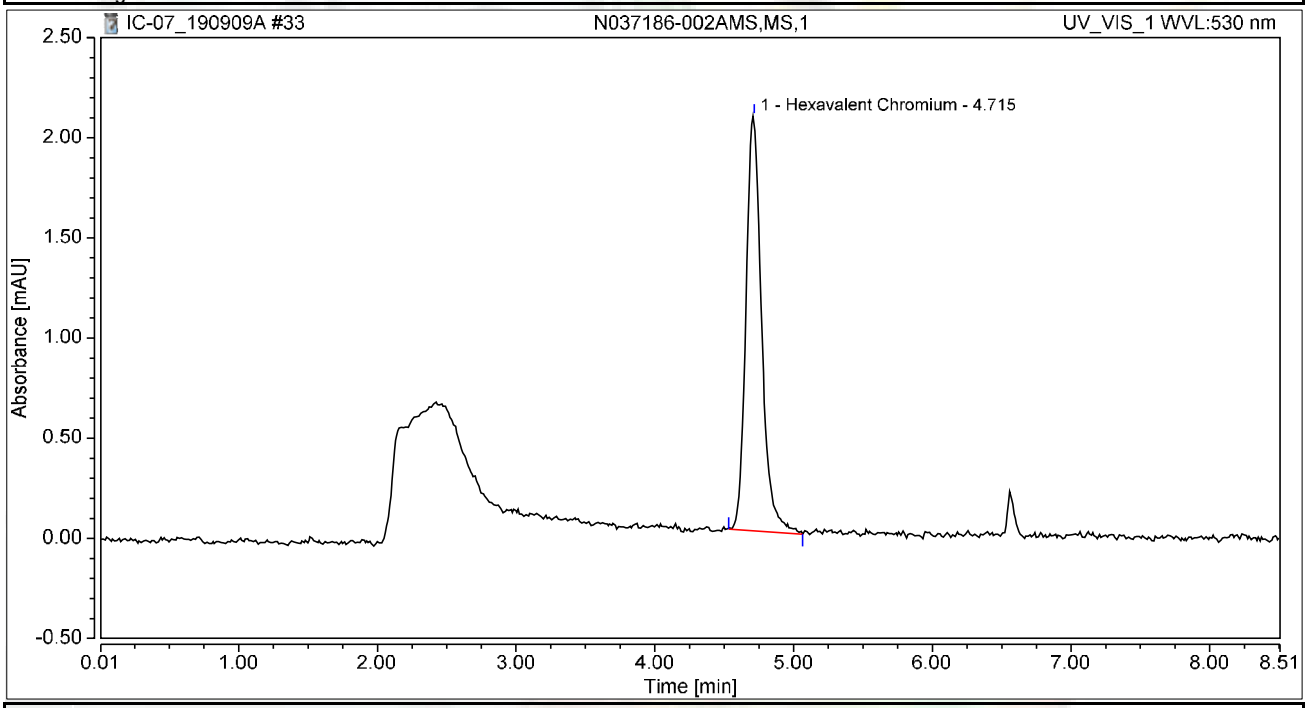
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.248	0.014	0.270	5.30	11.79	n.a.
2	Hexavalent Chromium	4.706	0.259	2.020	94.70	88.21	0.9975
Total:			**0.273**	**2.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037186-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 16:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

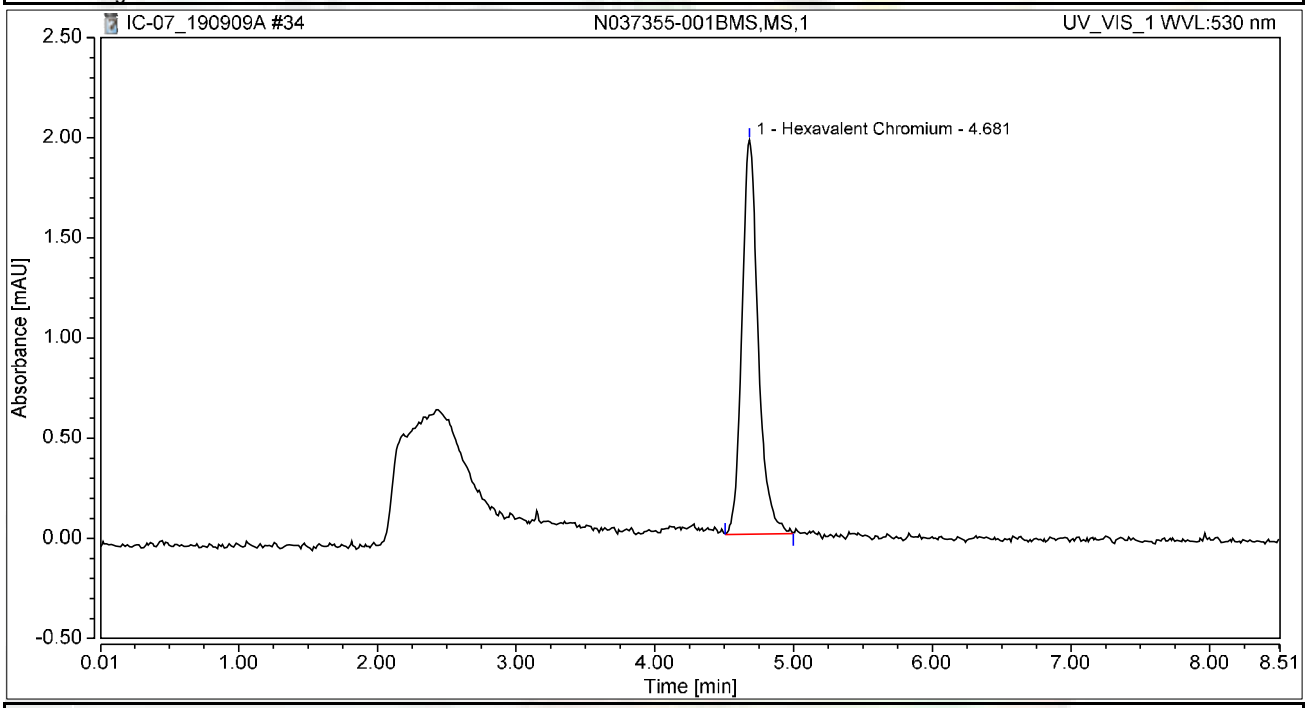
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.271	2.072	100.00	100.00	1.0453
Total:			**0.271**	**2.072**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037355-001BMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 16:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

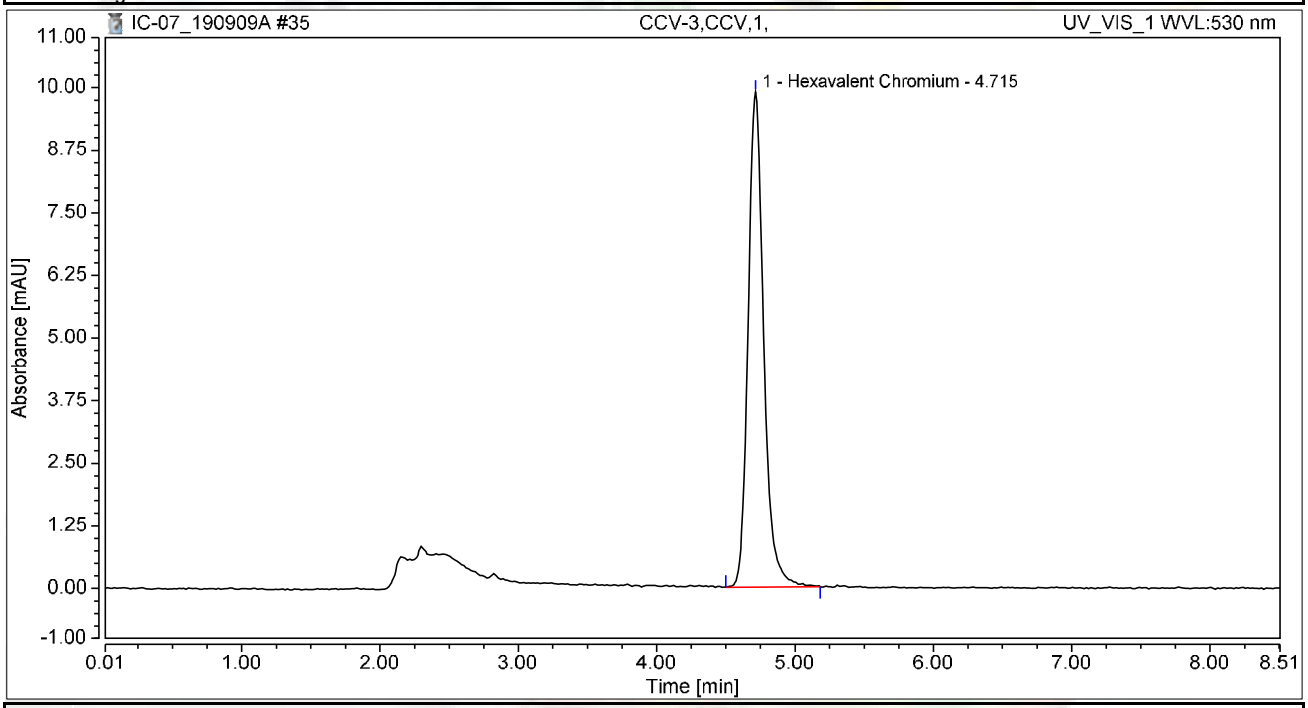
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.268	1.970	100.00	100.00	1.0328
Total:			**0.268**	**1.970**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 17:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

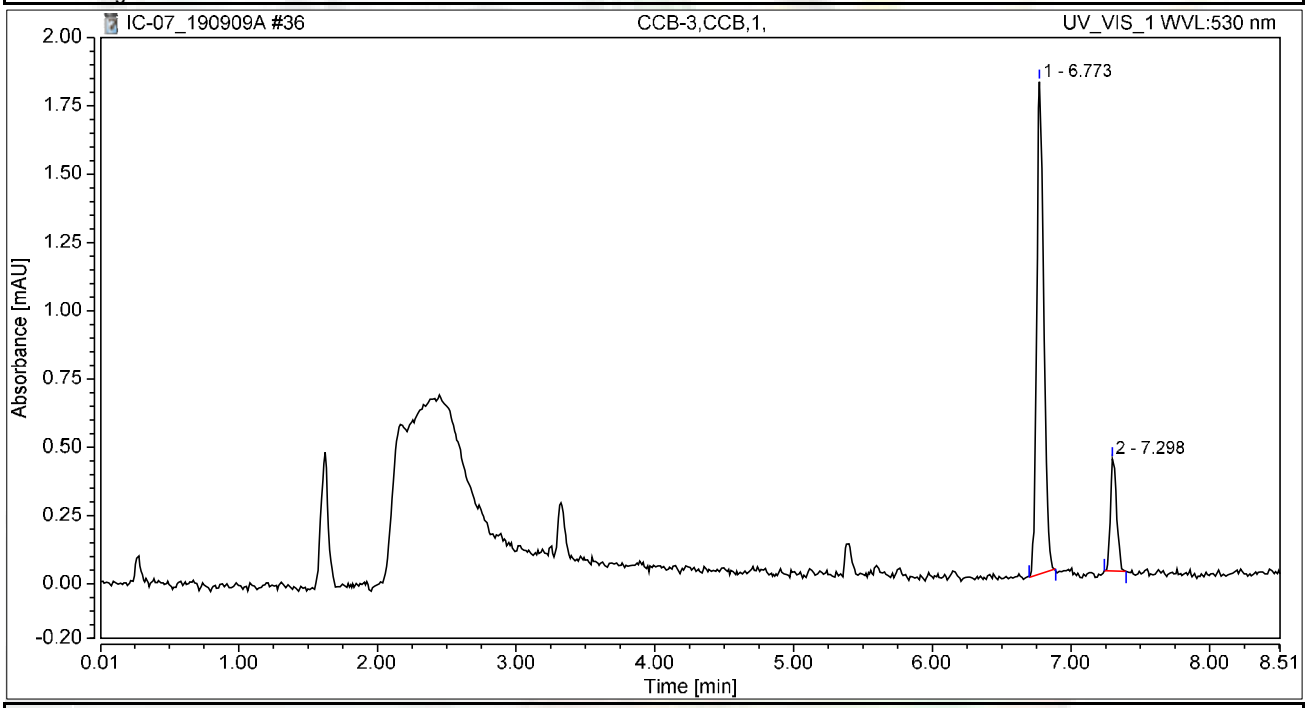
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.293	9.882	100.00	100.00	4.9826
Total:			**1.293**	**9.882**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 17:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

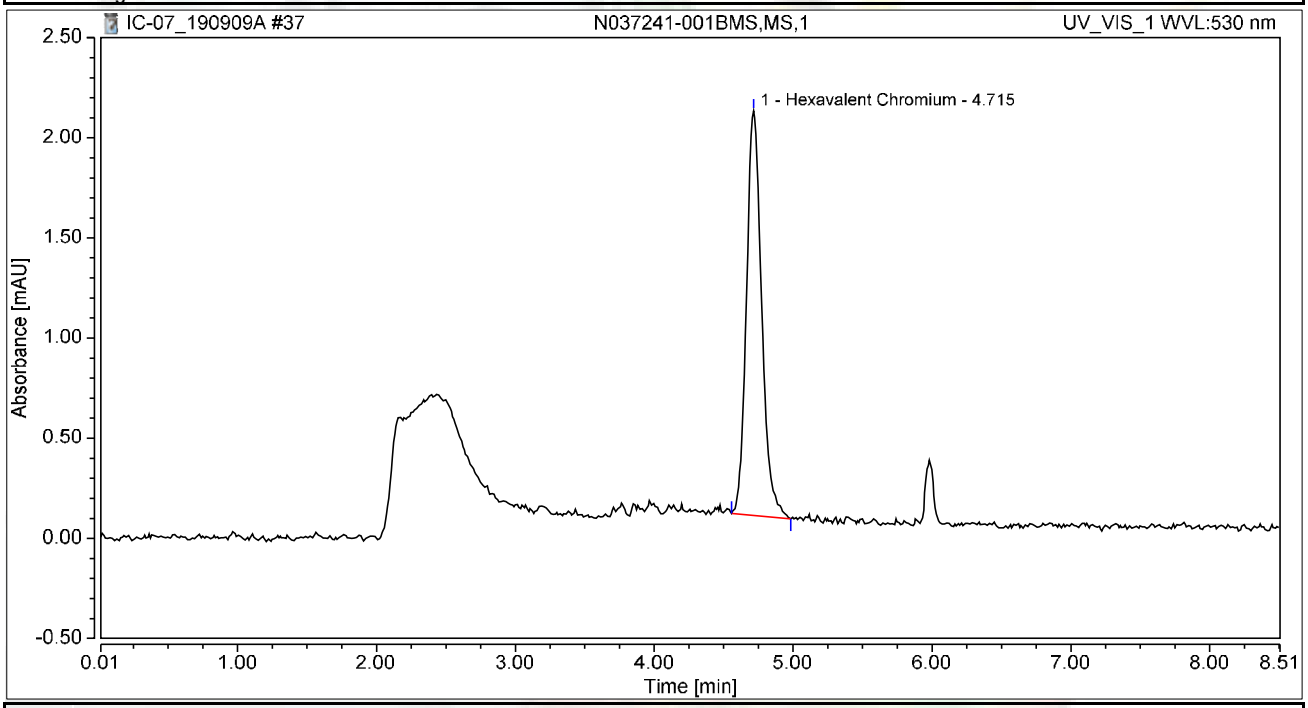
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.773	0.107	1.802	83.14	81.50	n.a.
2		7.298	0.022	0.409	16.86	18.50	n.a.
Total:			**0.128**	**2.211**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037241-001BMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 17:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

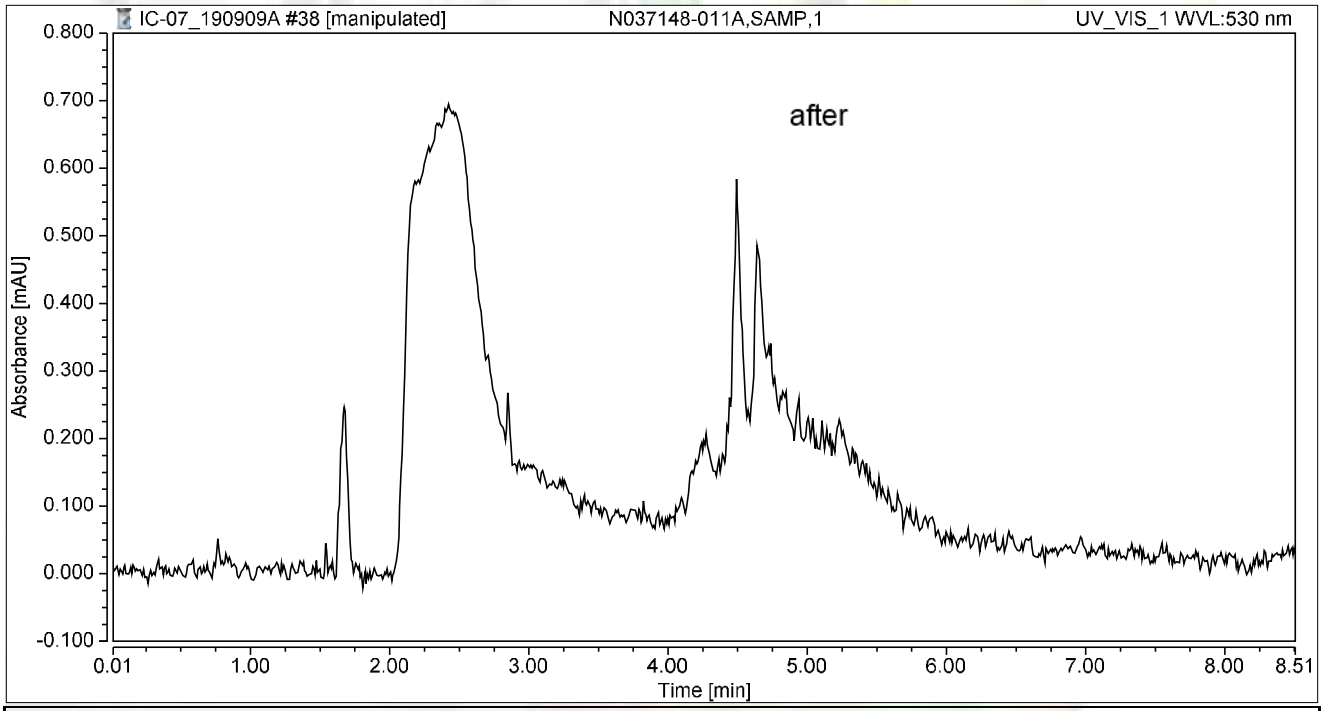
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.257	2.019	100.00	100.00	0.9900
Total:			**0.257**	**2.019**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037148-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 17:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

09/10/19

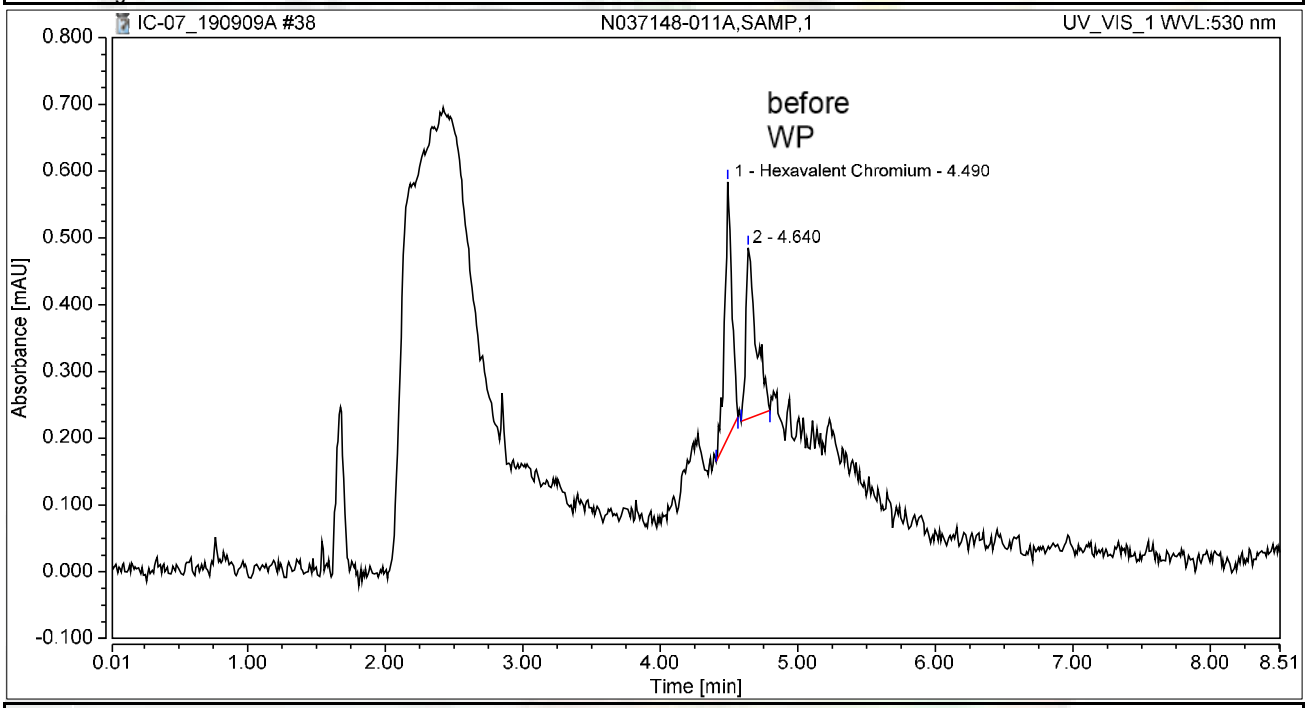
Reviewed by:
Nancy 9/10/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037148-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 17:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.490	0.023	0.384	51.10	59.94	0.0893
2		4.640	0.022	0.256	48.90	40.06	n.a.
Total:			**0.045**	**0.640**	**100.00**	**100.00**	

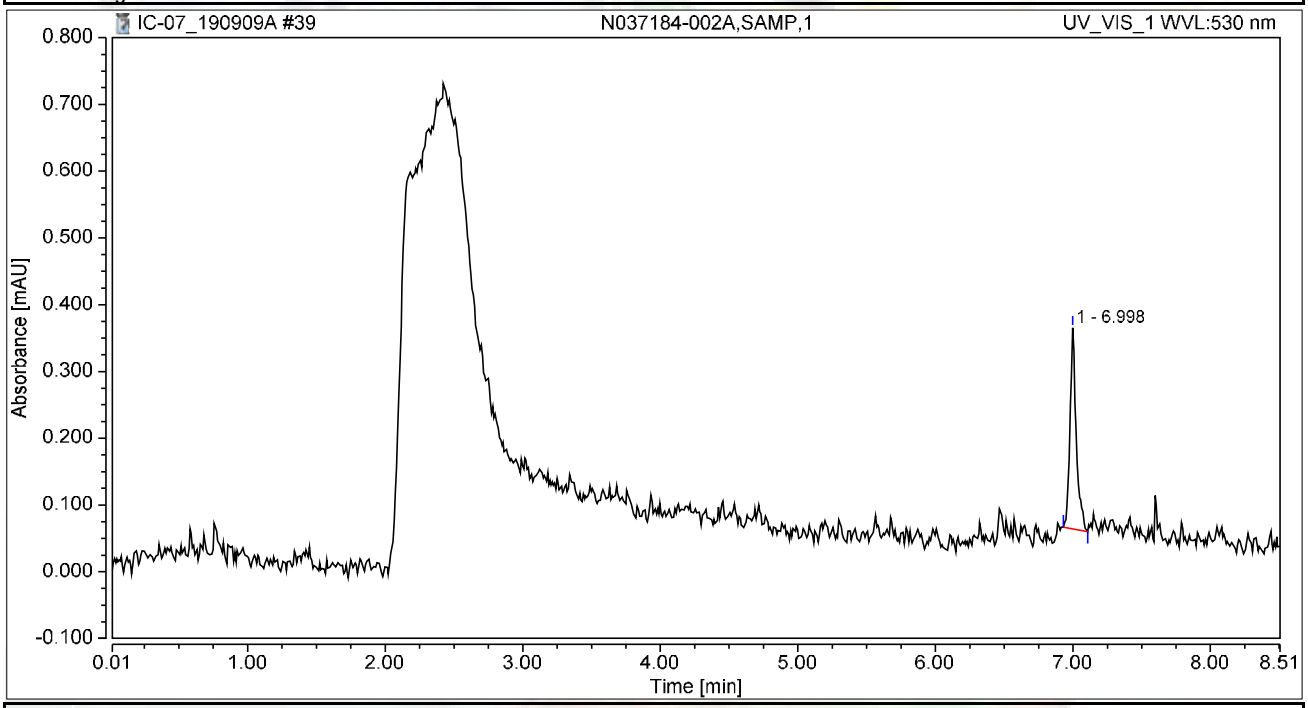
09/10/19

Chromatogram and Results

Injection Details

Injection Name:	**N037184-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 17:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

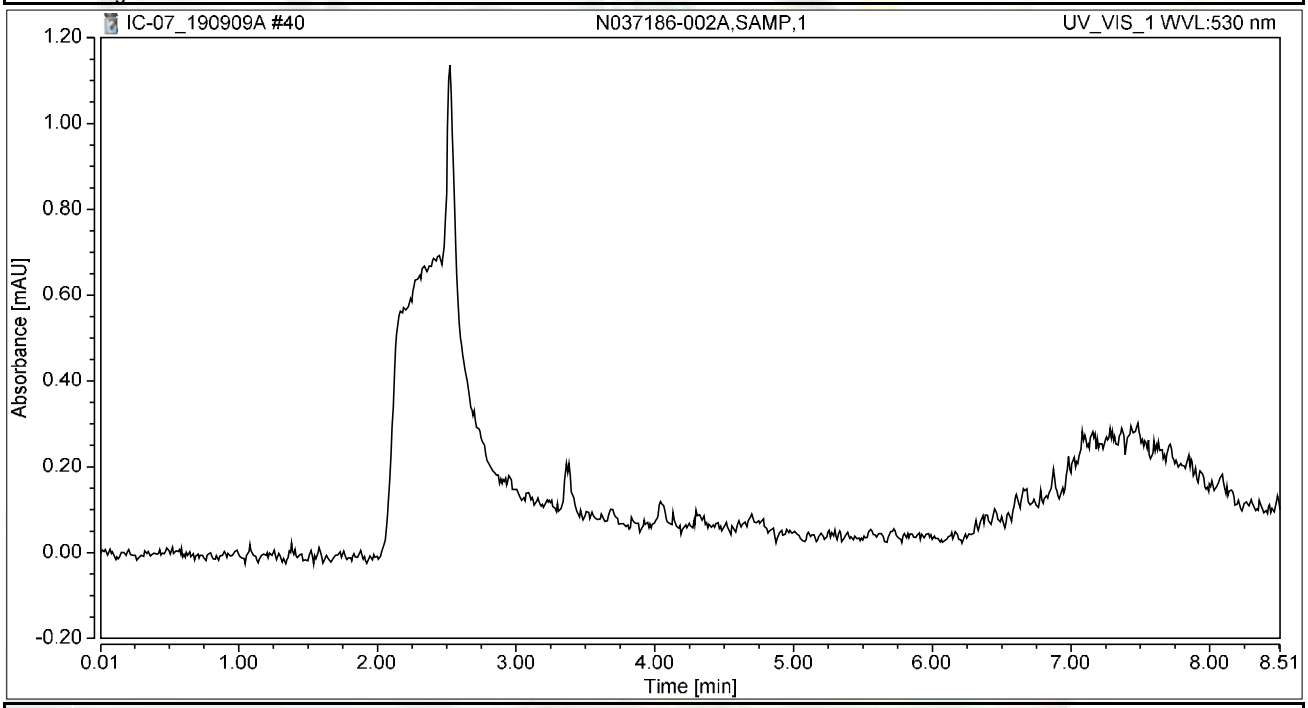
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.998	0.016	0.301	100.00	100.00	n.a.
Total:			**0.016**	**0.301**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037186-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 17:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

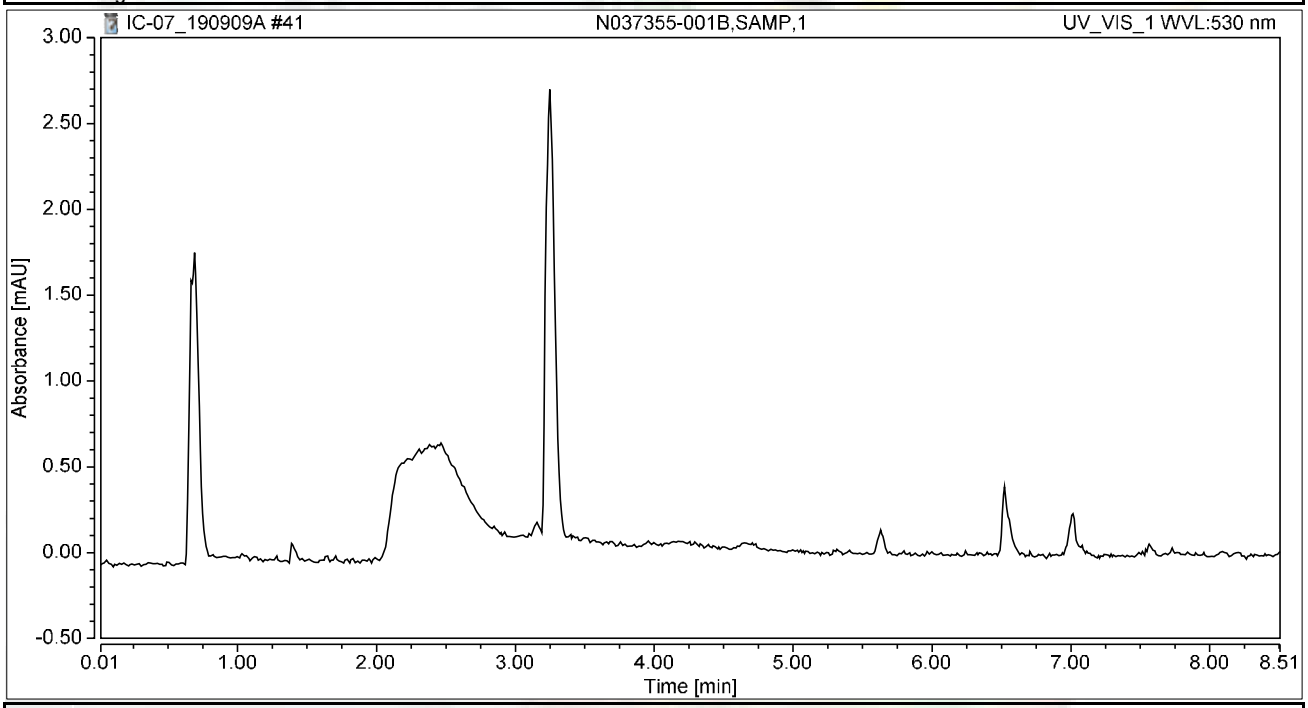
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037355-001B,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 18:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

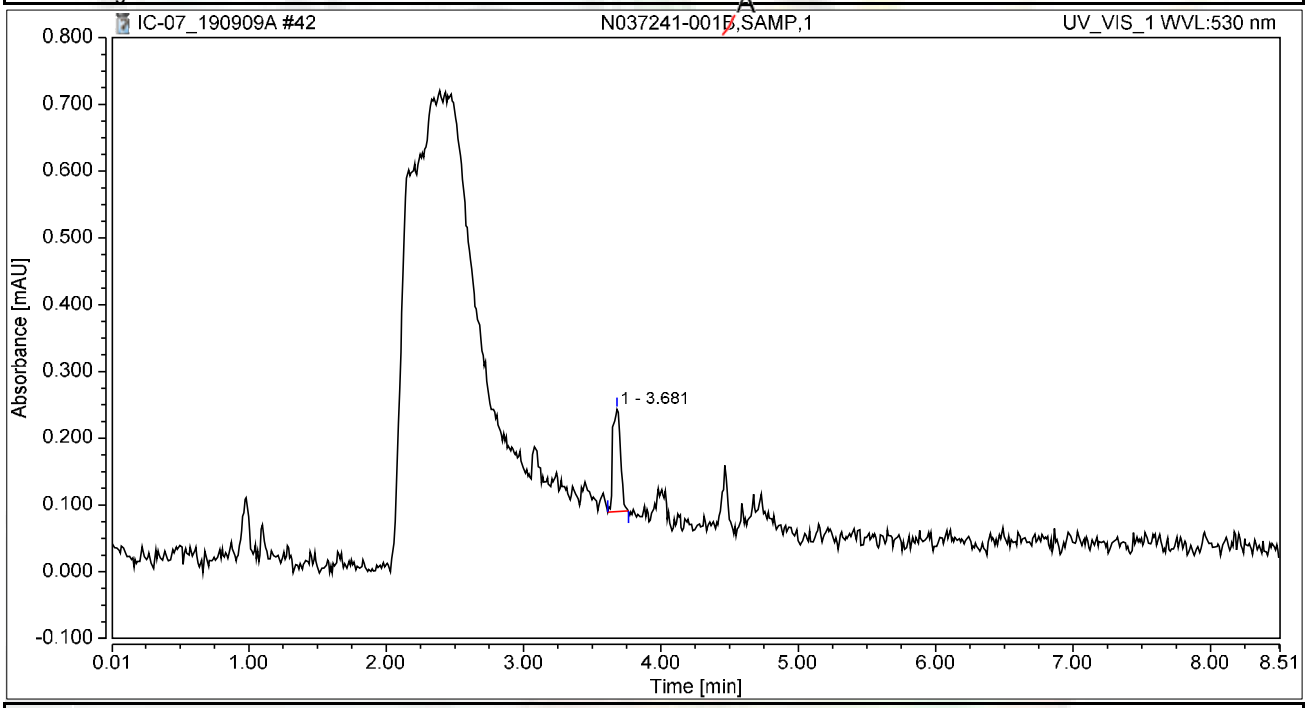
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037241-001B,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 18:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.681	0.010	0.153	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.010**	**0.153**	**100.00**	**100.00**	

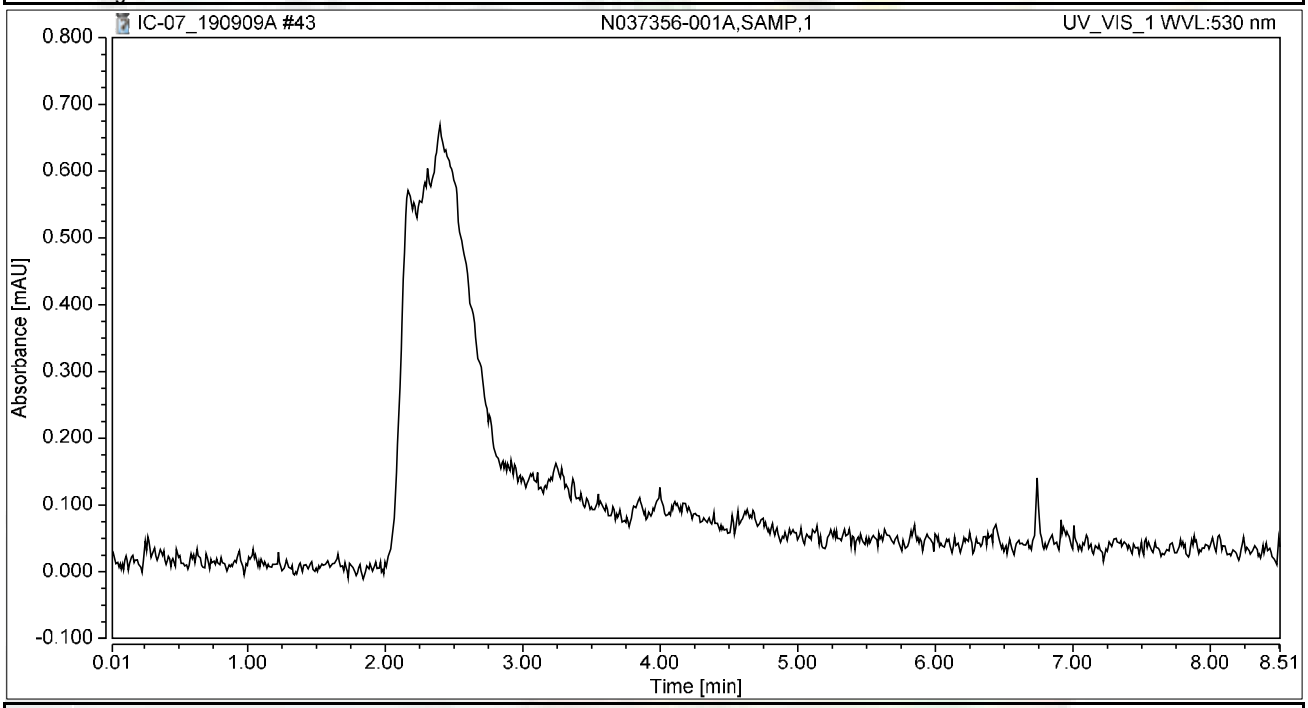
9/10/2019
for HH

Chromatogram and Results

Injection Details

Injection Name:	**N037356-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 18:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

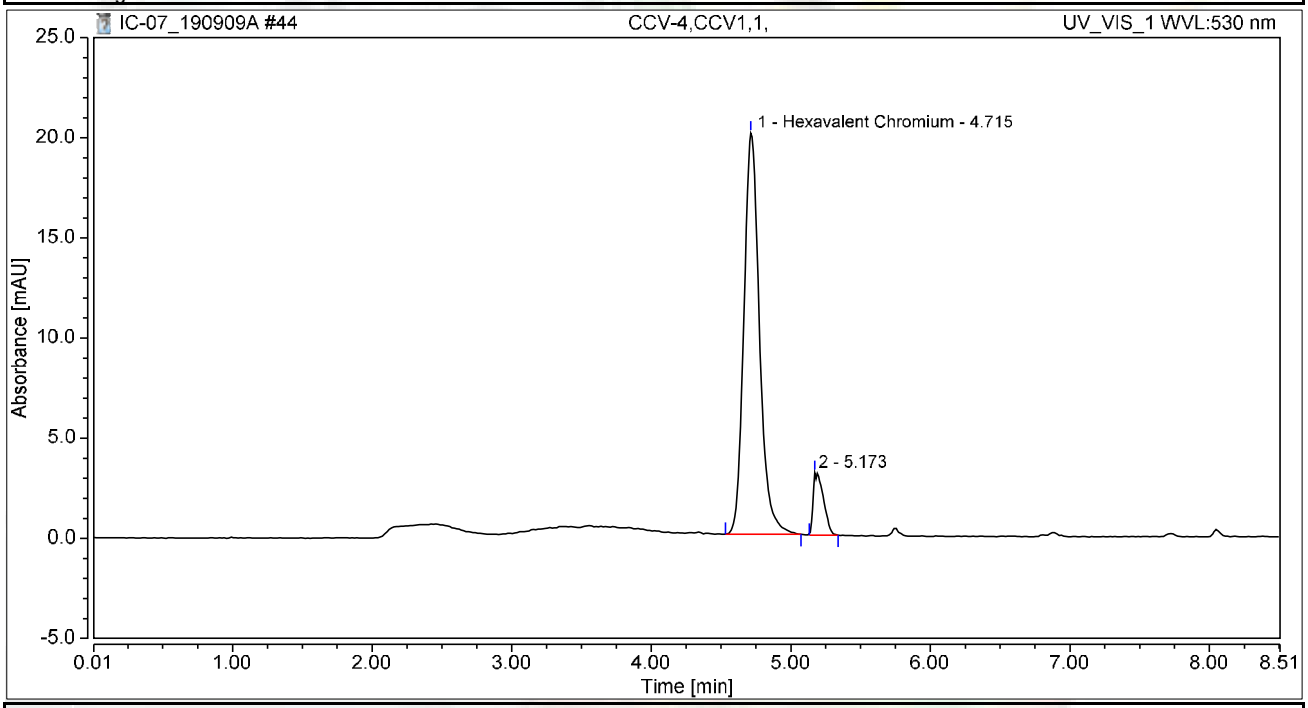
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 18:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

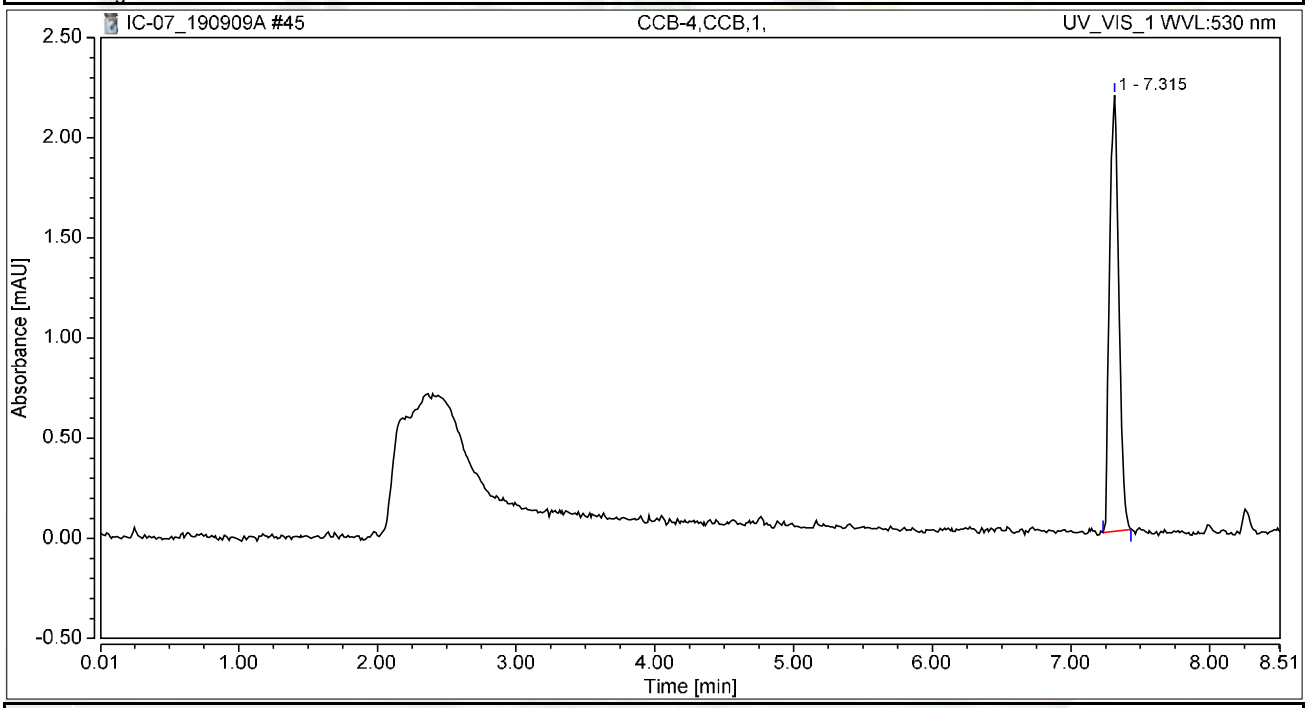
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.604	20.036	90.73	86.53	10.0363
2		5.173	0.266	3.119	9.27	13.47	n.a.
Total:			**2.870**	**23.155**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 18:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

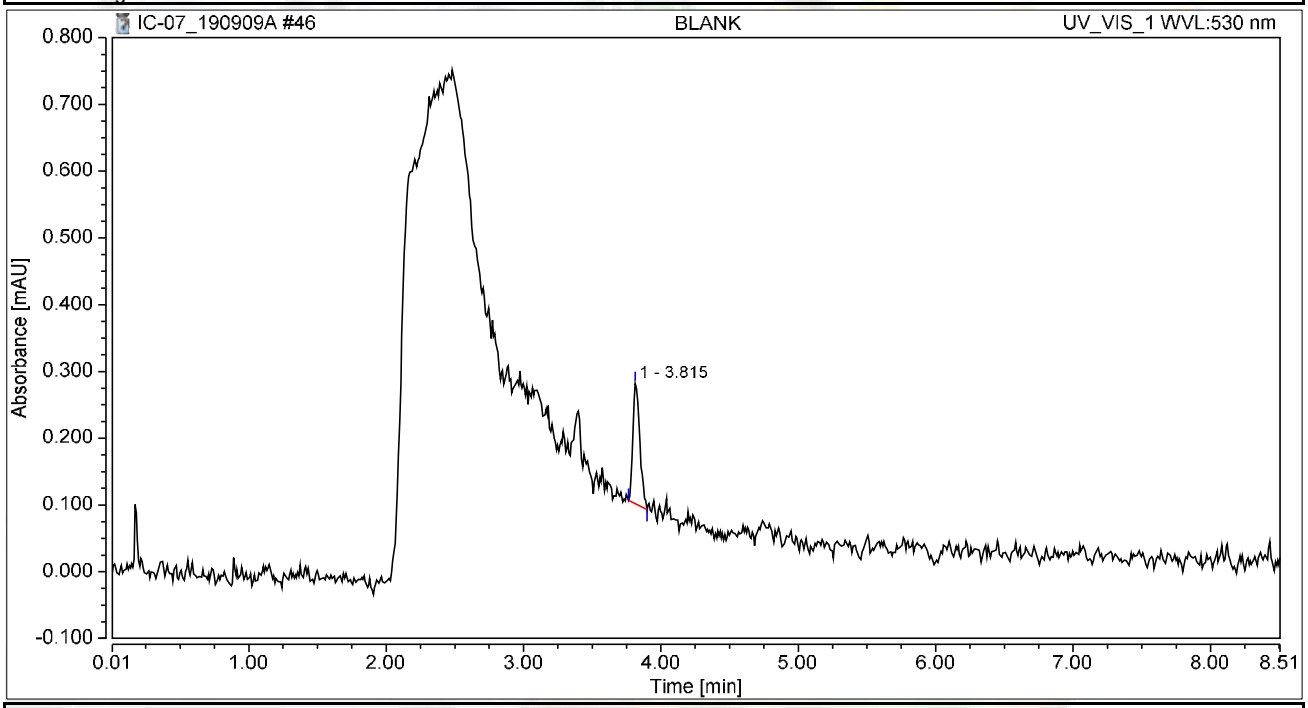
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.315	0.169	2.178	100.00	100.00	n.a.
Total:			**0.169**	**2.178**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**09/Sep/19 18:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.815	0.011	0.180	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.011**	**0.180**	**100.00**	**100.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136435 **Analyst:** ~~RBA~~ MBC

ASSET #: N037107, 144, 148 **Date Analyzed:** 9/12/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer RBA Date:

2nd Level Reviewer NS 9/17/2019 Date:

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136491 **Analyst:** ~~RBA~~ MBC

ASSET #: N037148, 176, 314 **Date Analyzed:** 9/16/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer RBA Date:

2nd Level Reviewer JRB 9/20/2019 for NS Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037148-008E**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.34	*	1
	=	0.34	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.34 mg/L

NS 9/20/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

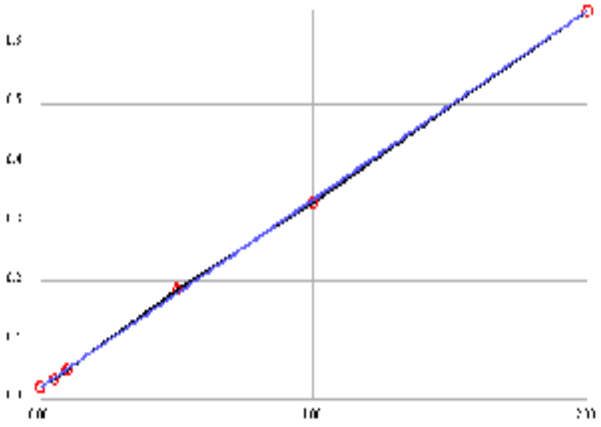
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3184x + 0.0201
Correlation	.999839

Calibrant	Energy	Set	Conc
1	0.0199	0.0000	-0.0007
2	0.0340	0.0500	0.0435
3	0.0506	0.1000	0.0957
4	0.1875	0.5000	0.5256
5	0.3334	1.0000	0.9838
6	0.6576	2.0000	2.0020

Notes:

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
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Limits and dilution

Low level	**-0.2**
High level	4
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Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

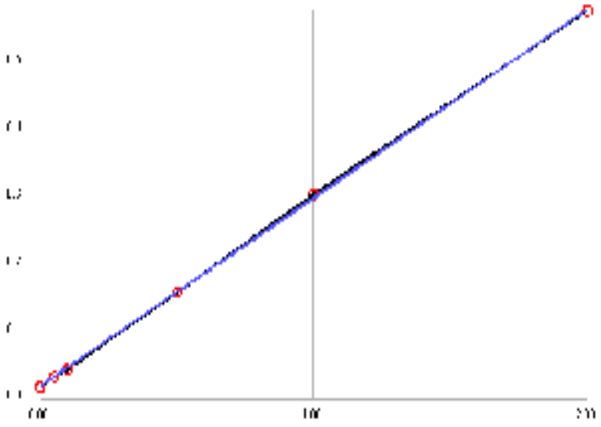
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2809x + 0.0194
Correlation	.999918

Calibrant	Energy	Set	Conc
1	0.0183	0.0000	-0.0041
2	0.0336	0.0500	0.0504
3	0.0455	0.1000	0.0928
4	0.1604	0.5000	0.5018
5	0.3055	1.0000	1.0184
6	0.5786	2.0000	1.9907

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **ICV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.501	0.050	0.5000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.493	0.050	0.5000	0	98.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.548	0.050	0.5000	0	110	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136435**
Client ID: **CCV**	Batch ID: **R136435**	TestNo: **SM4500-NO3**		Analysis Date: **9/12/2019**	SeqNo: **3510899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.480	0.050	0.5000	0	96.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **ICV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.513	0.050	0.5000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.507	0.050	0.5000	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513070**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.484	0.050	0.5000	0	96.7	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.461	0.050	0.5000	0	92.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	**ICB**	SampType:	**ICB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136435**
Client ID:	**ICB**	Batch ID:	**R136435**	TestNo:	**SM4500-NO3**			Analysis Date:	**9/12/2019**	SeqNo:	**3510860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**CCB-1**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136435**
Client ID:	**CCB**	Batch ID:	**R136435**	TestNo:	**SM4500-NO3**			Analysis Date:	**9/12/2019**	SeqNo:	**3510878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**CCB-2**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136435**
Client ID:	**CCB**	Batch ID:	**R136435**	TestNo:	**SM4500-NO3**			Analysis Date:	**9/12/2019**	SeqNo:	**3510889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**CCB-3**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**136435**
Client ID:	**CCB**	Batch ID:	**R136435**	TestNo:	**SM4500-NO3**			Analysis Date:	**9/12/2019**	SeqNo:	**3510900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **ICB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513071**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

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702-307-2691
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Time start: 09-12-2019 14:19
Time end: 09-12-2019 17:17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:35:38	0.0005		0.0203
2	<BLANK>	16:36:31	0.0018		0.0207
3	<CAL1>	16:37:33	-0.0007	[0]	0.0199
4	<CAL2>	16:38:28	0.0435	[0.05]	0.0340
5	<CAL3>	16:39:22	0.0957	[0.1]	0.0506
6	<CAL4>	16:40:23	0.5256	[0.5]	0.1875
7	<CAL5>	16:41:19	0.9838	[1]	0.3334
8	<CAL6>	16:42:14	2.0020	[2]	0.6576
9	,BLANK,BLANK,1, NOT REPORTED	16:43:08	0.0467		0.0350
10	,ICV,ICV,1,	16:44:10	0.5005		0.1795
11	,ICB,ICB,1,	16:45:05	0.0109		0.0236
12	,MB-H2O,MBLK,1,	16:45:59	0.0015		0.0206
13	,LCS-H2O,LCS,1,	16:47:01	0.4870		0.1752
14	,N037097-001D,SAMP,1,	16:47:56	0.2364		0.0954
15	,N037097-001DDUP,DUP,1,	16:48:52	0.2263		0.0922
16	,N037107-005B,SAMP,10,	16:49:52	0.7904		0.2718
17	,N037107-005BMS,MS,10,	16:50:48	1.4132		0.4701
18	,N037107-005BMSD,MSD,10,	16:51:43	1.2750		0.4261
19	,N037107-006B,SAMP,1,	16:52:38	0.6745		0.2349
20	,N037107-007B,SAMP,1,	16:53:39	0.1280		0.0609
21	,BLANK, NOT REPORTED	16:54:35	0.0027		0.0210
22	,CCV-1,CCV,1,	16:55:30	0.4933		0.1772
23	,CCB-1,CCB,1,	16:56:31	0.0194		0.0263
24	,N037107-008B,SAMP,1,	16:57:26	0.4509		0.1637
25	,N037144-001C,SAMP,1,	16:58:22	0.7141		0.2475

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N037144-002C,SAMP,1,	16:59:23	0.0373		0.0320
27	,N037144-003C,SAMP,1,	17:00:17	0.0313		0.0301
28	,N037144-004C,SAMP,5,	17:01:13	0.5850		0.2064
29	,N037145-001D,SAMP,1,	17:02:02	0.0190		0.0262
30	,N037145-002D,SAMP,5,	17:02:44	0.5131		0.1835
31	,N037148-001E,SAMP,1,	17:03:34	0.3607		0.1350
32	,N037148-002E,SAMP,1,	17:04:16	0.3639		0.1360
33	,BLANK, NOT REPORTED	17:04:59	0.0052		0.0218
34	,CCV-2,CCV,1,	17:05:47	0.5482		0.1947
35	,CCB-2,CCB,1,	17:06:31	0.0040		0.0214
36	,N037148-003E,SAMP,1, NOT REPORTED	17:07:13	0.5347		0.1904
37	,N037148-004E,SAMP,1,	17:07:56	0.3623		0.1355
38	,N037148-005E,SAMP,1,	17:08:46	0.3460		0.1303
39	,N037148-006E,SAMP,1,	17:09:28	0.3413		0.1288
40	,N037148-007E,SAMP,1,	17:10:11	0.3444		0.1298
41	,N037148-008E,SAMP,1,	17:11:00	0.3400		0.1284
42	,N037148-009E,SAMP,1, NOT REPORTED	17:11:43	0.4923		0.1769
43	,N037148-010E,SAMP,1,	17:12:25	0.3388		0.1280
44	,N037148-011E,SAMP,1,	17:13:09	0.3146		0.1203
45	,BLANK, NOT REPORTED	17:13:58	-0.0017		0.0196
46	,CCV-3,CCV,1,	17:14:40	0.4798		0.1729
47	,CCB-3,CCB,1,	17:15:23	0.0033		0.0212

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Time start: 09-16-2019 14:37
Time end: 09-16-2019 17:29

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:49:19	0.0084		0.0218
2	<BLANK>	16:50:19	0.0002		0.0195
3	<CAL1>	16:51:14	-0.0041	[0]	0.0183
4	<CAL2>	16:52:10	0.0504	[0.05]	0.0336
5	<CAL3>	16:53:10	0.0928	[0.1]	0.0455
6	<CAL4>	16:54:05	0.5018	[0.5]	0.1604
7	<CAL5>	16:55:01	1.0184	[1]	0.3055
8	<CAL6>	16:55:56	1.9907	[2]	0.5786
9	,BLANK,BLANK,1, NOT REPORTED	16:56:57	0.0358		0.0295
10	,ICV,ICV,1,	16:57:52	0.5125		0.1634
11	,ICB,ICB,1,	16:58:48	0.0055		0.0210
12	,MB-H2O,MBLK,1,	16:59:48	-0.0048		0.0181
13	,LCS-H2O,LCS,1,	17:00:43	0.5559		0.1756
14	,N037148-012E,SAMP,1,	17:01:39	0.3220		0.1099
15	,N037148-012EDUP,DUP,1,	17:02:35	0.3309		0.1124
16	,N037176-004B,SAMP,50, NOT REPORTED	17:03:35	0.0048		0.0208
17	,N037176-004BMS,MS,50,	17:04:31	0.4887		0.1567
18	,N037176-004BMSD,MSD,50,	17:05:27	0.5250		0.1669
19	,N037172-001D,SAMP,1,	17:06:27	0.2594		0.0923
20	,N037169-001D,SAMP,1,	17:07:22	0.0287		0.0275
21	,BLANK, NOT REPORTED	17:08:18	-0.0041		0.0183
22	,CCV-1,CCV,1,	17:09:13	0.5065		0.1617
23	,CCB-1,CCB,1,	17:10:14	-0.0019		0.0189
24	,N037176-001B,SAMP,1,	17:11:09	0.0561		0.0352
25	,N037176-002B,SAMP,1,	17:12:05	0.6022		0.1886

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N037176-003B,SAMP,1,	17:13:05	0.1440		0.0599
27	,N037170-001D,SAMP,1,	17:13:48	0.2797		0.0980
28	,N037173-001D,SAMP,1,	17:14:38	0.4367		0.1421
29	,N037313-002D,SAMP,5, NOT REPORTED	17:15:20	0.5492		0.1737
30	,N037314-001D,SAMP,1,	17:16:03	0.0162		0.0240
31	,N037314-002D,SAMP,5,	17:16:51	0.5474		0.1732
32	,N037181-001C,SAMP,1,	17:17:35	3.1901		0.9155
33	,BLANK, NOT REPORTED	17:18:17	0.0369		0.0298
34	,CCV-2,CCV,1,	17:19:00	0.4837		0.1553
35	,CCB-2,CCB,1,	17:19:50	-0.0059		0.0178
36	,N037225-001C,SAMP,1, NOT REPORTED	17:20:32	4.3596	[HL][OR]	1.2440
37	,N037148-003E,SAMP,1,	17:21:15	0.6588		0.2045
38	,N037148-009E,SAMP,1,	17:22:04	0.4221		0.1380
39	,N037117-005B,SAMP,2,	17:22:47	0.9419		0.2840
40	,N037117-008B,SAMP,1,	17:23:29	0.3765		0.1252
41	,N037171-001D,SAMP,1,	17:24:13	0.2555		0.0912
42	,N037174-001D,SAMP,500, NOT REPORTED	17:25:01	0.0881		0.0442
43	,BLANK, NOT REPORTED	17:25:44	-0.0144		0.0154
44	,CCV-3,CCV,1,	17:26:27	0.4612		0.1490
45	,CCB-3,CCB,1,	17:27:16	-0.0059		0.0178

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/12/2019
Time Analyzed: 2:19 PM ; 5:17 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190904A
Color reagent: R190904C
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037097-001D		6.39							
N037107-005B		8.05							
N037107-006B		7.79							
N037107-007B		8.35							
N037107-008B		8.80							
N037144-001C		8.07							
N037144-002C		7.84							
N037144-003C		7.49							
N037144-004C		7.47							
N037145-001D		8.84							
N037145-002D		8.46							
N037148-001E		5.97							
N037148-002E		8.79							
N037148-004E		7.06							
N037148-005E		8.29							
N037148-006E		5.42							
N037148-007E		7.86							
N037148-008E		7.21							
N037148-010E		5.48							
N037148-011E		7.40							

Advanced Technology Laboratories, Inc.
Book # 1

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/16/2019
Time Analyzed: 2:37 PM ; 5:29 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190913A
Color reagent: R190913B
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037148-012E		8.10							
N037176-004B		7.92							
N037172-001D		7.39							
N037169-001D		7.52							
N037176-001B		8.40							
N037176-002B		8.05							
N037176-003B		7.60							
N037170-001D		7.80							
N037173-001D		6.63							
N037173-002D		8.34							
N037314-001D		7.40							
N037314-002D		7.71							
N037181-001C		7.83							
N037225-001C		7.38							
N037148-003E		7.85							
N037148-009E		8.75							
N037117-005B		6.49							
N037117-008B		7.8							
N037171-001D		5.25							
N037174-001D		6.38							

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Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75133
ASSET #: N037148

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/4/2019

Method:

[X] EPA 6010B / 200.7 Dissolved [ ] EPA 7470A / 7471A/245.1
[ ] EPA 6020 / 200.8 [ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?	X			X		
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75187
ASSET #: N037148
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/9/2019

Method:

[X] EPA 6010B / 200.7 Dissolved [ ] EPA 7470A / 7471A/245.1
[ ] EPA 6020 / 200.8 [ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?	X			X		
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/11/2019

2nd Level Reviewer NS 9/11/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N037148-003B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.05548 * 1 *(25/25) * 1000

Iron , ug/L = 55.48

Reporting results in two significant figures,

Iron , ug/L = 55

NS 9/19/2019

% RSD SUMMARY

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	69.68	15	<PQL
Standard1	ICAL	1	Fe	0.02	9.58	15	PASS
Standard2	ICAL	1	Fe	0.05	2.28	15	PASS
Standard3	ICAL	1	Fe	2	0.19	15	PASS
Standard4	ICAL	1	Fe	5	0.1	15	PASS
Standard5	ICAL	1	Fe	7.5	0.13	15	PASS
Standard6	ICAL	1	Fe	10	0.1	15	PASS
Standard7	ICAL	1	Fe	20	0.34	15	PASS
ICV	ICV	1	Fe	9.99	0.13	15	PASS
ICB	ICB	1	Fe	-0.0024	33.24	15	<PQL
LLICV	CCV1	1	Fe	0.017	4.59	20	PASS
ICSA1	ICSA	1	Fe	172.04	0.24	15	PASS
ICSAB1	ICSAB	1	Fe	187.24	0.4	15	PASS
MB-75133	MBLK	1	Fe	0.052	27.8	15	NR!
LCS-75133	LCS	1	Fe	0.14	14.85	15	PASS
MB-75133	MBLK	1	Fe	-0.0029	67.67	15	<PQL
LCS-75133	LCS	1	Fe	0.093	0.93	15	PASS
N037118-001B	SAMP	1	Fe	0.016	2.062	15	PASS
N037118-001B	SAMP	5	Fe	-0.0044	8.83	15	PASS
N037118-001B-PS	PS	1	Fe	0.11	0.4	15	PASS
N037118-001B-MS	MS	1	Fe	0.099	0.71	15	PASS
N037118-001B-MSD	MSD	1	Fe	0.098	0.73	15	PASS
N037118-002B	SAMP	1	Fe	0.00066	69.37	15	<PQL
CCV1	CCV	1	Fe	9.91	0.18	15	PASS
CCB1	CCB	1	Fe	-0.0011	21.041	15	<PQL
N037118-003B	SAMP	1	Fe	0.2	0.37	15	PASS
N037118-004B	SAMP	1	Fe	-0.00094	42.95	15	<PQL
N037118-005B	SAMP	1	Fe	0.0046	10.35	15	PASS
N037118-006B	SAMP	1	Fe	0.0016	9.33	15	PASS
N037118-007B	SAMP	1	Fe	-0.00004	932.56	15	<PQL
N037118-008B	SAMP	1	Fe	-0.0012	17	15	<PQL
N037118-009B	SAMP	1	Fe	-0.0035	11.67	15	PASS
N037118-010B	SAMP	1	Fe	-0.0037	8.31	15	PASS
N037118-011B	SAMP	1	Fe	0.0023	27.54	15	<PQL
N037118-012B	SAMP	1	Fe	0.0048	10.2	15	PASS
CCV2	CCV	1	Fe	9.9	0.18	15	PASS
CCB2	CCB	1	Fe	-0.00007	1335.15	15	<PQL
N037118-013B	SAMP	1	Fe	-0.0036	12.98	15	PASS
N037148-001B	SAMP	1	Fe	-0.0019	17.4	15	<PQL
N037148-002B	SAMP	1	Fe	0.0073	2.068	15	PASS
N037148-003B	SAMP	1	Fe	0.055	0.77	15	PASS
N037148-004B	SAMP	1	Fe	0.019	2.66	15	PASS

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037148-005B	SAMP	1	Fe	-0.0034	18.077	15	<PQL
N037148-006B	SAMP	1	Fe	-0.0032	17.76	15	<PQL
N037148-007B	SAMP	1	Fe	-0.0034	19.56	15	<PQL
CCV3	CCV	1	Fe	9.98	0.061	15	PASS
CCB3	CCB	1	Fe	0.00016	298.51	15	<PQL
CCV4	CCV	1	Fe	9.9	0.041	15	PASS
CCB4	CCB	1	Fe	0.0009	140.28	15	<PQL
ICSA2	ICSA	1	Fe	170.94	0.33	15	PASS
ICSAB2	ICSAB	1	Fe	185.76	0.62	15	PASS
CCV5	CCV	1	Fe	9.87	0.053	15	PASS
CCB5	CCB	1	Fe	0.0016	68.27	15	<PQL
CCV6	CCV	1	Fe	9.86	0.077	15	PASS
CCB6	CCB	1	Fe	0.00088	142.45	15	<PQL
ICSA3	ICSA	1	Fe	170.14	0.14	15	PASS
ICSAB3	ICSAB	1	Fe	185.04	0.84	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Al	0	12.81	15	PASS
Standard1	ICAL	1	Al	0.05	3.63	15	PASS
Standard2	ICAL	1	Al	1	0.36	15	PASS
Standard3	ICAL	1	Al	2	0.47	15	PASS
Standard4	ICAL	1	Al	5	1.12	15	PASS
Standard5	ICAL	1	Al	7.5	0.25	15	PASS
Standard6	ICAL	1	Al	10	0.22	15	PASS
Standard7	ICAL	1	Al	20	0.065	15	PASS
ICV	ICV	1	Al	10.052	0.13	15	PASS
ICB	ICB	1	Al	-0.0025	95.71	15	<PQL
LLICV	CCV1	1	Al	0.06	3.58	20	PASS
LLICV	CCV1	1	Al	0.049	2.11	20	PASS
ICSA1	ICSA	1	Al	432.17	0.18	15	PASS
ICSAB1	ICSAB	1	Al	537.52	0.53	15	PASS
CCV1	CCV	1	Al	11.031	1.14	15	PASS
CCV1	CCV	1	Al	10.37	0.11	15	PASS
CCB1	CCB	1	Al	-0.0032	46.18	15	<PQL
CCB1	CCB	1	Al	-0.0032	75.88	15	<PQL
MB-75187	MBLK	1	Al	-0.0028	70.42	15	<PQL
LCS1-75187	LCS	1	Al	10.16	0.048	15	PASS
CCV2	CCV	1	Al	10.04	0.052	15	PASS
CCB2	CCB	1	Al	-0.0028	44.58	15	<PQL
N037148-008B	SAMP	1	Al	0.0075	29.97	15	<PQL
N037148-008B	SAMP	5	Al	-0.0016	125.67	15	<PQL
N037148-008B-PS	PS	1	Al	9.94	0.65	15	PASS
N037148-008B-MS1	MS	1	Al	9.75	0.42	15	PASS
N037148-008B-MSD1	MSD	1	Al	9.78	0.79	15	PASS
N037148-009B	SAMP	1	Al	0.0068	26.7	15	<PQL
N037148-010B	SAMP	1	Al	0.0054	20.96	15	<PQL
N037148-011B	SAMP	1	Al	0.0084	17.69	15	<PQL
N037148-012B	SAMP	1	Al	0.0088	25.77	15	<PQL
N037176-001D	SAMP	1	Al	0.022	16.78	15	<PQL
CCV3	CCV	1	Al	10.17	0.071	15	PASS
CCB3	CCB	1	Al	-0.0038	14.7	15	PASS
ICSA2	ICSA	1	Al	438.08	0.18	15	PASS
ICSAB2	ICSAB	1	Al	548.65	0.4	15	PASS
N037181-001E	SAMP	1	Al	0.023	13.92	15	PASS
N037225-001E	SAMP	1	Al	0.0081	14.44	15	PASS
CCV4	CCV	1	Al	9.96	0.044	15	PASS
CCB4	CCB	1	Al	-0.0031	35.75	15	<PQL
CCV5	CCV	1	Al	10.14	0.2	15	PASS
CCB5	CCB	1	Al	0.0097	24.89	15	<PQL

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA3	ICSA	1	Al	439.39	0.25	15	PASS
ICSAB3	ICSAB	1	Al	532.53	0.28	15	PASS
CCV6	CCV	1	Al	10.008	0.04	15	PASS
CCB6	CCB	1	Al	0.0087	9.91	15	PASS
CCB6	CCB	1	Al	0.0072	38.3	15	<PQL
N037176-002D	SAMP	5	Al	0.0012	163.46	15	<PQL
N037176-003D	SAMP	5	Al	0.0066	48.08	15	<PQL
N037176-004D	SAMP	5	Al	0.0043	29.91	15	<PQL
N037181-001E	SAMP	5	Al	-0.003	91.23	15	<PQL
CCV7	CCV	1	Al	10.28	0.013	15	PASS
CCB7	CCB	1	Al	0.0094	15.084	15	<PQL
N037225-001E	SAMP	5	Al	-0.0053	42.11	15	<PQL
CCV8	CCV	1	Al	10.27	0.078	15	PASS
CCB8	CCB	1	Al	0.01	9.57	15	PASS
ICSA4	ICSA	1	Al	440.5	0.29	15	PASS
ICSA4	ICSA	1	Al	469.46	0.11	15	PASS
ICSAB4	ICSAB	1	Al	463.19	0.19	15	PASS
ICSAB4	ICSAB	1	Al	519.3	0.13	15	PASS
N037176-002D	SAMP	5	Al	0.014	44.038	15	<PQL
N037176-003D	SAMP	5	Al	0.0072	29.55	15	<PQL
N037176-004D	SAMP	5	Al	0.012	39.66	15	<PQL
N037225-001E	SAMP	1	Al	0.011	15.23	15	<PQL
CCV9	CCV	1	Al	10.45	0.065	15	PASS
CCB9	CCB	1	Al	-0.0032	91.12	15	<PQL
ICSA5	ICSA	1	Al	473.87	0.53	15	PASS
ICSAB5	ICSAB	1	Al	526.93	0.046	15	PASS
CalBlk	IBLK	1	B	0	0.53	15	PASS
Standard1	ICAL	1	B	0.1	0.53	15	PASS
Standard3	ICAL	1	B	1	0.24	15	PASS
Standard4	ICAL	1	B	2.5	0.33	15	PASS
Standard5	ICAL	1	B	3.75	0.28	15	PASS
Standard6	ICAL	1	B	5	0.18	15	PASS
Standard7	ICAL	1	B	10	0.24	15	PASS
ICV	ICV	1	B	5.1	0.1	15	PASS
ICB	ICB	1	B	0.045	3.74	15	PASS
LLICV	CCV1	1	B	0.11	0.7	20	PASS
LLICV	CCV1	1	B	0.1	1.13	20	PASS
ICSA1	ICSA	1	B	0.032	16.87	15	<PQL
ICSAB1	ICSAB	1	B	1.099	0.3	15	PASS
CCV1	CCV	1	B	6.031	0.56	15	PASS
CCV1	CCV	1	B	5.49	0.24	15	PASS
CCB1	CCB	1	B	0.066	7.12	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB1	CCB	1	B	0.022	5.34	15	PASS
MB-75187	MBLK	1	B	0.05	5	15	PASS
LCS1-75187	LCS	1	B	5.16	0.3	15	PASS
CCV2	CCV	1	B	5.095	0.21	15	PASS
CCB2	CCB	1	B	0.045	3.62	15	PASS
N037148-008B	SAMP	1	B	0.16	0.56	15	PASS
N037148-008B	SAMP	5	B	0.06	2.18	15	PASS
N037148-008B-PS	PS	1	B	4.92	0.31	15	PASS
N037148-008B-MS1	MS	1	B	4.9	0.27	15	PASS
N037148-008B-MSD1	MSD	1	B	4.91	0.35	15	PASS
N037148-009B	SAMP	1	B	0.17	0.66	15	PASS
N037148-010B	SAMP	1	B	0.17	0.81	15	PASS
N037148-011B	SAMP	1	B	0.15	0.41	15	PASS
N037148-012B	SAMP	1	B	0.15	0.31	15	PASS
N037176-001D	SAMP	1	B	1.26	0.61	15	PASS
CCV3	CCV	1	B	5.19	0.36	15	PASS
CCB3	CCB	1	B	0.042	4.4	15	PASS
ICSA2	ICSA	1	B	0.045	2.88	15	PASS
ICSAB2	ICSAB	1	B	1.17	0.39	15	PASS
N037181-001E	SAMP	1	B	1.33	0.79	15	PASS
N037225-001E	SAMP	1	B	0.42	0.31	15	PASS
CCV4	CCV	1	B	4.93	0.17	15	PASS
CCB4	CCB	1	B	0.042	3.089	15	PASS
CCV5	CCV	1	B	5.012	0.3	15	PASS
CCB5	CCB	1	B	0.042	0.88	15	PASS
ICSA3	ICSA	1	B	0.059	3.23	15	PASS
ICSAB3	ICSAB	1	B	1.14	0.27	15	PASS
CCV6	CCV	1	B	5.071	0.11	15	PASS
CCB6	CCB	1	B	0.07	6.0086	15	PASS
CCB6	CCB	1	B	0.047	6.02	15	PASS
N037176-002D	SAMP	5	B	0.31	0.28	15	PASS
N037176-003D	SAMP	5	B	0.47	0.8	15	PASS
N037176-004D	SAMP	5	B	0.47	0.4	15	PASS
N037181-001E	SAMP	5	B	0.31	0.54	15	PASS
CCV7	CCV	1	B	5.2	0.21	15	PASS
CCB7	CCB	1	B	0.03	11.57	15	PASS
N037225-001E	SAMP	5	B	0.1	0.58	15	PASS
CCV8	CCV	1	B	5.2	0.33	15	PASS
CCB8	CCB	1	B	0.025	8.58	15	PASS
ICSA4	ICSA	1	B	0.036	0.98	15	PASS
ICSA4	ICSA	1	B	0.037	1.22	15	PASS
ICSAB4	ICSAB	1	B	0.96	0.15	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSAB4	ICSAB	1	B	1.096	0.32	15	PASS
N037176-002D	SAMP	5	B	0.28	0.84	15	PASS
N037176-003D	SAMP	5	B	0.48	0.77	15	PASS
N037176-004D	SAMP	5	B	0.46	0.034	15	PASS
N037225-001E	SAMP	1	B	0.42	0.24	15	PASS
CCV9	CCV	1	B	5.34	0.33	15	PASS
CCB9	CCB	1	B	0.026	7.48	15	PASS
ICSA5	ICSA	1	B	0.044	2.4	15	PASS
ICSAB5	ICSAB	1	B	1.12	0.069	15	PASS
CalBlk	IBLK	1	Ca	0	6.15	15	PASS
Standard1	ICAL	1	Ca	0.2	5.27	15	PASS
Standard2	ICAL	1	Ca	1	4.6	15	PASS
Standard3	ICAL	1	Ca	2	1.47	15	PASS
Standard4	ICAL	1	Ca	5	0.44	15	PASS
Standard5	ICAL	1	Ca	7.5	0.2	15	PASS
Standard6	ICAL	1	Ca	10	0.43	15	PASS
Standard7	ICAL	1	Ca	20	0.38	15	PASS
ICV	ICV	1	Ca	10.16	0.71	15	PASS
ICB	ICB	1	Ca	-0.00072	2712.43	15	<PQL
LLICV	CCV1	1	Ca	0.2	11.34	20	PASS
LLICV	CCV1	1	Ca	0.18	6.12	20	PASS
ICSA1	ICSA	1	Ca	451.25	0.046	15	PASS
ICSAB1	ICSAB	1	Ca	540.41	0.092	15	PASS
CCV1	CCV	1	Ca	10.54	0.94	15	PASS
CCV1	CCV	1	Ca	10.38	0.77	15	PASS
CCB1	CCB	1	Ca	-0.042	33.73	15	<PQL
CCB1	CCB	1	Ca	-0.035	12.98	15	PASS
MB-75187	MBLK	1	Ca	-0.039	36.55	15	<PQL
LCS1-75187	LCS	1	Ca	10.085	0.74	15	PASS
CCV2	CCV	1	Ca	10.12	1.18	15	PASS
CCB2	CCB	1	Ca	-0.043	47.82	15	<PQL
N037148-008B	SAMP	1	Ca	67.84	0.4	15	PASS
N037148-008B	SAMP	5	Ca	14.21	0.52	15	PASS
N037148-008B-PS	PS	1	Ca	77.39	0.73	15	PASS
N037148-008B-MS1	MS	1	Ca	77.58	0.33	15	PASS
N037148-008B-MSD1	MSD	1	Ca	77.78	0.63	15	PASS
N037148-009B	SAMP	1	Ca	67.69	0.13	15	PASS
N037148-010B	SAMP	1	Ca	69.66	0.63	15	PASS
N037148-011B	SAMP	1	Ca	66.15	0.36	15	PASS
N037148-012B	SAMP	1	Ca	66.037	0.16	15	PASS
N037176-001D	SAMP	1	Ca	395.74	0.22	15	PASS
CCV3	CCV	1	Ca	10.31	1.042	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB3	CCB	1	Ca	-0.013	157.83	15	<PQL
ICSA2	ICSA	1	Ca	452.59	0.063	15	PASS
ICSAB2	ICSAB	1	Ca	543.44	0.077	15	PASS
N037181-001E	SAMP	1	Ca	428.65	0.23	15	PASS
N037225-001E	SAMP	1	Ca	104.36	0.62	15	PASS
CCV4	CCV	1	Ca	10.044	0.25	15	PASS
CCB4	CCB	1	Ca	-0.05	29.66	15	<PQL
CCV5	CCV	1	Ca	10.19	0.85	15	PASS
CCB5	CCB	1	Ca	-0.035	36.52	15	<PQL
ICSA3	ICSA	1	Ca	464	0.57	15	PASS
ICSAB3	ICSAB	1	Ca	552.3	0.097	15	PASS
CCV6	CCV	1	Ca	10.12	0.71	15	PASS
CCB6	CCB	1	Ca	0.0073	412.85	15	<PQL
CCB6	CCB	1	Ca	-0.0045	616.14	15	<PQL
N037176-002D	SAMP	5	Ca	119.76	0.64	15	PASS
N037176-003D	SAMP	5	Ca	52.14	0.6	15	PASS
N037176-004D	SAMP	5	Ca	52.17	0.23	15	PASS
N037181-001E	SAMP	5	Ca	89.58	0.52	15	PASS
CCV7	CCV	1	Ca	10.32	0.37	15	PASS
CCB7	CCB	1	Ca	-0.0087	96.9	15	<PQL
N037225-001E	SAMP	5	Ca	21.33	0.29	15	PASS
CCV8	CCV	1	Ca	10.31	0.62	15	PASS
CCB8	CCB	1	Ca	-0.015	51.15	15	<PQL
ICSA4	ICSA	1	Ca	457.84	0.12	15	PASS
ICSA4	ICSA	1	Ca	474.96	0.094	15	PASS
ICSAB4	ICSAB	1	Ca	456.08	0.28	15	PASS
ICSAB4	ICSAB	1	Ca	511.11	0.092	15	PASS
N037176-002D	SAMP	5	Ca	119.1	0.44	15	PASS
N037176-003D	SAMP	5	Ca	53.54	0.52	15	PASS
N037176-004D	SAMP	5	Ca	52.011	0.4	15	PASS
N037225-001E	SAMP	1	Ca	108.29	0.24	15	PASS
CCV9	CCV	1	Ca	10.38	0.68	15	PASS
CCB9	CCB	1	Ca	-0.051	19.28	15	<PQL
ICSA5	ICSA	1	Ca	478.27	0.078	15	PASS
ICSAB5	ICSAB	1	Ca	516.8	0.0023	15	PASS
CalBlk	IBLK	1	Fe	0	803.87	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.63	15	PASS
Standard2	ICAL	1	Fe	0.05	1.13	15	PASS
Standard3	ICAL	1	Fe	2	0.045	15	PASS
Standard4	ICAL	1	Fe	5	0.033	15	PASS
Standard5	ICAL	1	Fe	7.5	0.076	15	PASS
Standard6	ICAL	1	Fe	10	0.62	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
Standard7	ICAL	1	Fe	20	0.022	15	PASS
ICV	ICV	1	Fe	10.15	0.23	15	PASS
ICB	ICB	1	Fe	-0.00055	68.3	15	<PQL
LLICV	CCV1	1	Fe	0.027	1.91	20	PASS
LLICV	CCV1	1	Fe	0.02	4.66	20	PASS
ICSA1	ICSA	1	Fe	176.61	0.72	15	PASS
ICSAB1	ICSAB	1	Fe	177.52	0.41	15	PASS
CCV1	CCV	1	Fe	11.56	0.49	15	PASS
CCV1	CCV	1	Fe	10.63	0.33	15	PASS
CCB1	CCB	1	Fe	-0.0006	106.015	15	<PQL
CCB1	CCB	1	Fe	-0.00051	14.76	15	PASS
MB-75187	MBLK	1	Fe	-0.0024	23.38	15	<PQL
LCS1-75187	LCS	1	Fe	0.1	0.64	15	PASS
CCV2	CCV	1	Fe	10.16	0.11	15	PASS
CCB2	CCB	1	Fe	-0.001	7.72	15	PASS
N037148-008B	SAMP	1	Fe	0.0088	8.24	15	PASS
N037148-008B	SAMP	5	Fe	-0.00004	1252.77	15	<PQL
N037148-008B-PS	PS	1	Fe	0.11	1.49	15	PASS
N037148-008B-MS1	MS	1	Fe	0.1	0.4	15	PASS
N037148-008B-MSD1	MSD	1	Fe	0.1	0.79	15	PASS
N037148-009B	SAMP	1	Fe	0.0041	18.66	15	<PQL
N037148-010B	SAMP	1	Fe	0.014	67.11	15	<PQL
N037148-011B	SAMP	1	Fe	0.034	0.27	15	PASS
N037148-012B	SAMP	1	Fe	0.01	2.83	15	PASS
N037176-001D	SAMP	1	Fe	0.26	0.21	15	PASS
CCV3	CCV	1	Fe	10.33	0.086	15	PASS
CCB3	CCB	1	Fe	-0.0011	4.48	15	PASS
ICSA2	ICSA	1	Fe	179.66	0.19	15	PASS
ICSAB2	ICSAB	1	Fe	185.35	0.39	15	PASS
N037181-001E	SAMP	1	Fe	0.025	2.14	15	PASS
N037225-001E	SAMP	1	Fe	0.0098	2.83	15	PASS
CCV4	CCV	1	Fe	10.18	0.087	15	PASS
CCB4	CCB	1	Fe	-0.00012	467.49	15	<PQL
CCV5	CCV	1	Fe	10.48	0.038	15	PASS
CCB5	CCB	1	Fe	0.0064	15.8	15	<PQL
ICSA3	ICSA	1	Fe	177.7	0.35	15	PASS
ICSAB3	ICSAB	1	Fe	183.6	0.35	15	PASS
CCV6	CCV	1	Fe	10.2	0.12	15	PASS
CCB6	CCB	1	Fe	0.007	9.11	15	PASS
CCB6	CCB	1	Fe	0.0043	29.3	15	<PQL
N037176-002D	SAMP	5	Fe	0.064	1.19	15	PASS
N037176-003D	SAMP	5	Fe	0.041	2.12	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037176-004D	SAMP	5	Fe	0.04	0.96	15	PASS
N037181-001E	SAMP	5	Fe	0.0019	44.06	15	<PQL
CCV7	CCV	1	Fe	10.37	0.098	15	PASS
CCB7	CCB	1	Fe	0.0083	18.85	15	<PQL
N037225-001E	SAMP	5	Fe	0.0035	11.45	15	PASS
CCV8	CCV	1	Fe	10.35	0.091	15	PASS
CCB8	CCB	1	Fe	0.0078	12.62	15	PASS
ICSA4	ICSA	1	Fe	177.14	0.25	15	PASS
ICSA4	ICSA	1	Fe	203.97	0.018	15	PASS
ICSAB4	ICSAB	1	Fe	153.4	0.39	15	PASS
ICSAB4	ICSAB	1	Fe	171.94	0.5	15	PASS
N037176-002D	SAMP	5	Fe	0.069	3.92	15	PASS
N037176-003D	SAMP	5	Fe	0.045	3.12	15	PASS
N037176-004D	SAMP	5	Fe	0.043	6.89	15	PASS
N037225-001E	SAMP	1	Fe	0.01	5.64	15	PASS
CCV9	CCV	1	Fe	10.49	0.037	15	PASS
CCB9	CCB	1	Fe	-0.0023	7.76	15	PASS
ICSA5	ICSA	1	Fe	205.75	0.6	15	PASS
ICSAB5	ICSAB	1	Fe	175.06	0.32	15	PASS
CalBlk	IBLK	1	Mg	0	6.17	15	PASS
Standard1	ICAL	1	Mg	0.1	1.63	15	PASS
Standard2	ICAL	1	Mg	1	0.22	15	PASS
Standard3	ICAL	1	Mg	2	0.44	15	PASS
Standard4	ICAL	1	Mg	5	0.13	15	PASS
Standard5	ICAL	1	Mg	7.5	0.19	15	PASS
Standard6	ICAL	1	Mg	10	1.14	15	PASS
Standard7	ICAL	1	Mg	20	0.12	15	PASS
ICV	ICV	1	Mg	10.2	0.55	15	PASS
ICB	ICB	1	Mg	-0.0099	8.43	15	PASS
LLICV	CCV1	1	Mg	0.11	2.26	20	PASS
LLICV	CCV1	1	Mg	0.095	1.8	20	PASS
ICSA1	ICSA	1	Mg	422.45	1.075	15	PASS
ICSAB1	ICSAB	1	Mg	489.95	0.41	15	PASS
CCV1	CCV	1	Mg	12.28	0.71	15	PASS
CCV1	CCV	1	Mg	10.83	0.39	15	PASS
CCB1	CCB	1	Mg	-0.017	2.9	15	PASS
CCB1	CCB	1	Mg	-0.016	3.81	15	PASS
MB-75187	MBLK	1	Mg	-0.019	2.13	15	PASS
LCS1-75187	LCS	1	Mg	10.38	0.054	15	PASS
CCV2	CCV	1	Mg	10.24	0.15	15	PASS
CCB2	CCB	1	Mg	-0.016	1.83	15	PASS
N037148-008B	SAMP	1	Mg	22.6	0.17	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037148-008B	SAMP	5	Mg	4.98	0.72	15	PASS
N037148-008B-PS	PS	1	Mg	32.24	0.11	15	PASS
N037148-008B-MS1	MS	1	Mg	32.37	0.034	15	PASS
N037148-008B-MSD1	MSD	1	Mg	32.39	0.084	15	PASS
N037148-009B	SAMP	1	Mg	22.39	0.2	15	PASS
N037148-010B	SAMP	1	Mg	23.16	0.072	15	PASS
N037148-011B	SAMP	1	Mg	22.093	0.14	15	PASS
N037148-012B	SAMP	1	Mg	21.99	0.095	15	PASS
N037176-001D	SAMP	1	Mg	37.2	0.031	15	PASS
CCV3	CCV	1	Mg	10.45	0.11	15	PASS
CCB3	CCB	1	Mg	-0.014	14.19	15	PASS
ICSA2	ICSA	1	Mg	431.24	0.22	15	PASS
ICSAB2	ICSAB	1	Mg	519.65	0.37	15	PASS
N037181-001E	SAMP	1	Mg	50.65	0.41	15	PASS
N037225-001E	SAMP	1	Mg	25.45	0.23	15	PASS
CCV4	CCV	1	Mg	10.44	0.083	15	PASS
CCB4	CCB	1	Mg	-0.015	5.64	15	PASS
CCV5	CCV	1	Mg	10.75	0.054	15	PASS
CCB5	CCB	1	Mg	0.004	73.88	15	<PQL
ICSA3	ICSA	1	Mg	423.68	0.28	15	PASS
ICSAB3	ICSAB	1	Mg	512.71	0.38	15	PASS
CCV6	CCV	1	Mg	10.31	0.15	15	PASS
CCB6	CCB	1	Mg	0.0052	41.66	15	<PQL
CCB6	CCB	1	Mg	0.0009	397.82	15	<PQL
N037176-002D	SAMP	5	Mg	17.38	0.23	15	PASS
N037176-003D	SAMP	5	Mg	4.023	0.17	15	PASS
N037176-004D	SAMP	5	Mg	3.99	0.3	15	PASS
N037181-001E	SAMP	5	Mg	10.85	0.12	15	PASS
CCV7	CCV	1	Mg	10.4	0.15	15	PASS
CCB7	CCB	1	Mg	0.0027	83.6	15	<PQL
N037225-001E	SAMP	5	Mg	5	0.038	15	PASS
CCV8	CCV	1	Mg	10.34	0.23	15	PASS
CCB8	CCB	1	Mg	0.005	42.091	15	<PQL
ICSA4	ICSA	1	Mg	420.63	0.24	15	PASS
ICSA4	ICSA	1	Mg	446.66	0.024	15	PASS
ICSAB4	ICSAB	1	Mg	423.47	0.39	15	PASS
ICSAB4	ICSAB	1	Mg	473.91	0.52	15	PASS
N037176-002D	SAMP	5	Mg	16.92	0.47	15	PASS
N037176-003D	SAMP	5	Mg	4.053	0.16	15	PASS
N037176-004D	SAMP	5	Mg	3.94	0.19	15	PASS
N037225-001E	SAMP	1	Mg	23.7	0.11	15	PASS
CCV9	CCV	1	Mg	10.44	0.14	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB9	CCB	1	Mg	-0.02	2.16	15	PASS
ICSA5	ICSA	1	Mg	451.47	0.69	15	PASS
ICSAB5	ICSAB	1	Mg	484.97	0.36	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190904C

Instrument ID: ICP-02

STANDARD CODE		
Standard1	MWST-190401G,0.5<50mL	MWST-190820D,0.5<50mL
Standard2	MWST-190401L	MWST-190820I
Standard3	MWST-190401Q,5<50mL	MWST-190820N,5<50mL
Standard4	MWST-190401Q,12.5<50mL	MWST-190820N,12.5<50mL
Standard5	MWST-190401Q,15<40mL	MWST-190820N,15<40mL
Standard6	MWST-190401Q,25<50mL	MWST-190820N,25<50mL
Standard7	MWST-190401Q	MWST-190820N
ICV	MWST-190401V	MWST-190820S
CCV	MWST-190401Q,25<50mL	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190401W/X	MWST-190820T/U
Int. Std. (Y)	MSST-190315A	MSST-190708A
PS Spike	MWST-190401D/E/F	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/04/2019	10:18:01 PM
2	Standard1	ICAL	1	09/04/2019	10:22:27 PM
3	Standard2	ICAL	1	09/04/2019	10:26:50 PM
4	Standard3	ICAL	1	09/04/2019	10:31:15 PM
5	Standard4	ICAL	1	09/04/2019	10:35:43 PM
6	Standard5	ICAL	1	09/04/2019	10:40:12 PM
7	Standard6	ICAL	1	09/04/2019	10:44:41 PM
8	Standard7	ICAL	1	09/04/2019	10:49:10 PM
250	ICV	ICV	1	09/04/2019	10:55:13 PM
1	ICB	ICB	1	09/04/2019	11:01:14 PM
2	LLICV	CCV1	1	09/04/2019	11:05:39 PM
9	ICSA1	ICSA	1	09/04/2019	11:10:02 PM
10	ICSAB1	ICSAB	1	09/04/2019	11:16:41 PM
71	MB-75133	MBLK	1	09/04/2019	11:22:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:27:15 PM
71	MB-75133	MBLK	1	09/04/2019	11:35:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:40:16 PM
73	N037118-001B	SAMP	1	09/04/2019	11:44:41 PM
74	N037118-001B	SAMP	5	09/04/2019	11:49:06 PM
75	N037118-001B-PS	PS	1	09/04/2019	11:53:29 PM
76	N037118-001B-MS	MS	1	09/04/2019	11:57:54 PM
77	N037118-001B-MSD	MSD	1	09/05/2019	12:02:19 AM
78	N037118-002B	SAMP	1	09/05/2019	12:06:45 AM
7	CCV1	CCV	1	09/05/2019	12:11:11 AM
1	CCB1	CCB	1	09/05/2019	12:15:39 AM
79	N037118-003B	SAMP	1	09/05/2019	12:20:03 AM
80	N037118-004B	SAMP	1	09/05/2019	12:24:29 AM
81	N037118-005B	SAMP	1	09/05/2019	12:28:55 AM

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A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
82	N037118-006B	SAMP	1	09/05/2019	12:33:22 AM
83	N037118-007B	SAMP	1	09/05/2019	12:37:48 AM
84	N037118-008B	SAMP	1	09/05/2019	12:42:13 AM
85	N037118-009B	SAMP	1	09/05/2019	12:46:38 AM
86	N037118-010B	SAMP	1	09/05/2019	12:51:03 AM
87	N037118-011B	SAMP	1	09/05/2019	12:55:27 AM
88	N037118-012B	SAMP	1	09/05/2019	12:59:54 AM
7	CCV2	CCV	1	09/05/2019	01:04:19 AM
1	CCB2	CCB	1	09/05/2019	01:08:49 AM
89	N037118-013B	SAMP	1	09/05/2019	01:13:13 AM
90	N037148-001B	SAMP	1	09/05/2019	01:17:38 AM
91	N037148-002B	SAMP	1	09/05/2019	01:22:04 AM
92	N037148-003B	SAMP	1	09/05/2019	01:26:28 AM
93	N037148-004B	SAMP	1	09/05/2019	01:30:53 AM
94	N037148-005B	SAMP	1	09/05/2019	01:35:19 AM
95	N037148-006B	SAMP	1	09/05/2019	01:39:44 AM
96	N037148-007B	SAMP	1	09/05/2019	01:44:09 AM
97	MB-75132	MBLK	1	09/05/2019	01:48:34 AM
98	LCS-75132	LCS	1	09/05/2019	01:52:58 AM
7	CCV3	CCV	1	09/05/2019	01:57:23 AM
1	CCB3	CCB	1	09/05/2019	02:01:51 AM
99	N037118-001C	SAMP	1	09/05/2019	02:06:14 AM
100	N037118-001C	SAMP	5	09/05/2019	02:10:38 AM
101	N037118-001C-PS	PS	1	09/05/2019	02:15:02 AM
102	N037118-001C-MS	MS	1	09/05/2019	02:19:27 AM
103	N037118-001C-MSD	MSD	1	09/05/2019	02:23:52 AM
104	N037118-002C	SAMP	1	09/05/2019	02:28:18 AM
105	N037118-003C	SAMP	1	09/05/2019	02:32:43 AM
106	N037118-004C	SAMP	1	09/05/2019	02:37:08 AM
107	N037118-005C	SAMP	1	09/05/2019	02:41:34 AM
108	N037118-006C	SAMP	1	09/05/2019	02:45:58 AM
7	CCV4	CCV	1	09/05/2019	02:50:22 AM
1	CCB4	CCB	1	09/05/2019	02:54:50 AM
9	ICSA2	ICSA	1	09/05/2019	02:59:11 AM
10	ICSAB2	ICSAB	1	09/05/2019	03:05:49 AM
109	N037118-007C	SAMP	1	09/05/2019	03:11:59 AM
110	N037118-008C	SAMP	1	09/05/2019	03:16:22 AM
111	N037118-009C	SAMP	1	09/05/2019	03:20:47 AM
112	N037118-010C	SAMP	1	09/05/2019	03:25:12 AM
113	N037118-011C	SAMP	1	09/05/2019	03:29:37 AM
114	N037118-012C	SAMP	1	09/05/2019	03:34:02 AM
115	N037118-013C	SAMP	1	09/05/2019	03:38:28 AM
116	N037148-001C	SAMP	1	09/05/2019	03:42:53 AM
117	N037148-002C	SAMP	1	09/05/2019	03:47:18 AM
118	N037148-003C	SAMP	1	09/05/2019	03:51:43 AM
7	CCV5	CCV	1	09/05/2019	03:56:10 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	09/05/2019	04:00:38 AM
119	N037148-004C	SAMP	1	09/05/2019	04:05:00 AM
120	N037148-005C	SAMP	1	09/05/2019	04:09:25 AM
121	N037148-006C	SAMP	1	09/05/2019	04:13:51 AM
122	N037148-007C	SAMP	1	09/05/2019	04:18:15 AM
7	CCV6	CCV	1	09/05/2019	04:22:41 AM
1	CCB6	CCB	1	09/05/2019	04:27:09 AM
9	ICSA3	ICSA	1	09/05/2019	04:31:31 AM
10	ICSAB3	ICSAB	1	09/05/2019	04:38:08 AM

INJECTION LOG: 190909B

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

MWST-190820D,0.5<50mL
MWST-190820I
MWST-190820N,5<50mL
MWST-190820N,12.5<50mL
MWST-190820N,15<40mL
MWST-190820N,25<50mL
MWST-190820N
MWST-190820S
MWST-190820N,25<50mL
MWST-190820T/U
MSST-190708A
MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/09/2019	04:41:18 PM
2	Standard1	ICAL	1	09/09/2019	04:45:40 PM
3	Standard2	ICAL	1	09/09/2019	04:50:03 PM
4	Standard3	ICAL	1	09/09/2019	04:53:57 PM
5	Standard4	ICAL	1	09/09/2019	04:57:54 PM
6	Standard5	ICAL	1	09/09/2019	05:02:51 PM
7	Standard6	ICAL	1	09/09/2019	05:07:48 PM
8	Standard7	ICAL	1	09/09/2019	05:12:46 PM
250	ICV	ICV	1	09/09/2019	05:15:41 PM
1	ICB	ICB	1	09/09/2019	05:27:19 PM
2	LLICV	CCV1	1	09/09/2019	05:44:10 PM
2	LLICV	CCV1	1	09/09/2019	05:58:56 PM
9	ICSA1	ICSA	1	09/09/2019	06:03:19 PM
10	ICSAB1	ICSAB	1	09/09/2019	06:07:25 PM
11	MB-75121	MBLK	1	09/09/2019	06:17:33 PM
12	N037107-002D	SAMP	5	09/09/2019	06:22:16 PM
13	N037107-005D	SAMP	1	09/09/2019	06:26:08 PM
14	N037107-006D	SAMP	1	09/09/2019	06:30:01 PM
15	N037107-007D	SAMP	1	09/09/2019	06:34:55 PM
16	N037107-008D	SAMP	1	09/09/2019	06:39:48 PM
17	N037147-002D	SAMP	1	09/09/2019	06:44:42 PM
18	N037107-002E	SAMP	5	09/09/2019	06:49:36 PM
19	N037107-006E	SAMP	1	09/09/2019	06:53:30 PM
20	N037147-001E	SAMP	1	09/09/2019	06:58:02 PM
7	CCV1	CCV	1	09/09/2019	07:02:57 PM
7	CCV1	CCV	1	09/09/2019	07:07:20 PM
1	CCB1	CCB	1	09/09/2019	07:12:19 PM
1	CCB1	CCB	1	09/09/2019	07:20:11 PM

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A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
21	N037118-003B	SAMP	1	09/09/2019	07:24:33 PM
22	MB-75308	MBLK	1	09/09/2019	07:28:27 PM
23	LCS-75308	LCS	1	09/09/2019	07:32:26 PM
24	N037355-001A	SAMP	1	09/09/2019	07:37:19 PM
25	N037355-001A	SAMP	5	09/09/2019	07:41:11 PM
26	N037355-001A-PS	PS	1	09/09/2019	07:45:03 PM
27	N037355-001A-MS	MS	1	09/09/2019	07:49:58 PM
28	N037355-001A-MSD	MSD	1	09/09/2019	07:54:52 PM
29	MB-75187	MBLK	1	09/09/2019	07:59:48 PM
30	LCS1-75187	LCS	1	09/09/2019	08:04:12 PM
7	CCV2	CCV	1	09/09/2019	08:09:10 PM
1	CCB2	CCB	1	09/09/2019	08:17:30 PM
31	N037148-008B	SAMP	1	09/09/2019	08:21:53 PM
32	N037148-008B	SAMP	5	09/09/2019	08:25:48 PM
33	N037148-008B-PS	PS	1	09/09/2019	08:29:42 PM
34	N037148-008B-MS1	MS	1	09/09/2019	08:34:40 PM
35	N037148-008B-MSD1	MSD	1	09/09/2019	08:39:36 PM
36	N037148-009B	SAMP	1	09/09/2019	08:44:30 PM
37	N037148-010B	SAMP	1	09/09/2019	08:48:24 PM
38	N037148-011B	SAMP	1	09/09/2019	08:52:18 PM
39	N037148-012B	SAMP	1	09/09/2019	08:56:11 PM
40	N037176-001D	SAMP	1	09/09/2019	09:00:04 PM
7	CCV3	CCV	1	09/09/2019	09:04:57 PM
1	CCB3	CCB	1	09/09/2019	09:09:56 PM
9	ICSA2	ICSA	1	09/09/2019	09:28:33 PM
10	ICSAB2	ICSAB	1	09/09/2019	09:33:42 PM
44	N037181-001E	SAMP	1	09/09/2019	09:59:40 PM
45	N037225-001E	SAMP	1	09/09/2019	10:18:38 PM
46	MB-75186	MBLK	1	09/09/2019	10:23:33 PM
47	LCS-75186	LCS	1	09/09/2019	10:27:57 PM
48	N037148-008C	SAMP	1	09/09/2019	10:32:51 PM
49	N037148-009C	SAMP	1	09/09/2019	10:36:43 PM
50	N037148-010C	SAMP	1	09/09/2019	10:40:34 PM
7	CCV4	CCV	1	09/09/2019	10:44:46 PM
1	CCB4	CCB	1	09/09/2019	10:52:38 PM
51	N037148-011C	SAMP	1	09/09/2019	10:57:01 PM
52	N037148-012C	SAMP	1	09/09/2019	11:00:53 PM
53	N037176-001E	SAMP	1	09/09/2019	11:04:46 PM
54	N037176-001E	SAMP	5	09/09/2019	11:09:40 PM
55	N037176-001E-PS	PS	1	09/09/2019	11:13:34 PM
56	N037176-001E-MS	MS	1	09/09/2019	11:18:29 PM
57	N037176-001E-MSD	MSD	1	09/09/2019	11:23:24 PM
58	N037176-002E	SAMP	1	09/09/2019	11:28:18 PM
7	CCV5	CCV	1	09/10/2019	04:26:03 AM
1	CCB5	CCB	1	09/10/2019	04:47:58 AM
9	ICSA3	ICSA	1	09/10/2019	04:52:21 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB3	ICSAB	1	09/10/2019	04:57:59 AM
61	N037181-001F	SAMP	1	09/10/2019	05:27:15 AM
62	N037225-001F	SAMP	1	09/10/2019	05:32:08 AM
63	MB-75296	MBLK	1	09/10/2019	05:36:59 AM
64	LCS1-75296	LCS	1	09/10/2019	05:41:21 AM
65	N037313-001C	SAMP	1	09/10/2019	05:46:15 AM
66	N037313-001C	SAMP	5	09/10/2019	05:51:08 AM
67	N037313-001C-PS	PS	1	09/10/2019	05:55:03 AM
68	N037313-001C-MS1	MS	1	09/10/2019	05:59:57 AM
69	N037313-001C-MSD1	MSD	1	09/10/2019	06:04:52 AM
7	CCV6	CCV	1	09/10/2019	06:09:48 AM
1	CCB6	CCB	1	09/10/2019	06:14:43 AM
1	CCB6	CCB	1	09/10/2019	06:19:23 AM
70	N037313-002E	SAMP	1	09/10/2019	06:23:43 AM
71	N037314-001B	SAMP	1	09/10/2019	06:28:39 AM
72	N037314-002B	SAMP	1	09/10/2019	06:33:32 AM
73	N037176-002D	SAMP	5	09/10/2019	06:38:25 AM
74	N037176-002E	SAMP	5	09/10/2019	06:43:31 AM
75	N037176-003D	SAMP	5	09/10/2019	06:48:23 AM
76	N037176-003E	SAMP	5	09/10/2019	06:52:16 AM
77	N037176-004D	SAMP	5	09/10/2019	06:56:08 AM
78	N037176-004E	SAMP	5	09/10/2019	07:00:01 AM
79	N037181-001E	SAMP	5	09/10/2019	07:03:53 AM
7	CCV7	CCV	1	09/10/2019	07:07:46 AM
1	CCB7	CCB	1	09/10/2019	07:12:44 AM
80	N037181-001F	SAMP	5	09/10/2019	07:17:05 AM
81	N037225-001F	SAMP	5	09/10/2019	07:20:59 AM
82	N037225-001E	SAMP	5	09/10/2019	07:24:55 AM
7	CCV8	CCV	1	09/10/2019	07:43:38 AM
1	CCB8	CCB	1	09/10/2019	07:48:37 AM
9	ICSA4	ICSA	1	09/10/2019	07:52:58 AM
9	ICSA4	ICSA	1	09/10/2019	08:03:44 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:11:08 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:14:38 AM
73	N037176-002D	SAMP	5	09/10/2019	08:34:18 AM
75	N037176-003D	SAMP	5	09/10/2019	08:39:11 AM
77	N037176-004D	SAMP	5	09/10/2019	08:43:05 AM
45	N037225-001E	SAMP	1	09/10/2019	08:46:58 AM
76	N037176-003E	SAMP	5	09/10/2019	09:05:32 AM
78	N037176-004E	SAMP	5	09/10/2019	09:09:26 AM
62	N037225-001F	SAMP	1	09/10/2019	09:13:18 AM
71	N037314-001B	SAMP	1	09/10/2019	09:18:11 AM
74	N037176-002E	SAMP	5	09/10/2019	09:23:06 AM
7	CCV9	CCV	1	09/10/2019	09:27:58 AM
1	CCB9	CCB	1	09/10/2019	09:32:57 AM
9	ICSA5	ICSA	1	09/10/2019	09:37:19 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB5	ICSAB	1	09/10/2019	09:42:28 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:32:07**
Prep End Date: **8/23/2019 4:00:00 P**
Reviewed/ Date: NS 9/19/2019
Initials/ Date: for
Prep Batch **75133** Prep Code: **3010_W_DISS** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75133	Aqueous		25	☐	25	1.000		
MB-75133	Aqueous		25	☐	25	1.000		
N037118-001B	Groundwater	<2	25	☐	25	1.000		
N037118-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037118-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037118-002B	Groundwater	<2	25	☐	25	1.000		
N037118-003B	Groundwater	<2	25	☐	25	1.000		
N037118-004B	Groundwater	<2	25	☐	25	1.000		
N037118-005B	Groundwater	<2	25	☐	25	1.000		
N037118-006B	Groundwater	<2	25	☐	25	1.000		
N037118-007B	Groundwater	<2	25	☐	25	1.000		
N037118-008B	Groundwater	<2	25	☐	25	1.000		
N037118-009B	Groundwater	<2	25	☐	25	1.000		
N037118-010B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:32:07**
Prep End Date: **8/23/2019 4:00:00 P**
Reviewed/ Date: NS 9/19/2019
Initials/ Date: for
Prep Batch **75133** Prep Code: **3010_W_DISS** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037118-011B	Groundwater	<2	25	☐	25	1.000		
N037118-012B	Groundwater	<2	25	☐	25	1.000		
N037118-013B	Groundwater	<2	25	☐	25	1.000		
N037148-001B	Groundwater	<2	25	☐	25	1.000		
N037148-002B	Groundwater	<2	25	☐	25	1.000		
N037148-003B	Groundwater	<2	25	☐	25	1.000		
N037148-004B	Groundwater	<2	25	☐	25	1.000		
N037148-005B	Groundwater	<2	25	☐	25	1.000		
N037148-006B	Groundwater	<2	25	☐	25	1.000		
N037148-007B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/28/2019 9:15:31 A**
Prep End Date: **8/28/2019 3:00:00 P**
Reviewed/ Date: NS 9/20/2019
Initials/ Date: for
Prep Batch **75187** Prep Code: **3010_W_DISS** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-75187	Aqueous		25	☐	25	1.000		
LCS2-75187	Aqueous		25	☐	25	1.000		
MB-75187	Aqueous		25	☐	25	1.000		
N037148-008B	Groundwater	<2	25	☐	25	1.000		
N037148-008B-MS	Groundwater	<2	25	☐	25	1.000		
N037148-008B-MS	Groundwater	<2	25	☐	25	1.000		
N037148-009B	Groundwater	<2	25	☐	25	1.000		
N037148-010B	Groundwater	<2	25	☐	25	1.000		
N037148-011B	Groundwater	<2	25	☐	25	1.000		
N037148-012B	Groundwater	<2	25	☐	25	1.000		
N037176-001D	Groundwater	<2	25	☐	25	1.000		
N037176-001D-MS	Groundwater	<2	25	☐	25	1.000		
N037176-001D-MS	Groundwater	<2	25	☐	25	1.000		
N037176-002D	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11306	NITRIC ACID
11329	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/28/2019 9:15:31 A**
Prep End Date: **8/28/2019 3:00:00 P**
Reviewed/ Date: NS 9/20/2019
Initials/ Date: for
Prep Batch **75187** Prep Code: **3010_W_DISS** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037176-003D	Groundwater	<2	25	☐	25	1.000		
N037176-004D	Groundwater	<2	25	☐	25	1.000		
N037181-001E	Groundwater	<2	25	☐	25	1.000		
N037225-001E	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11306	NITRIC ACID
11329	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190904C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	09/04/2019	10:18:01 PM	Fe	273.952	227	0.00	mg/L	
Standard1	09/04/2019	10:22:27 PM	Fe	273.952	642	0.0200	mg/L	
Standard2	09/04/2019	10:26:50 PM	Fe	273.952	2782	0.050	mg/L	
Standard3	09/04/2019	10:31:15 PM	Fe	273.952	69970	2.000	mg/L	
Standard4	09/04/2019	10:35:43 PM	Fe	273.952	174507	5.000	mg/L	
Standard5	09/04/2019	10:40:12 PM	Fe	273.952	262065	7.500	mg/L	
Standard6	09/04/2019	10:44:41 PM	Fe	273.952	349932	10.000	mg/L	
Standard7	09/04/2019	10:49:10 PM	Fe	273.952	702701	20.000	mg/L	1.0000

INITIAL CALIBRATION SUMMARY: 190909B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Boron								
CalBlk	09/09/2019	04:41:18 PM	B	249.677	6805	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	B	249.677	4855	0.1000	mg/L	
Standard3	09/09/2019	04:53:57 PM	B	249.677	47875	1.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	B	249.677	119619	2.500	mg/L	
Standard5	09/09/2019	05:02:51 PM	B	249.677	179535	3.750	mg/L	
Standard6	09/09/2019	05:07:48 PM	B	249.677	235605	5.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	B	249.677	473588	10.000	mg/L	1.0000
Magnesium								
CalBlk	09/09/2019	04:41:18 PM	Mg	279.077	1126	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Mg	279.077	1935	0.1000	mg/L	
Standard2	09/09/2019	04:50:03 PM	Mg	279.077	19627	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Mg	279.077	39696	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Mg	279.077	93184	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Mg	279.077	138558	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Mg	279.077	178688	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Mg	279.077	353747	20.000	mg/L	0.9998
Aluminum								
CalBlk	09/09/2019	04:41:18 PM	Al	237.312	58	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Al	237.312	465	0.0500	mg/L	
Standard2	09/09/2019	04:50:03 PM	Al	237.312	8825	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Al	237.312	17466	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Al	237.312	43914	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Al	237.312	65946	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Al	237.312	82705	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Al	237.312	164565	20.000	mg/L	0.9997
Calcium								
CalBlk	09/09/2019	04:41:18 PM	Ca	227.546	108	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Ca	227.546	97	0.2000	mg/L	
Standard2	09/09/2019	04:50:03 PM	Ca	227.546	472	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Ca	227.546	967	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Ca	227.546	2463	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Ca	227.546	3651	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Ca	227.546	4823	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Ca	227.546	9711	20.000	mg/L	1.0000
Iron								
CalBlk	09/09/2019	04:41:18 PM	Fe	273.953	-4	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Fe	273.953	878	0.0200	mg/L	
Standard2	09/09/2019	04:50:03 PM	Fe	273.953	3433	0.050	mg/L	
Standard3	09/09/2019	04:53:57 PM	Fe	273.953	77194	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Fe	273.953	191558	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Fe	273.953	284880	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Fe	273.953	370595	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Fe	273.953	733877	20.000	mg/L	0.9999

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503509**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9986.707	20	10000	0	99.9	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ZZZZZZ**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	16.527	20	20.00	0	82.6	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9905.213	20	10000	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9903.189	20	10000	0	99.0	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9979.845	20	10000	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9896.735	20	10000	0	99.0	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9869.618	20	10000	0	98.7	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9861.773	20	10000	0	98.6	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10145.634	20	10000	0	101	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ZZZZZZ**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.180	20	20.00	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10629.151	20	10000	0	106	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10156.018	20	10000	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10333.730	20	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10183.943	20	10000	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10484.217	20	10000	0	105	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10194.776	20	10000	0	102	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10370.201	20	10000	0	104	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10349.223	20	10000	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCV**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10490.518	20	10000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503510**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.443695	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.057013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.070013	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.161	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.899	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.593	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.883	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.546229	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.50566	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.019549	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.082524	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.122665	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.357	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.294	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	8.310	20									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	7.814	20									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **CCB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.288973	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	490975.853	50	500000	0	98.2	80	120				
Calcium	482097.695	500	500000	0	96.4	80	120				
Iron	172044.933	20	200000	0	86.0	80	120				
Magnesium	464555.890	100	500000	0	92.9	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	558087.825	50	500000	0	112	80	120				
Calcium	539864.099	500	500000	0	108	80	120				
Iron	187244.002	20	200000	0	93.6	80	120				
Magnesium	520825.447	100	500000	0	104	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	488002.179	50	500000	0	97.6	80	120				
Calcium	478001.222	500	500000	0	95.6	80	120				
Iron	170944.688	20	200000	0	85.5	80	120				
Magnesium	462500.949	100	500000	0	92.5	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555227.252	50	500000	0	111	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	535336.022	500	500000	0	107	80	120				
Iron	185764.730	20	200000	0	92.9	80	120				
Magnesium	517525.081	100	500000	0	104	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSA**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	487888.676	50	500000	0	97.6	80	120				
Calcium	478039.662	500	500000	0	95.6	80	120				
Iron	170140.522	20	200000	0	85.1	80	120				
Magnesium	460689.818	100	500000	0	92.1	80	120				

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555988.214	50	500000	0	111	80	120				
Calcium	536182.813	500	500000	0	107	80	120				
Iron	185044.175	20	200000	0	92.5	80	120				
Magnesium	516232.857	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	432172.882	50	500000	0	86.4	80	120				
Boron	32.194	100									
Calcium	451248.823	500	500000	0	90.2	80	120				
Iron	176608.945	20	200000	0	88.3	80	120				
Magnesium	422453.611	100	500000	0	84.5	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSAB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537522.587	50	500000	0	108	80	120				
Boron	1098.965	100	1000	0	110	80	120				
Calcium	540411.013	500	500000	0	108	80	120				
Iron	177524.526	20	200000	0	88.8	80	120				
Magnesium	489947.416	100	500000	0	98.0	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	438080.196	50	500000	0	87.6	80	120				
Boron	45.048	100									
Calcium	452586.666	500	500000	0	90.5	80	120				
Iron	179658.561	20	200000	0	89.8	80	120				
Magnesium	431237.860	100	500000	0	86.2	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136383**
Client ID: **ICSAB** Batch ID: **R136383** TestNo: **EPA 6010B** Analysis Date: **9/9/2019** SeqNo: **3507189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548650.224	50	500000	0	110	80	120				
Boron	1171.131	100	1000	0	117	80	120				
Calcium	543441.252	500	500000	0	109	80	120				
Iron	185348.223	20	200000	0	92.7	80	120				
Magnesium	519646.112	100	500000	0	104	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136383**
Client ID: **ICSA** Batch ID: **R136383** TestNo: **EPA 6010B** Analysis Date: **9/10/2019** SeqNo: **3507209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	439389.151	50	500000	0	87.9	80	120				
Boron	59.422	100									
Calcium	463999.151	500	500000	0	92.8	80	120				
Iron	177701.597	20	200000	0	88.9	80	120				
Magnesium	423680.292	100	500000	0	84.7	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136383**
Client ID: **ICSAB** Batch ID: **R136383** TestNo: **EPA 6010B** Analysis Date: **9/10/2019** SeqNo: **3507210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532531.801	50	500000	0	107	80	120				
Boron	1139.626	100	1000	0	114	80	120				
Calcium	552296.183	500	500000	0	110	80	120				
Iron	183598.987	20	200000	0	91.8	80	120				
Magnesium	512710.436	100	500000	0	103	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Detect of B in ICSA3 is > 1/2 RL. B is non-target analyte.

NS 9/19/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	469455.949	50	500000	0	93.9	80	120				
Boron	37.479	100									
Calcium	474962.568	500	500000	0	95.0	80	120				
Iron	203968.861	20	200000	0	102	80	120				
Magnesium	446658.290	100	500000	0	89.3	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSAB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	519299.378	50	500000	0	104	80	120				
Boron	1096.405	100	1000	0	110	80	120				
Calcium	511111.484	500	500000	0	102	80	120				
Iron	171943.188	20	200000	0	86.0	80	120				
Magnesium	473905.331	100	500000	0	94.8	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSA**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	473868.575	50	500000	0	94.8	80	120				
Boron	44.107	100									
Calcium	478274.388	500	500000	0	95.7	80	120				
Iron	205745.822	20	200000	0	103	80	120				
Magnesium	451472.669	100	500000	0	90.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **136383**
Client ID: **ICSAB**	Batch ID: **R136383**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	526926.600	50	500000	0	105	80	120				
Boron	1119.889	100	1000	0	112	80	120				
Calcium	516800.291	500	500000	0	103	80	120				
Iron	175059.002	20	200000	0	87.5	80	120				
Magnesium	484974.023	100	500000	0	97.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.86	65-125	PASS
Standard2	ICAL	1	1.0002	100.02	65-125	PASS
Standard3	ICAL	1	1	99.88	65-125	PASS
Standard4	ICAL	1	0.98	98.37	65-125	PASS
Standard5	ICAL	1	0.99	98.91	65-125	PASS
Standard6	ICAL	1	0.98	98.015	65-125	PASS
Standard7	ICAL	1	0.95	95.009	65-125	PASS
ICV	ICV	1	0.99	98.5	65-125	PASS
ICB	ICB	1	1	99.95	65-125	PASS
LLICV	CCV1	1	1	99.54	65-125	PASS
ICSA1	ICSA	1	0.99	99.062	65-125	PASS
ICSAB1	ICSAB	1	0.86	86.086	65-125	PASS
MB-75133	MBLK	1	1.0038	100.38	65-125	PASS
LCS-75133	LCS	1	0.94	93.57	65-125	PASS
MB-75133	MBLK	1	1	99.72	65-125	PASS
LCS-75133	LCS	1	0.94	94.44	65-125	PASS
N037118-001B	SAMP	1	1.032	103.15	65-125	PASS
N037118-001B	SAMP	5	1.0053	100.53	65-125	PASS
N037118-001B-PS	PS	1	1.035	103.51	65-125	PASS
N037118-001B-MS	MS	1	1.019	101.86	65-125	PASS
N037118-001B-MSD	MSD	1	1.024	102.45	65-125	PASS
N037118-002B	SAMP	1	1.03	102.95	65-125	PASS
CCV1	CCV	1	0.99	99.48	65-125	PASS
CCB1	CCB	1	1.0046	100.46	65-125	PASS
N037118-003B	SAMP	1	1.049	104.94	65-125	PASS
N037118-004B	SAMP	1	1.033	103.27	65-125	PASS
N037118-005B	SAMP	1	1.039	103.94	65-125	PASS
N037118-006B	SAMP	1	1.052	105.21	65-125	PASS
N037118-007B	SAMP	1	1.06	105.98	65-125	PASS
N037118-008B	SAMP	1	1.045	104.49	65-125	PASS
N037118-009B	SAMP	1	1.042	104.22	65-125	PASS
N037118-010B	SAMP	1	1.06	106.01	65-125	PASS
N037118-011B	SAMP	1	1.06	105.98	65-125	PASS
N037118-012B	SAMP	1	1.059	105.9	65-125	PASS
CCV2	CCV	1	1.004	100.4	65-125	PASS
CCB2	CCB	1	1.016	101.55	65-125	PASS
N037118-013B	SAMP	1	1.056	105.56	65-125	PASS
N037148-001B	SAMP	1	1.032	103.24	65-125	PASS
N037148-002B	SAMP	1	1.053	105.28	65-125	PASS
N037148-003B	SAMP	1	1.034	103.42	65-125	PASS

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037148-004B	SAMP	1	1.057	105.7	65-125	PASS
N037148-005B	SAMP	1	1.05	104.98	65-125	PASS
N037148-006B	SAMP	1	1.029	102.88	65-125	PASS
N037148-007B	SAMP	1	1.026	102.62	65-125	PASS
CCV3	CCV	1	0.99	98.95	65-125	PASS
CCB3	CCB	1	1	99.91	65-125	PASS
CCV4	CCV	1	1.0081	100.81	65-125	PASS
CCB4	CCB	1	1.0094	100.94	65-125	PASS
ICSA2	ICSA	1	1.017	101.72	65-125	PASS
ICSAB2	ICSAB	1	0.88	88.18	65-125	PASS
CCV5	CCV	1	1.018	101.78	65-125	PASS
CCB5	CCB	1	1.019	101.93	65-125	PASS
CCV6	CCV	1	1.014	101.38	65-125	PASS
CCB6	CCB	1	1.017	101.74	65-125	PASS
ICSA3	ICSA	1	1.022	102.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.055	65-125	PASS

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0061	100.61	65-125	PASS
Standard2	ICAL	1	1.055	105.47	65-125	PASS
Standard3	ICAL	1	1	99.67	65-125	PASS
Standard4	ICAL	1	0.98	98.43	65-125	PASS
Standard5	ICAL	1	0.99	98.73	65-125	PASS
Standard6	ICAL	1	0.98	97.76	65-125	PASS
Standard7	ICAL	1	0.97	96.52	65-125	PASS
ICV	ICV	1	0.98	98.019	65-125	PASS
ICB	ICB	1	0.99	99.21	65-125	PASS
LLICV	CCV1	1	1.0095	100.95	65-125	PASS
LLICV	CCV1	1	0.99	99.38	65-125	PASS
ICSA1	ICSA	1	1.22	121.63	65-125	PASS
ICSAB1	ICSAB	1	0.84	83.9	65-125	PASS
CCV1	CCV	1	0.92	91.61	65-125	PASS
CCV1	CCV	1	0.96	95.87	65-125	PASS
CCB1	CCB	1	1.024	102.38	65-125	PASS
CCB1	CCB	1	1	99.98	65-125	PASS
MB-75187	MBLK	1	1.025	102.46	65-125	PASS
LCS1-75187	LCS	1	0.91	91.5	65-125	PASS
CCV2	CCV	1	0.99	98.54	65-125	PASS
CCB2	CCB	1	1.0023	100.23	65-125	PASS
N037148-008B	SAMP	1	1.049	104.92	65-125	PASS
N037148-008B	SAMP	5	0.99	99.18	65-125	PASS
N037148-008B-PS	PS	1	1.05	104.99	65-125	PASS
N037148-008B-MS1	MS	1	1.046	104.56	65-125	PASS
N037148-008B-MSD1	MSD	1	1.041	104.07	65-125	PASS
N037148-009B	SAMP	1	1.057	105.72	65-125	PASS
N037148-010B	SAMP	1	1.059	105.86	65-125	PASS
N037148-011B	SAMP	1	1.059	105.9	65-125	PASS
N037148-012B	SAMP	1	1.067	106.7	65-125	PASS
N037176-001D	SAMP	1	0.86	85.95	65-125	PASS
CCV3	CCV	1	0.98	98.17	65-125	PASS
CCB3	CCB	1	1	99.99	65-125	PASS
ICSA2	ICSA	1	1.23	122.96	65-125	PASS
ICSAB2	ICSAB	1	0.85	84.59	65-125	PASS
N037181-001E	SAMP	1	0.89	88.96	65-125	PASS
N037225-001E	SAMP	1	1.012	101.16	65-125	PASS
CCV4	CCV	1	1	99.55	65-125	PASS
CCB4	CCB	1	1.012	101.25	65-125	PASS
CCV5	CCV	1	0.96	95.84	65-125	PASS

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCB5	CCB	1	0.99	98.84	65-125	PASS
ICSA3	ICSA	1	1.23	123.06	65-125	PASS
ICSAB3	ICSAB	1	0.85	85.24	65-125	PASS
CCV6	CCV	1	1.032	103.25	65-125	PASS
CCB6	CCB	1	1.019	101.93	65-125	PASS
CCB6	CCB	1	1.017	101.7	65-125	PASS
N037176-002D	SAMP	5	0.92	91.71	65-125	PASS
N037176-003D	SAMP	5	0.92	92.037	65-125	PASS
N037176-004D	SAMP	5	0.92	91.89	65-125	PASS
N037181-001E	SAMP	5	0.94	93.78	65-125	PASS
CCV7	CCV	1	1.022	102.17	65-125	PASS
CCB7	CCB	1	1.041	104.14	65-125	PASS
N037225-001E	SAMP	5	1	99.56	65-125	PASS
CCV8	CCV	1	1.031	103.07	65-125	PASS
CCB8	CCB	1	1.043	104.32	65-125	PASS
ICSA4	ICSA	1	1.3	129.92	65-125	NR!
ICSA4	ICSA	1	1.21	120.88	65-125	PASS
ICSAB4	ICSAB	1	1.071	107.1	65-125	PASS
ICSAB4	ICSAB	1	0.94	94.18	65-125	PASS
N037176-002D	SAMP	5	0.92	92.014	65-125	PASS
N037176-003D	SAMP	5	0.89	89.33	65-125	PASS
N037176-004D	SAMP	5	0.91	91.49	65-125	PASS
N037225-001E	SAMP	1	1.018	101.82	65-125	PASS
CCV9	CCV	1	1.02	101.96	65-125	PASS
CCB9	CCB	1	1	99.59	65-125	PASS
ICSA5	ICSA	1	1.19	119.17	65-125	PASS
ICSAB5	ICSAB	1	0.92	92.082	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037148
Test Method: EPA 6010B
Analysis Date: 9/4/2019

Matrix: Groundwater
Batch No.: 75133

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037118-001B DT 5x	Iron	Fe	ug/L	0	NA	0		10

Note: NA - Not Applicable

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037148
Test Method: EPA 6010B
Analysis Date: 9/9/2019

Matrix: Groundwater
Batch No.: 75187

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037148-008B DT 5x	Iron	Fe	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **N037118-001B-PS** SampType: **PS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ZZZZZZ** Batch ID: **75133** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **9/4/2019** SeqNo: **3503520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	113.136	20	100.0	0	113	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	N037148-008B-PS	SampType:	PS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136383
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/9/2019	SeqNo:	3507178

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9943.263	50	10000	0	99.4	80	120				
Boron	4921.780	100	5000	156.0	95.3	80	120				
Calcium	77388.383	500	10000	67840	95.5	80	120				
Iron	112.248	20	100.0	0	112	80	120				
Magnesium	32244.260	100	10000	22600	96.4	80	120				

Sample ID	N037176-001D-PS	SampType:	PS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/10/2019	SeqNo:	3508705

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	55673.991	2500	20000	34200	107	80	120				

Sample ID	N037176-001D-PS	SampType:	PS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75187	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	9/10/2019	SeqNo:	3508710

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	3309729.035	120000	20000	3528000	-1090	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6010B

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75132
ASSET #: N037148

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/4/2019

Method:

[X] EPA 6010B / 200.7 Total
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?	X			X		
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Fe in N037118-001C-PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75186
ASSET #: N037148

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/9/2019

Method:

[X] EPA 6010B / 200.7 Total [ ] EPA 7470A / 7471A/245.1
[ ] EPA 6020 / 200.8 [ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.		X			X	
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?	X			X		
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Fe in 037176-001E-MS/MSD failed, low bias. However, LCS passed criteria.
Dilution test for Fe failed. % Rec of Fe in 037176-001E-PS failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/11/2019

2nd Level Reviewer NS 9/11/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N037148-004C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.21672 * 1 *(25/25) * 1000

Iron , ug/L = 216.72

Reporting results in two significant figures,

Iron , ug/L = 220

NS 9/20/2019

% RSD SUMMARY

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	69.68	15	<PQL
Standard1	ICAL	1	Fe	0.02	9.58	15	PASS
Standard2	ICAL	1	Fe	0.05	2.28	15	PASS
Standard3	ICAL	1	Fe	2	0.19	15	PASS
Standard4	ICAL	1	Fe	5	0.1	15	PASS
Standard5	ICAL	1	Fe	7.5	0.13	15	PASS
Standard6	ICAL	1	Fe	10	0.1	15	PASS
Standard7	ICAL	1	Fe	20	0.34	15	PASS
ICV	ICV	1	Fe	9.99	0.13	15	PASS
ICB	ICB	1	Fe	-0.0024	33.24	15	<PQL
LLICV	CCV1	1	Fe	0.017	4.59	20	PASS
ICSA1	ICSA	1	Fe	172.04	0.24	15	PASS
ICSAB1	ICSAB	1	Fe	187.24	0.4	15	PASS
CCV1	CCV	1	Fe	9.91	0.18	15	PASS
CCB1	CCB	1	Fe	-0.0011	21.041	15	<PQL
CCV2	CCV	1	Fe	9.9	0.18	15	PASS
CCB2	CCB	1	Fe	-0.00007	1335.15	15	<PQL
MB-75132	MBLK	1	Fe	-0.0083	5.76	15	PASS
LCS-75132	LCS	1	Fe	0.089	0.29	15	PASS
CCV3	CCV	1	Fe	9.98	0.061	15	PASS
CCB3	CCB	1	Fe	0.00016	298.51	15	<PQL
N037118-001C	SAMP	1	Fe	0.036	0.72	15	PASS
N037118-001C	SAMP	5	Fe	0.0013	54.76	15	<PQL
N037118-001C-PS	PS	1	Fe	0.11	0.65	15	PASS
N037118-001C-MS	MS	1	Fe	0.11	0.8	15	PASS
N037118-001C-MSD	MSD	1	Fe	0.11	1.25	15	PASS
N037118-002C	SAMP	1	Fe	0.014	3.15	15	PASS
N037118-003C	SAMP	1	Fe	0.0046	2.17	15	PASS
N037118-004C	SAMP	1	Fe	0.018	3.9	15	PASS
N037118-005C	SAMP	1	Fe	0.014	1.11	15	PASS
N037118-006C	SAMP	1	Fe	0.033	2.27	15	PASS
CCV4	CCV	1	Fe	9.9	0.041	15	PASS
CCB4	CCB	1	Fe	0.0009	140.28	15	<PQL
ICSA2	ICSA	1	Fe	170.94	0.33	15	PASS
ICSAB2	ICSAB	1	Fe	185.76	0.62	15	PASS
N037118-007C	SAMP	1	Fe	0.043	4.44	15	PASS
N037118-008C	SAMP	1	Fe	0.027	4.81	15	PASS
N037118-009C	SAMP	1	Fe	0.012	5.91	15	PASS
N037118-010C	SAMP	1	Fe	0.015	3.57	15	PASS
N037118-011C	SAMP	1	Fe	0.023	1.64	15	PASS
N037118-012C	SAMP	1	Fe	0.014	5.36	15	PASS
N037118-013C	SAMP	1	Fe	0.016	3.0024	15	PASS

RSD SUMMARY: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037148-001C	SAMP	1	Fe	0.012	3.29	15	PASS
N037148-002C	SAMP	1	Fe	0.013	2.48	15	PASS
N037148-003C	SAMP	1	Fe	0.29	0.47	15	PASS
CCV5	CCV	1	Fe	9.87	0.053	15	PASS
CCB5	CCB	1	Fe	0.0016	68.27	15	<PQL
N037148-004C	SAMP	1	Fe	0.22	0.38	15	PASS
N037148-005C	SAMP	1	Fe	0.01	1.58	15	PASS
N037148-006C	SAMP	1	Fe	0.0037	3.35	15	PASS
N037148-007C	SAMP	1	Fe	0.01	4.16	15	PASS
CCV6	CCV	1	Fe	9.86	0.077	15	PASS
CCB6	CCB	1	Fe	0.00088	142.45	15	<PQL
ICSA3	ICSA	1	Fe	170.14	0.14	15	PASS
ICSAB3	ICSAB	1	Fe	185.04	0.84	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Al	0	12.81	15	PASS
Standard1	ICAL	1	Al	0.05	3.63	15	PASS
Standard2	ICAL	1	Al	1	0.36	15	PASS
Standard3	ICAL	1	Al	2	0.47	15	PASS
Standard4	ICAL	1	Al	5	1.12	15	PASS
Standard5	ICAL	1	Al	7.5	0.25	15	PASS
Standard6	ICAL	1	Al	10	0.22	15	PASS
Standard7	ICAL	1	Al	20	0.065	15	PASS
ICV	ICV	1	Al	10.052	0.13	15	PASS
ICB	ICB	1	Al	-0.0025	95.71	15	<PQL
LLICV	CCV1	1	Al	0.06	3.58	20	PASS
LLICV	CCV1	1	Al	0.049	2.11	20	PASS
ICSA1	ICSA	1	Al	432.17	0.18	15	PASS
ICSAB1	ICSAB	1	Al	537.52	0.53	15	PASS
CCV1	CCV	1	Al	11.031	1.14	15	PASS
CCV1	CCV	1	Al	10.37	0.11	15	PASS
CCB1	CCB	1	Al	-0.0032	46.18	15	<PQL
CCB1	CCB	1	Al	-0.0032	75.88	15	<PQL
CCV2	CCV	1	Al	10.04	0.052	15	PASS
CCB2	CCB	1	Al	-0.0028	44.58	15	<PQL
CCV3	CCV	1	Al	10.17	0.071	15	PASS
CCB3	CCB	1	Al	-0.0038	14.7	15	PASS
ICSA2	ICSA	1	Al	438.08	0.18	15	PASS
ICSAB2	ICSAB	1	Al	548.65	0.4	15	PASS
MB-75186	MBLK	1	Al	-0.0014	82.13	15	<PQL
LCS-75186	LCS	1	Al	10.12	0.16	15	PASS
N037148-008C	SAMP	1	Al	0.018	10.85	15	PASS
N037148-009C	SAMP	1	Al	0.014	5.33	15	PASS
N037148-010C	SAMP	1	Al	0.011	15.98	15	<PQL
CCV4	CCV	1	Al	9.96	0.044	15	PASS
CCB4	CCB	1	Al	-0.0031	35.75	15	<PQL
N037148-011C	SAMP	1	Al	0.03	6.068	15	PASS
N037148-012C	SAMP	1	Al	0.024	3.33	15	PASS
N037176-001E	SAMP	1	Al	1.083	0.066	15	PASS
N037176-001E	SAMP	5	Al	0.22	0.95	15	PASS
N037176-001E-PS	PS	1	Al	11.28	0.2	15	PASS
N037176-001E-MS	MS	1	Al	10.94	0.48	15	PASS
N037176-001E-MSD	MSD	1	Al	11.21	0.46	15	PASS
N037176-002E	SAMP	1	Al	0.28	0.2	15	PASS
CCV5	CCV	1	Al	10.14	0.2	15	PASS
CCB5	CCB	1	Al	0.0097	24.89	15	<PQL
ICSA3	ICSA	1	Al	439.39	0.25	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSAB3	ICSAB	1	Al	532.53	0.28	15	PASS
N037181-001F	SAMP	1	Al	0.1	2.0079	15	PASS
N037225-001F	SAMP	1	Al	0.026	13.24	15	PASS
CCV6	CCV	1	Al	10.008	0.04	15	PASS
CCB6	CCB	1	Al	0.0087	9.91	15	PASS
CCB6	CCB	1	Al	0.0072	38.3	15	<PQL
N037176-002E	SAMP	5	Al	0.051	6.96	15	PASS
N037176-003E	SAMP	5	Al	0.48	0.18	15	PASS
N037176-004E	SAMP	5	Al	0.32	0.82	15	PASS
CCV7	CCV	1	Al	10.28	0.013	15	PASS
CCB7	CCB	1	Al	0.0094	15.084	15	<PQL
N037181-001F	SAMP	5	Al	0.016	31.77	15	<PQL
N037225-001F	SAMP	5	Al	-0.0041	50.46	15	<PQL
CCV8	CCV	1	Al	10.27	0.078	15	PASS
CCB8	CCB	1	Al	0.01	9.57	15	PASS
ICSA4	ICSA	1	Al	440.5	0.29	15	PASS
ICSA4	ICSA	1	Al	469.46	0.11	15	PASS
ICSAB4	ICSAB	1	Al	463.19	0.19	15	PASS
ICSAB4	ICSAB	1	Al	519.3	0.13	15	PASS
N037176-003E	SAMP	5	Al	0.49	0.41	15	PASS
N037176-004E	SAMP	5	Al	0.32	0.72	15	PASS
N037225-001F	SAMP	1	Al	0.02	3.69	15	PASS
N037176-002E	SAMP	5	Al	0.052	2.42	15	PASS
CCV9	CCV	1	Al	10.45	0.065	15	PASS
CCB9	CCB	1	Al	-0.0032	91.12	15	<PQL
ICSA5	ICSA	1	Al	473.87	0.53	15	PASS
ICSAB5	ICSAB	1	Al	526.93	0.046	15	PASS
CalBlk	IBLK	1	B	0	0.53	15	PASS
Standard1	ICAL	1	B	0.1	0.53	15	PASS
Standard3	ICAL	1	B	1	0.24	15	PASS
Standard4	ICAL	1	B	2.5	0.33	15	PASS
Standard5	ICAL	1	B	3.75	0.28	15	PASS
Standard6	ICAL	1	B	5	0.18	15	PASS
Standard7	ICAL	1	B	10	0.24	15	PASS
ICV	ICV	1	B	5.1	0.1	15	PASS
ICB	ICB	1	B	0.045	3.74	15	PASS
LLICV	CCV1	1	B	0.11	0.7	20	PASS
LLICV	CCV1	1	B	0.1	1.13	20	PASS
ICSA1	ICSA	1	B	0.032	16.87	15	<PQL
ICSAB1	ICSAB	1	B	1.099	0.3	15	PASS
CCV1	CCV	1	B	6.031	0.56	15	PASS
CCV1	CCV	1	B	5.49	0.24	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB1	CCB	1	B	0.066	7.12	15	PASS
CCB1	CCB	1	B	0.022	5.34	15	PASS
CCV2	CCV	1	B	5.095	0.21	15	PASS
CCB2	CCB	1	B	0.045	3.62	15	PASS
CCV3	CCV	1	B	5.19	0.36	15	PASS
CCB3	CCB	1	B	0.042	4.4	15	PASS
ICSA2	ICSA	1	B	0.045	2.88	15	PASS
ICSAB2	ICSAB	1	B	1.17	0.39	15	PASS
MB-75186	MBLK	1	B	0.021	3.96	15	PASS
LCS-75186	LCS	1	B	5.1	0.37	15	PASS
N037148-008C	SAMP	1	B	0.15	0.41	15	PASS
N037148-009C	SAMP	1	B	0.15	0.19	15	PASS
N037148-010C	SAMP	1	B	0.15	1.049	15	PASS
CCV4	CCV	1	B	4.93	0.17	15	PASS
CCB4	CCB	1	B	0.042	3.089	15	PASS
N037148-011C	SAMP	1	B	0.15	0.14	15	PASS
N037148-012C	SAMP	1	B	0.14	0.8	15	PASS
N037176-001E	SAMP	1	B	1.27	0.35	15	PASS
N037176-001E	SAMP	5	B	0.32	1.08	15	PASS
N037176-001E-PS	PS	1	B	6.18	0.12	15	PASS
N037176-001E-MS	MS	1	B	6.09	0.73	15	PASS
N037176-001E-MSD	MSD	1	B	6.26	0.41	15	PASS
N037176-002E	SAMP	1	B	1.2	0.077	15	PASS
CCV5	CCV	1	B	5.012	0.3	15	PASS
CCB5	CCB	1	B	0.042	0.88	15	PASS
ICSA3	ICSA	1	B	0.059	3.23	15	PASS
ICSAB3	ICSAB	1	B	1.14	0.27	15	PASS
N037181-001F	SAMP	1	B	1.26	0.69	15	PASS
N037225-001F	SAMP	1	B	0.38	0.19	15	PASS
CCV6	CCV	1	B	5.071	0.11	15	PASS
CCB6	CCB	1	B	0.07	6.0086	15	PASS
CCB6	CCB	1	B	0.047	6.02	15	PASS
N037176-002E	SAMP	5	B	0.29	0.18	15	PASS
N037176-003E	SAMP	5	B	0.46	0.48	15	PASS
N037176-004E	SAMP	5	B	0.47	0.25	15	PASS
CCV7	CCV	1	B	5.2	0.21	15	PASS
CCB7	CCB	1	B	0.03	11.57	15	PASS
N037181-001F	SAMP	5	B	0.33	0.66	15	PASS
N037225-001F	SAMP	5	B	0.11	0.38	15	PASS
CCV8	CCV	1	B	5.2	0.33	15	PASS
CCB8	CCB	1	B	0.025	8.58	15	PASS
ICSA4	ICSA	1	B	0.036	0.98	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA4	ICSA	1	B	0.037	1.22	15	PASS
ICSAB4	ICSAB	1	B	0.96	0.15	15	PASS
ICSAB4	ICSAB	1	B	1.096	0.32	15	PASS
N037176-003E	SAMP	5	B	0.45	0.6	15	PASS
N037176-004E	SAMP	5	B	0.46	0.42	15	PASS
N037225-001F	SAMP	1	B	0.41	0.84	15	PASS
N037176-002E	SAMP	5	B	0.28	0.97	15	PASS
CCV9	CCV	1	B	5.34	0.33	15	PASS
CCB9	CCB	1	B	0.026	7.48	15	PASS
ICSA5	ICSA	1	B	0.044	2.4	15	PASS
ICSAB5	ICSAB	1	B	1.12	0.069	15	PASS
CalBlk	IBLK	1	Ca	0	6.15	15	PASS
Standard1	ICAL	1	Ca	0.2	5.27	15	PASS
Standard2	ICAL	1	Ca	1	4.6	15	PASS
Standard3	ICAL	1	Ca	2	1.47	15	PASS
Standard4	ICAL	1	Ca	5	0.44	15	PASS
Standard5	ICAL	1	Ca	7.5	0.2	15	PASS
Standard6	ICAL	1	Ca	10	0.43	15	PASS
Standard7	ICAL	1	Ca	20	0.38	15	PASS
ICV	ICV	1	Ca	10.16	0.71	15	PASS
ICB	ICB	1	Ca	-0.00072	2712.43	15	<PQL
LLICV	CCV1	1	Ca	0.2	11.34	20	PASS
LLICV	CCV1	1	Ca	0.18	6.12	20	PASS
ICSA1	ICSA	1	Ca	451.25	0.046	15	PASS
ICSAB1	ICSAB	1	Ca	540.41	0.092	15	PASS
CCV1	CCV	1	Ca	10.54	0.94	15	PASS
CCV1	CCV	1	Ca	10.38	0.77	15	PASS
CCB1	CCB	1	Ca	-0.042	33.73	15	<PQL
CCB1	CCB	1	Ca	-0.035	12.98	15	PASS
CCV2	CCV	1	Ca	10.12	1.18	15	PASS
CCB2	CCB	1	Ca	-0.043	47.82	15	<PQL
CCV3	CCV	1	Ca	10.31	1.042	15	PASS
CCB3	CCB	1	Ca	-0.013	157.83	15	<PQL
ICSA2	ICSA	1	Ca	452.59	0.063	15	PASS
ICSAB2	ICSAB	1	Ca	543.44	0.077	15	PASS
MB-75186	MBLK	1	Ca	0.056	53.91	15	<PQL
LCS-75186	LCS	1	Ca	10.023	0.59	15	PASS
N037148-008C	SAMP	1	Ca	66.63	0.45	15	PASS
N037148-009C	SAMP	1	Ca	66.73	0.13	15	PASS
N037148-010C	SAMP	1	Ca	64.21	1.058	15	PASS
CCV4	CCV	1	Ca	10.044	0.25	15	PASS
CCB4	CCB	1	Ca	-0.05	29.66	15	<PQL

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037148-011C	SAMP	1	Ca	66.76	0.37	15	PASS
N037148-012C	SAMP	1	Ca	65.53	0.27	15	PASS
N037176-001E	SAMP	1	Ca	414.08	0.22	15	PASS
N037176-001E	SAMP	5	Ca	82.72	0.68	15	PASS
N037176-001E-PS	PS	1	Ca	395.29	0.13	15	PASS
N037176-001E-MS	MS	1	Ca	405.66	0.48	15	PASS
N037176-001E-MSD	MSD	1	Ca	414.74	0.36	15	PASS
N037176-002E	SAMP	1	Ca	565.09	0.11	15	PASS
CCV5	CCV	1	Ca	10.19	0.85	15	PASS
CCB5	CCB	1	Ca	-0.035	36.52	15	<PQL
ICSA3	ICSA	1	Ca	464	0.57	15	PASS
ICSAB3	ICSAB	1	Ca	552.3	0.097	15	PASS
N037181-001F	SAMP	1	Ca	427.35	0.043	15	PASS
N037225-001F	SAMP	1	Ca	103.89	0.38	15	PASS
CCV6	CCV	1	Ca	10.12	0.71	15	PASS
CCB6	CCB	1	Ca	0.0073	412.85	15	<PQL
CCB6	CCB	1	Ca	-0.0045	616.14	15	<PQL
N037176-002E	SAMP	5	Ca	114.62	0.23	15	PASS
N037176-003E	SAMP	5	Ca	51.86	0.22	15	PASS
N037176-004E	SAMP	5	Ca	53.18	0.18	15	PASS
CCV7	CCV	1	Ca	10.32	0.37	15	PASS
CCB7	CCB	1	Ca	-0.0087	96.9	15	<PQL
N037181-001F	SAMP	5	Ca	89.85	0.61	15	PASS
N037225-001F	SAMP	5	Ca	22.46	0.23	15	PASS
CCV8	CCV	1	Ca	10.31	0.62	15	PASS
CCB8	CCB	1	Ca	-0.015	51.15	15	<PQL
ICSA4	ICSA	1	Ca	457.84	0.12	15	PASS
ICSA4	ICSA	1	Ca	474.96	0.094	15	PASS
ICSAB4	ICSAB	1	Ca	456.08	0.28	15	PASS
ICSAB4	ICSAB	1	Ca	511.11	0.092	15	PASS
N037176-003E	SAMP	5	Ca	52.014	0.18	15	PASS
N037176-004E	SAMP	5	Ca	52.82	0.43	15	PASS
N037225-001F	SAMP	1	Ca	105.22	0.83	15	PASS
N037176-002E	SAMP	5	Ca	114.77	0.37	15	PASS
CCV9	CCV	1	Ca	10.38	0.68	15	PASS
CCB9	CCB	1	Ca	-0.051	19.28	15	<PQL
ICSA5	ICSA	1	Ca	478.27	0.078	15	PASS
ICSAB5	ICSAB	1	Ca	516.8	0.0023	15	PASS
CalBlk	IBLK	1	Fe	0	803.87	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.63	15	PASS
Standard2	ICAL	1	Fe	0.05	1.13	15	PASS
Standard3	ICAL	1	Fe	2	0.045	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
Standard4	ICAL	1	Fe	5	0.033	15	PASS
Standard5	ICAL	1	Fe	7.5	0.076	15	PASS
Standard6	ICAL	1	Fe	10	0.62	15	PASS
Standard7	ICAL	1	Fe	20	0.022	15	PASS
ICV	ICV	1	Fe	10.15	0.23	15	PASS
ICB	ICB	1	Fe	-0.00055	68.3	15	<PQL
LLICV	CCV1	1	Fe	0.027	1.91	20	PASS
LLICV	CCV1	1	Fe	0.02	4.66	20	PASS
ICSA1	ICSA	1	Fe	176.61	0.72	15	PASS
ICSAB1	ICSAB	1	Fe	177.52	0.41	15	PASS
CCV1	CCV	1	Fe	11.56	0.49	15	PASS
CCV1	CCV	1	Fe	10.63	0.33	15	PASS
CCB1	CCB	1	Fe	-0.0006	106.015	15	<PQL
CCB1	CCB	1	Fe	-0.00051	14.76	15	PASS
CCV2	CCV	1	Fe	10.16	0.11	15	PASS
CCB2	CCB	1	Fe	-0.001	7.72	15	PASS
CCV3	CCV	1	Fe	10.33	0.086	15	PASS
CCB3	CCB	1	Fe	-0.0011	4.48	15	PASS
ICSA2	ICSA	1	Fe	179.66	0.19	15	PASS
ICSAB2	ICSAB	1	Fe	185.35	0.39	15	PASS
MB-75186	MBLK	1	Fe	-0.0015	14.14	15	PASS
LCS-75186	LCS	1	Fe	0.1	1.32	15	PASS
N037148-008C	SAMP	1	Fe	0.017	5.058	15	PASS
N037148-009C	SAMP	1	Fe	0.016	1.12	15	PASS
N037148-010C	SAMP	1	Fe	0.091	0.96	15	PASS
CCV4	CCV	1	Fe	10.18	0.087	15	PASS
CCB4	CCB	1	Fe	-0.00012	467.49	15	<PQL
N037148-011C	SAMP	1	Fe	0.035	1.43	15	PASS
N037148-012C	SAMP	1	Fe	0.035	1.91	15	PASS
N037176-001E	SAMP	1	Fe	2.097	0.2	15	PASS
N037176-001E	SAMP	5	Fe	0.49	0.68	15	PASS
N037176-001E-PS	PS	1	Fe	1.84	0.2	15	PASS
N037176-001E-MS	MS	1	Fe	1.91	0.47	15	PASS
N037176-001E-MSD	MSD	1	Fe	1.96	0.41	15	PASS
N037176-002E	SAMP	1	Fe	0.96	0.4	15	PASS
CCV5	CCV	1	Fe	10.48	0.038	15	PASS
CCB5	CCB	1	Fe	0.0064	15.8	15	<PQL
ICSA3	ICSA	1	Fe	177.7	0.35	15	PASS
ICSAB3	ICSAB	1	Fe	183.6	0.35	15	PASS
N037181-001F	SAMP	1	Fe	0.17	0.16	15	PASS
N037225-001F	SAMP	1	Fe	0.033	3.0021	15	PASS
CCV6	CCV	1	Fe	10.2	0.12	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB6	CCB	1	Fe	0.007	9.11	15	PASS
CCB6	CCB	1	Fe	0.0043	29.3	15	<PQL
N037176-002E	SAMP	5	Fe	0.22	0.1	15	PASS
N037176-003E	SAMP	5	Fe	0.86	0.4	15	PASS
N037176-004E	SAMP	5	Fe	0.63	0.38	15	PASS
CCV7	CCV	1	Fe	10.37	0.098	15	PASS
CCB7	CCB	1	Fe	0.0083	18.85	15	<PQL
N037181-001F	SAMP	5	Fe	0.037	3.41	15	PASS
N037225-001F	SAMP	5	Fe	0.00013	156.73	15	<PQL
CCV8	CCV	1	Fe	10.35	0.091	15	PASS
CCB8	CCB	1	Fe	0.0078	12.62	15	PASS
ICSA4	ICSA	1	Fe	177.14	0.25	15	PASS
ICSA4	ICSA	1	Fe	203.97	0.018	15	PASS
ICSAB4	ICSAB	1	Fe	153.4	0.39	15	PASS
ICSAB4	ICSAB	1	Fe	171.94	0.5	15	PASS
N037176-003E	SAMP	5	Fe	0.87	0.33	15	PASS
N037176-004E	SAMP	5	Fe	0.62	0.46	15	PASS
N037225-001F	SAMP	1	Fe	0.03	1.034	15	PASS
N037176-002E	SAMP	5	Fe	0.22	0.69	15	PASS
CCV9	CCV	1	Fe	10.49	0.037	15	PASS
CCB9	CCB	1	Fe	-0.0023	7.76	15	PASS
ICSA5	ICSA	1	Fe	205.75	0.6	15	PASS
ICSAB5	ICSAB	1	Fe	175.06	0.32	15	PASS
CalBlk	IBLK	1	Mg	0	6.17	15	PASS
Standard1	ICAL	1	Mg	0.1	1.63	15	PASS
Standard2	ICAL	1	Mg	1	0.22	15	PASS
Standard3	ICAL	1	Mg	2	0.44	15	PASS
Standard4	ICAL	1	Mg	5	0.13	15	PASS
Standard5	ICAL	1	Mg	7.5	0.19	15	PASS
Standard6	ICAL	1	Mg	10	1.14	15	PASS
Standard7	ICAL	1	Mg	20	0.12	15	PASS
ICV	ICV	1	Mg	10.2	0.55	15	PASS
ICB	ICB	1	Mg	-0.0099	8.43	15	PASS
LLICV	CCV1	1	Mg	0.11	2.26	20	PASS
LLICV	CCV1	1	Mg	0.095	1.8	20	PASS
ICSA1	ICSA	1	Mg	422.45	1.075	15	PASS
ICSAB1	ICSAB	1	Mg	489.95	0.41	15	PASS
CCV1	CCV	1	Mg	12.28	0.71	15	PASS
CCV1	CCV	1	Mg	10.83	0.39	15	PASS
CCB1	CCB	1	Mg	-0.017	2.9	15	PASS
CCB1	CCB	1	Mg	-0.016	3.81	15	PASS
CCV2	CCV	1	Mg	10.24	0.15	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB2	CCB	1	Mg	-0.016	1.83	15	PASS
CCV3	CCV	1	Mg	10.45	0.11	15	PASS
CCB3	CCB	1	Mg	-0.014	14.19	15	PASS
ICSA2	ICSA	1	Mg	431.24	0.22	15	PASS
ICSAB2	ICSAB	1	Mg	519.65	0.37	15	PASS
MB-75186	MBLK	1	Mg	0.0081	51.16	15	<PQL
LCS-75186	LCS	1	Mg	10.79	0.085	15	PASS
N037148-008C	SAMP	1	Mg	23.31	0.13	15	PASS
N037148-009C	SAMP	1	Mg	23.18	0.21	15	PASS
N037148-010C	SAMP	1	Mg	22.32	0.18	15	PASS
CCV4	CCV	1	Mg	10.44	0.083	15	PASS
CCB4	CCB	1	Mg	-0.015	5.64	15	PASS
N037148-011C	SAMP	1	Mg	23.1	0.056	15	PASS
N037148-012C	SAMP	1	Mg	22.44	0.015	15	PASS
N037176-001E	SAMP	1	Mg	37.5	0.23	15	PASS
N037176-001E	SAMP	5	Mg	8.9	0.11	15	PASS
N037176-001E-PS	PS	1	Mg	44.82	0.25	15	PASS
N037176-001E-MS	MS	1	Mg	45.43	0.45	15	PASS
N037176-001E-MSD	MSD	1	Mg	46.65	0.18	15	PASS
N037176-002E	SAMP	1	Mg	70.97	0.14	15	PASS
CCV5	CCV	1	Mg	10.75	0.054	15	PASS
CCB5	CCB	1	Mg	0.004	73.88	15	<PQL
ICSA3	ICSA	1	Mg	423.68	0.28	15	PASS
ICSAB3	ICSAB	1	Mg	512.71	0.38	15	PASS
N037181-001F	SAMP	1	Mg	47.076	0.23	15	PASS
N037225-001F	SAMP	1	Mg	23.4	0.079	15	PASS
CCV6	CCV	1	Mg	10.31	0.15	15	PASS
CCB6	CCB	1	Mg	0.0052	41.66	15	<PQL
CCB6	CCB	1	Mg	0.0009	397.82	15	<PQL
N037176-002E	SAMP	5	Mg	16.69	0.21	15	PASS
N037176-003E	SAMP	5	Mg	4.34	0.25	15	PASS
N037176-004E	SAMP	5	Mg	4.068	0.21	15	PASS
CCV7	CCV	1	Mg	10.4	0.15	15	PASS
CCB7	CCB	1	Mg	0.0027	83.6	15	<PQL
N037181-001F	SAMP	5	Mg	10.85	0.067	15	PASS
N037225-001F	SAMP	5	Mg	5.28	0.15	15	PASS
CCV8	CCV	1	Mg	10.34	0.23	15	PASS
CCB8	CCB	1	Mg	0.005	42.091	15	<PQL
ICSA4	ICSA	1	Mg	420.63	0.24	15	PASS
ICSA4	ICSA	1	Mg	446.66	0.024	15	PASS
ICSAB4	ICSAB	1	Mg	423.47	0.39	15	PASS
ICSAB4	ICSAB	1	Mg	473.91	0.52	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037176-003E	SAMP	5	Mg	4.35	0.39	15	PASS
N037176-004E	SAMP	5	Mg	4.041	0.078	15	PASS
N037225-001F	SAMP	1	Mg	23.079	0.2	15	PASS
N037176-002E	SAMP	5	Mg	16.63	0.18	15	PASS
CCV9	CCV	1	Mg	10.44	0.14	15	PASS
CCB9	CCB	1	Mg	-0.02	2.16	15	PASS
ICSA5	ICSA	1	Mg	451.47	0.69	15	PASS
ICSAB5	ICSAB	1	Mg	484.97	0.36	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190904C

Instrument ID: ICP-02

STANDARD CODE		
Standard1	MWST-190401G,0.5<50mL	MWST-190820D,0.5<50mL
Standard2	MWST-190401L	MWST-190820I
Standard3	MWST-190401Q,5<50mL	MWST-190820N,5<50mL
Standard4	MWST-190401Q,12.5<50mL	MWST-190820N,12.5<50mL
Standard5	MWST-190401Q,15<40mL	MWST-190820N,15<40mL
Standard6	MWST-190401Q,25<50mL	MWST-190820N,25<50mL
Standard7	MWST-190401Q	MWST-190820N
ICV	MWST-190401V	MWST-190820S
CCV	MWST-190401Q,25<50mL	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190401W/X	MWST-190820T/U
Int. Std. (Y)	MSST-190315A	MSST-190708A
PS Spike	MWST-190401D/E/F	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/04/2019	10:18:01 PM
2	Standard1	ICAL	1	09/04/2019	10:22:27 PM
3	Standard2	ICAL	1	09/04/2019	10:26:50 PM
4	Standard3	ICAL	1	09/04/2019	10:31:15 PM
5	Standard4	ICAL	1	09/04/2019	10:35:43 PM
6	Standard5	ICAL	1	09/04/2019	10:40:12 PM
7	Standard6	ICAL	1	09/04/2019	10:44:41 PM
8	Standard7	ICAL	1	09/04/2019	10:49:10 PM
250	ICV	ICV	1	09/04/2019	10:55:13 PM
1	ICB	ICB	1	09/04/2019	11:01:14 PM
2	LLICV	CCV1	1	09/04/2019	11:05:39 PM
9	ICSA1	ICSA	1	09/04/2019	11:10:02 PM
10	ICSAB1	ICSAB	1	09/04/2019	11:16:41 PM
71	MB-75133	MBLK	1	09/04/2019	11:22:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:27:15 PM
71	MB-75133	MBLK	1	09/04/2019	11:35:52 PM
72	LCS-75133	LCS	1	09/04/2019	11:40:16 PM
73	N037118-001B	SAMP	1	09/04/2019	11:44:41 PM
74	N037118-001B	SAMP	5	09/04/2019	11:49:06 PM
75	N037118-001B-PS	PS	1	09/04/2019	11:53:29 PM
76	N037118-001B-MS	MS	1	09/04/2019	11:57:54 PM
77	N037118-001B-MSD	MSD	1	09/05/2019	12:02:19 AM
78	N037118-002B	SAMP	1	09/05/2019	12:06:45 AM
7	CCV1	CCV	1	09/05/2019	12:11:11 AM
1	CCB1	CCB	1	09/05/2019	12:15:39 AM
79	N037118-003B	SAMP	1	09/05/2019	12:20:03 AM
80	N037118-004B	SAMP	1	09/05/2019	12:24:29 AM
81	N037118-005B	SAMP	1	09/05/2019	12:28:55 AM

NS 9/20/2019
for CEI

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
82	N037118-006B	SAMP	1	09/05/2019	12:33:22 AM
83	N037118-007B	SAMP	1	09/05/2019	12:37:48 AM
84	N037118-008B	SAMP	1	09/05/2019	12:42:13 AM
85	N037118-009B	SAMP	1	09/05/2019	12:46:38 AM
86	N037118-010B	SAMP	1	09/05/2019	12:51:03 AM
87	N037118-011B	SAMP	1	09/05/2019	12:55:27 AM
88	N037118-012B	SAMP	1	09/05/2019	12:59:54 AM
7	CCV2	CCV	1	09/05/2019	01:04:19 AM
1	CCB2	CCB	1	09/05/2019	01:08:49 AM
89	N037118-013B	SAMP	1	09/05/2019	01:13:13 AM
90	N037148-001B	SAMP	1	09/05/2019	01:17:38 AM
91	N037148-002B	SAMP	1	09/05/2019	01:22:04 AM
92	N037148-003B	SAMP	1	09/05/2019	01:26:28 AM
93	N037148-004B	SAMP	1	09/05/2019	01:30:53 AM
94	N037148-005B	SAMP	1	09/05/2019	01:35:19 AM
95	N037148-006B	SAMP	1	09/05/2019	01:39:44 AM
96	N037148-007B	SAMP	1	09/05/2019	01:44:09 AM
97	MB-75132	MBLK	1	09/05/2019	01:48:34 AM
98	LCS-75132	LCS	1	09/05/2019	01:52:58 AM
7	CCV3	CCV	1	09/05/2019	01:57:23 AM
1	CCB3	CCB	1	09/05/2019	02:01:51 AM
99	N037118-001C	SAMP	1	09/05/2019	02:06:14 AM
100	N037118-001C	SAMP	5	09/05/2019	02:10:38 AM
101	N037118-001C-PS	PS	1	09/05/2019	02:15:02 AM
102	N037118-001C-MS	MS	1	09/05/2019	02:19:27 AM
103	N037118-001C-MSD	MSD	1	09/05/2019	02:23:52 AM
104	N037118-002C	SAMP	1	09/05/2019	02:28:18 AM
105	N037118-003C	SAMP	1	09/05/2019	02:32:43 AM
106	N037118-004C	SAMP	1	09/05/2019	02:37:08 AM
107	N037118-005C	SAMP	1	09/05/2019	02:41:34 AM
108	N037118-006C	SAMP	1	09/05/2019	02:45:58 AM
7	CCV4	CCV	1	09/05/2019	02:50:22 AM
1	CCB4	CCB	1	09/05/2019	02:54:50 AM
9	ICSA2	ICSA	1	09/05/2019	02:59:11 AM
10	ICSAB2	ICSAB	1	09/05/2019	03:05:49 AM
109	N037118-007C	SAMP	1	09/05/2019	03:11:59 AM
110	N037118-008C	SAMP	1	09/05/2019	03:16:22 AM
111	N037118-009C	SAMP	1	09/05/2019	03:20:47 AM
112	N037118-010C	SAMP	1	09/05/2019	03:25:12 AM
113	N037118-011C	SAMP	1	09/05/2019	03:29:37 AM
114	N037118-012C	SAMP	1	09/05/2019	03:34:02 AM
115	N037118-013C	SAMP	1	09/05/2019	03:38:28 AM
116	N037148-001C	SAMP	1	09/05/2019	03:42:53 AM
117	N037148-002C	SAMP	1	09/05/2019	03:47:18 AM
118	N037148-003C	SAMP	1	09/05/2019	03:51:43 AM
7	CCV5	CCV	1	09/05/2019	03:56:10 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	09/05/2019	04:00:38 AM
119	N037148-004C	SAMP	1	09/05/2019	04:05:00 AM
120	N037148-005C	SAMP	1	09/05/2019	04:09:25 AM
121	N037148-006C	SAMP	1	09/05/2019	04:13:51 AM
122	N037148-007C	SAMP	1	09/05/2019	04:18:15 AM
7	CCV6	CCV	1	09/05/2019	04:22:41 AM
1	CCB6	CCB	1	09/05/2019	04:27:09 AM
9	ICSA3	ICSA	1	09/05/2019	04:31:31 AM
10	ICSAB3	ICSAB	1	09/05/2019	04:38:08 AM

INJECTION LOG: 190909B

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

MWST-190820D,0.5<50mL
MWST-190820I
MWST-190820N,5<50mL
MWST-190820N,12.5<50mL
MWST-190820N,15<40mL
MWST-190820N,25<50mL
MWST-190820N
MWST-190820S
MWST-190820N,25<50mL
MWST-190820T/U
MSST-190708A
MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/09/2019	04:41:18 PM
2	Standard1	ICAL	1	09/09/2019	04:45:40 PM
3	Standard2	ICAL	1	09/09/2019	04:50:03 PM
4	Standard3	ICAL	1	09/09/2019	04:53:57 PM
5	Standard4	ICAL	1	09/09/2019	04:57:54 PM
6	Standard5	ICAL	1	09/09/2019	05:02:51 PM
7	Standard6	ICAL	1	09/09/2019	05:07:48 PM
8	Standard7	ICAL	1	09/09/2019	05:12:46 PM
250	ICV	ICV	1	09/09/2019	05:15:41 PM
1	ICB	ICB	1	09/09/2019	05:27:19 PM
2	LLICV	CCV1	1	09/09/2019	05:44:10 PM
2	LLICV	CCV1	1	09/09/2019	05:58:56 PM
9	ICSA1	ICSA	1	09/09/2019	06:03:19 PM
10	ICSAB1	ICSAB	1	09/09/2019	06:07:25 PM
11	MB-75121	MBLK	1	09/09/2019	06:17:33 PM
12	N037107-002D	SAMP	5	09/09/2019	06:22:16 PM
13	N037107-005D	SAMP	1	09/09/2019	06:26:08 PM
14	N037107-006D	SAMP	1	09/09/2019	06:30:01 PM
15	N037107-007D	SAMP	1	09/09/2019	06:34:55 PM
16	N037107-008D	SAMP	1	09/09/2019	06:39:48 PM
17	N037147-002D	SAMP	1	09/09/2019	06:44:42 PM
18	N037107-002E	SAMP	5	09/09/2019	06:49:36 PM
19	N037107-006E	SAMP	1	09/09/2019	06:53:30 PM
20	N037147-001E	SAMP	1	09/09/2019	06:58:02 PM
7	CCV1	CCV	1	09/09/2019	07:02:57 PM
7	CCV1	CCV	1	09/09/2019	07:07:20 PM
1	CCB1	CCB	1	09/09/2019	07:12:19 PM
1	CCB1	CCB	1	09/09/2019	07:20:11 PM

NS 9/20/2019
for CEI

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
21	N037118-003B	SAMP	1	09/09/2019	07:24:33 PM
22	MB-75308	MBLK	1	09/09/2019	07:28:27 PM
23	LCS-75308	LCS	1	09/09/2019	07:32:26 PM
24	N037355-001A	SAMP	1	09/09/2019	07:37:19 PM
25	N037355-001A	SAMP	5	09/09/2019	07:41:11 PM
26	N037355-001A-PS	PS	1	09/09/2019	07:45:03 PM
27	N037355-001A-MS	MS	1	09/09/2019	07:49:58 PM
28	N037355-001A-MSD	MSD	1	09/09/2019	07:54:52 PM
29	MB-75187	MBLK	1	09/09/2019	07:59:48 PM
30	LCS1-75187	LCS	1	09/09/2019	08:04:12 PM
7	CCV2	CCV	1	09/09/2019	08:09:10 PM
1	CCB2	CCB	1	09/09/2019	08:17:30 PM
31	N037148-008B	SAMP	1	09/09/2019	08:21:53 PM
32	N037148-008B	SAMP	5	09/09/2019	08:25:48 PM
33	N037148-008B-PS	PS	1	09/09/2019	08:29:42 PM
34	N037148-008B-MS1	MS	1	09/09/2019	08:34:40 PM
35	N037148-008B-MSD1	MSD	1	09/09/2019	08:39:36 PM
36	N037148-009B	SAMP	1	09/09/2019	08:44:30 PM
37	N037148-010B	SAMP	1	09/09/2019	08:48:24 PM
38	N037148-011B	SAMP	1	09/09/2019	08:52:18 PM
39	N037148-012B	SAMP	1	09/09/2019	08:56:11 PM
40	N037176-001D	SAMP	1	09/09/2019	09:00:04 PM
7	CCV3	CCV	1	09/09/2019	09:04:57 PM
1	CCB3	CCB	1	09/09/2019	09:09:56 PM
9	ICSA2	ICSA	1	09/09/2019	09:28:33 PM
10	ICSAB2	ICSAB	1	09/09/2019	09:33:42 PM
44	N037181-001E	SAMP	1	09/09/2019	09:59:40 PM
45	N037225-001E	SAMP	1	09/09/2019	10:18:38 PM
46	MB-75186	MBLK	1	09/09/2019	10:23:33 PM
47	LCS-75186	LCS	1	09/09/2019	10:27:57 PM
48	N037148-008C	SAMP	1	09/09/2019	10:32:51 PM
49	N037148-009C	SAMP	1	09/09/2019	10:36:43 PM
50	N037148-010C	SAMP	1	09/09/2019	10:40:34 PM
7	CCV4	CCV	1	09/09/2019	10:44:46 PM
1	CCB4	CCB	1	09/09/2019	10:52:38 PM
51	N037148-011C	SAMP	1	09/09/2019	10:57:01 PM
52	N037148-012C	SAMP	1	09/09/2019	11:00:53 PM
53	N037176-001E	SAMP	1	09/09/2019	11:04:46 PM
54	N037176-001E	SAMP	5	09/09/2019	11:09:40 PM
55	N037176-001E-PS	PS	1	09/09/2019	11:13:34 PM
56	N037176-001E-MS	MS	1	09/09/2019	11:18:29 PM
57	N037176-001E-MSD	MSD	1	09/09/2019	11:23:24 PM
58	N037176-002E	SAMP	1	09/09/2019	11:28:18 PM
7	CCV5	CCV	1	09/10/2019	04:26:03 AM
1	CCB5	CCB	1	09/10/2019	04:47:58 AM
9	ICSA3	ICSA	1	09/10/2019	04:52:21 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB3	ICSAB	1	09/10/2019	04:57:59 AM
61	N037181-001F	SAMP	1	09/10/2019	05:27:15 AM
62	N037225-001F	SAMP	1	09/10/2019	05:32:08 AM
63	MB-75296	MBLK	1	09/10/2019	05:36:59 AM
64	LCS1-75296	LCS	1	09/10/2019	05:41:21 AM
65	N037313-001C	SAMP	1	09/10/2019	05:46:15 AM
66	N037313-001C	SAMP	5	09/10/2019	05:51:08 AM
67	N037313-001C-PS	PS	1	09/10/2019	05:55:03 AM
68	N037313-001C-MS1	MS	1	09/10/2019	05:59:57 AM
69	N037313-001C-MSD1	MSD	1	09/10/2019	06:04:52 AM
7	CCV6	CCV	1	09/10/2019	06:09:48 AM
1	CCB6	CCB	1	09/10/2019	06:14:43 AM
1	CCB6	CCB	1	09/10/2019	06:19:23 AM
70	N037313-002E	SAMP	1	09/10/2019	06:23:43 AM
71	N037314-001B	SAMP	1	09/10/2019	06:28:39 AM
72	N037314-002B	SAMP	1	09/10/2019	06:33:32 AM
73	N037176-002D	SAMP	5	09/10/2019	06:38:25 AM
74	N037176-002E	SAMP	5	09/10/2019	06:43:31 AM
75	N037176-003D	SAMP	5	09/10/2019	06:48:23 AM
76	N037176-003E	SAMP	5	09/10/2019	06:52:16 AM
77	N037176-004D	SAMP	5	09/10/2019	06:56:08 AM
78	N037176-004E	SAMP	5	09/10/2019	07:00:01 AM
79	N037181-001E	SAMP	5	09/10/2019	07:03:53 AM
7	CCV7	CCV	1	09/10/2019	07:07:46 AM
1	CCB7	CCB	1	09/10/2019	07:12:44 AM
80	N037181-001F	SAMP	5	09/10/2019	07:17:05 AM
81	N037225-001F	SAMP	5	09/10/2019	07:20:59 AM
82	N037225-001E	SAMP	5	09/10/2019	07:24:55 AM
7	CCV8	CCV	1	09/10/2019	07:43:38 AM
1	CCB8	CCB	1	09/10/2019	07:48:37 AM
9	ICSA4	ICSA	1	09/10/2019	07:52:58 AM
9	ICSA4	ICSA	1	09/10/2019	08:03:44 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:11:08 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:14:38 AM
73	N037176-002D	SAMP	5	09/10/2019	08:34:18 AM
75	N037176-003D	SAMP	5	09/10/2019	08:39:11 AM
77	N037176-004D	SAMP	5	09/10/2019	08:43:05 AM
45	N037225-001E	SAMP	1	09/10/2019	08:46:58 AM
76	N037176-003E	SAMP	5	09/10/2019	09:05:32 AM
78	N037176-004E	SAMP	5	09/10/2019	09:09:26 AM
62	N037225-001F	SAMP	1	09/10/2019	09:13:18 AM
71	N037314-001B	SAMP	1	09/10/2019	09:18:11 AM
74	N037176-002E	SAMP	5	09/10/2019	09:23:06 AM
7	CCV9	CCV	1	09/10/2019	09:27:58 AM
1	CCB9	CCB	1	09/10/2019	09:32:57 AM
9	ICSA5	ICSA	1	09/10/2019	09:37:19 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB5	ICSAB	1	09/10/2019	09:42:28 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:27:30**
Prep End Date: **8/23/2019 4:00:00 P**
Prep Batch **75132** Prep Code: **3010_W**

Reviewed/ Date: NS 9/20/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**01-12**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75132	Aqueous		25	☐	25	1.000		
MB-75132	Aqueous		25	☐	25	1.000		
N037118-001C	Groundwater	<2	25	☐	25	1.000		
N037118-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037118-001C-MS	Groundwater	<2	25	☐	25	1.000		
N037118-002C	Groundwater	<2	25	☐	25	1.000		
N037118-003C	Groundwater	<2	25	☐	25	1.000		
N037118-004C	Groundwater	<2	25	☐	25	1.000		
N037118-005C	Groundwater	<2	25	☐	25	1.000		
N037118-006C	Groundwater	<2	25	☐	25	1.000		
N037118-007C	Groundwater	<2	25	☐	25	1.000		
N037118-008C	Groundwater	<2	25	☐	25	1.000		
N037118-009C	Groundwater	<2	25	☐	25	1.000		
N037118-010C	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2019 11:27:30**
Prep End Date: **8/23/2019 4:00:00 P**
Prep Batch **75132** Prep Code: **3010_W**

Reviewed/ Date: NS 9/20/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**01-12**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037118-011C	Groundwater	<2	25	☐	25	1.000		
N037118-012C	Groundwater	<2	25	☐	25	1.000		
N037118-013C	Groundwater	<2	25	☐	25	1.000		
N037148-001C	Groundwater	<2	25	☐	25	1.000		
N037148-002C	Groundwater	<2	25	☐	25	1.000		
N037148-003C	Groundwater	<2	25	☐	25	1.000		
N037148-004C	Groundwater	<2	25	☐	25	1.000		
N037148-005C	Groundwater	<2	25	☐	25	1.000		
N037148-006C	Groundwater	<2	25	☐	25	1.000		
N037148-007C	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11304	NITRIC ACID
11333	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/28/2019 9:09:36 A**
Prep End Date: **8/28/2019 1:30:00 P**
Prep Batch **75186** Prep Code: **3010_W**

Reviewed/ Date: NS 9/20/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-15**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75186	Aqueous		25	☐	25	1.000		
MB-75186	Aqueous		25	☐	25	1.000		
N037148-008C	Groundwater	<2	25	☐	25	1.000		
N037148-009C	Groundwater	<2	25	☐	25	1.000		
N037148-010C	Groundwater	<2	25	☐	25	1.000		
N037148-011C	Groundwater	<2	25	☐	25	1.000		
N037148-012C	Groundwater	<2	25	☐	25	1.000		
N037176-001E	Groundwater	<2	25	☐	25	1.000		
N037176-001E-MS	Groundwater	<2	25	☐	25	1.000		
N037176-001E-MS	Groundwater	<2	25	☐	25	1.000		
N037176-002E	Groundwater	<2	25	☐	25	1.000		
N037176-003E	Groundwater	<2	25	☐	25	1.000		
N037176-004E	Groundwater	<2	25	☐	25	1.000		
N037181-001F	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11306	NITRIC ACID
11329	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/28/2019 9:09:36 A**
Prep End Date: **8/28/2019 1:30:00 P**
Prep Batch **75186** Prep Code: **3010_W**

Reviewed/ Date: NS 9/20/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-15**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037225-001F	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11306	NITRIC ACID
11329	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190904C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	09/04/2019	10:18:01 PM	Fe	273.952	227	0.00	mg/L	
Standard1	09/04/2019	10:22:27 PM	Fe	273.952	642	0.0200	mg/L	
Standard2	09/04/2019	10:26:50 PM	Fe	273.952	2782	0.050	mg/L	
Standard3	09/04/2019	10:31:15 PM	Fe	273.952	69970	2.000	mg/L	
Standard4	09/04/2019	10:35:43 PM	Fe	273.952	174507	5.000	mg/L	
Standard5	09/04/2019	10:40:12 PM	Fe	273.952	262065	7.500	mg/L	
Standard6	09/04/2019	10:44:41 PM	Fe	273.952	349932	10.000	mg/L	
Standard7	09/04/2019	10:49:10 PM	Fe	273.952	702701	20.000	mg/L	1.0000

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190909B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Boron								
CalBlk	09/09/2019	04:41:18 PM	B	249.677	6805	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	B	249.677	4855	0.1000	mg/L	
Standard3	09/09/2019	04:53:57 PM	B	249.677	47875	1.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	B	249.677	119619	2.500	mg/L	
Standard5	09/09/2019	05:02:51 PM	B	249.677	179535	3.750	mg/L	
Standard6	09/09/2019	05:07:48 PM	B	249.677	235605	5.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	B	249.677	473588	10.000	mg/L	1.0000
Magnesium								
CalBlk	09/09/2019	04:41:18 PM	Mg	279.077	1126	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Mg	279.077	1935	0.1000	mg/L	
Standard2	09/09/2019	04:50:03 PM	Mg	279.077	19627	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Mg	279.077	39696	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Mg	279.077	93184	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Mg	279.077	138558	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Mg	279.077	178688	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Mg	279.077	353747	20.000	mg/L	0.9998
Aluminum								
CalBlk	09/09/2019	04:41:18 PM	Al	237.312	58	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Al	237.312	465	0.0500	mg/L	
Standard2	09/09/2019	04:50:03 PM	Al	237.312	8825	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Al	237.312	17466	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Al	237.312	43914	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Al	237.312	65946	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Al	237.312	82705	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Al	237.312	164565	20.000	mg/L	0.9997
Calcium								
CalBlk	09/09/2019	04:41:18 PM	Ca	227.546	108	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Ca	227.546	97	0.2000	mg/L	
Standard2	09/09/2019	04:50:03 PM	Ca	227.546	472	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Ca	227.546	967	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Ca	227.546	2463	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Ca	227.546	3651	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Ca	227.546	4823	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Ca	227.546	9711	20.000	mg/L	1.0000
Iron								
CalBlk	09/09/2019	04:41:18 PM	Fe	273.953	-4	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Fe	273.953	878	0.0200	mg/L	
Standard2	09/09/2019	04:50:03 PM	Fe	273.953	3433	0.050	mg/L	
Standard3	09/09/2019	04:53:57 PM	Fe	273.953	77194	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Fe	273.953	191558	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Fe	273.953	284880	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Fe	273.953	370595	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Fe	273.953	733877	20.000	mg/L	0.9999

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9986.707	20	10000	0	99.9	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ZZZZZZ**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	16.527	20	20.00	0	82.6	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503448**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9905.213	20	10000	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503460**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9903.189	20	10000	0	99.0	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503472**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9979.845	20	10000	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503484**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9896.735	20	10000	0	99.0	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9869.618	20	10000	0	98.7	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCV**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9861.773	20	10000	0	98.6	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **ICV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10145.634	20	10000	0	101	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **ZZZZZZ**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507260**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.180	20	20.00	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10629.151	20	10000	0	106	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10156.018	20	10000	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10333.730	20	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10183.943	20	10000	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10484.217	20	10000	0	105	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10194.776	20	10000	0	102	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10370.201	20	10000	0	104	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507351**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10349.223	20	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCV**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10490.518	20	10000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/4/2019**	SeqNo: **3503435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.443695	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.057013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503461**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.070013	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503473**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.161	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.899	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.593	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **CCB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.883	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **ICB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.546229	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.50566	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.019549	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-1.082524	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-0.122665	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507321**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.357	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.294	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	8.310	20									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	7.814	20									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **CCB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.288973	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	490975.853	50	500000	0	98.2	80	120				
Calcium	482097.695	500	500000	0	96.4	80	120				
Iron	172044.933	20	200000	0	86.0	80	120				
Magnesium	464555.890	100	500000	0	92.9	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/4/2019** SeqNo: **3503438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	558087.825	50	500000	0	112	80	120				
Calcium	539864.099	500	500000	0	108	80	120				
Iron	187244.002	20	200000	0	93.6	80	120				
Magnesium	520825.447	100	500000	0	104	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSA** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	488002.179	50	500000	0	97.6	80	120				
Calcium	478001.222	500	500000	0	95.6	80	120				
Iron	170944.688	20	200000	0	85.5	80	120				
Magnesium	462500.949	100	500000	0	92.5	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ICSAB** Batch ID: **R136301** TestNo: **EPA 6010B** Analysis Date: **9/5/2019** SeqNo: **3503487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555227.252	50	500000	0	111	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	535336.022	500	500000	0	107	80	120				
Iron	185764.730	20	200000	0	92.9	80	120				
Magnesium	517525.081	100	500000	0	104	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSA**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	487888.676	50	500000	0	97.6	80	120				
Calcium	478039.662	500	500000	0	95.6	80	120				
Iron	170140.522	20	200000	0	85.1	80	120				
Magnesium	460689.818	100	500000	0	92.1	80	120				

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136301**
Client ID: **ICSAB**	Batch ID: **R136301**	TestNo: **EPA 6010B**		Analysis Date: **9/5/2019**	SeqNo: **3503507**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	555988.214	50	500000	0	111	80	120				
Calcium	536182.813	500	500000	0	107	80	120				
Iron	185044.175	20	200000	0	92.5	80	120				
Magnesium	516232.857	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **ICSA**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	432172.882	50	500000	0	86.4	80	120				
Boron	32.194	100									
Calcium	451248.823	500	500000	0	90.2	80	120				
Iron	176608.945	20	200000	0	88.3	80	120				
Magnesium	422453.611	100	500000	0	84.5	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **ICSAB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537522.587	50	500000	0	108	80	120				
Boron	1098.965	100	1000	0	110	80	120				
Calcium	540411.013	500	500000	0	108	80	120				
Iron	177524.526	20	200000	0	88.8	80	120				
Magnesium	489947.416	100	500000	0	98.0	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **ICSA**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/9/2019**	SeqNo: **3507301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	438080.196	50	500000	0	87.6	80	120				
Boron	45.048	100									
Calcium	452586.666	500	500000	0	90.5	80	120				
Iron	179658.561	20	200000	0	89.8	80	120				
Magnesium	431237.860	100	500000	0	86.2	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136384
Client ID:	ICSAB	Batch ID:	R136384	TestNo:	EPA 6010B			Analysis Date:	9/9/2019	SeqNo:	3507302

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548650.224	50	500000	0	110	80	120				
Boron	1171.131	100	1000	0	117	80	120				
Calcium	543441.252	500	500000	0	109	80	120				
Iron	185348.223	20	200000	0	92.7	80	120				
Magnesium	519646.112	100	500000	0	104	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136384
Client ID:	ICSA	Batch ID:	R136384	TestNo:	EPA 6010B			Analysis Date:	9/10/2019	SeqNo:	3507322

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	439389.151	50	500000	0	87.9	80	120				
Boron	59.422	100									
Calcium	463999.151	500	500000	0	92.8	80	120				
Iron	177701.597	20	200000	0	88.9	80	120				
Magnesium	423680.292	100	500000	0	84.7	80	120				

Sample ID	ICSAB3	SampType:	ICSAB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	136384
Client ID:	ICSAB	Batch ID:	R136384	TestNo:	EPA 6010B			Analysis Date:	9/10/2019	SeqNo:	3507323

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532531.801	50	500000	0	107	80	120				
Boron	1139.626	100	1000	0	114	80	120				
Calcium	552296.183	500	500000	0	110	80	120				
Iron	183598.987	20	200000	0	91.8	80	120				
Magnesium	512710.436	100	500000	0	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

Detect of B in ICSA3 is > 1/2 RL. B is non-target analyte.

NS 9/20/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136384**
Client ID: **ICSA** Batch ID: **R136384** TestNo: **EPA 6010B** Analysis Date: **9/10/2019** SeqNo: **3507354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	469455.949	50	500000	0	93.9	80	120				
Boron	37.479	100									
Calcium	474962.568	500	500000	0	95.0	80	120				
Iron	203968.861	20	200000	0	102	80	120				
Magnesium	446658.290	100	500000	0	89.3	80	120				

Sample ID **ICSAB4** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136384**
Client ID: **ICSAB** Batch ID: **R136384** TestNo: **EPA 6010B** Analysis Date: **9/10/2019** SeqNo: **3507356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	519299.378	50	500000	0	104	80	120				
Boron	1096.405	100	1000	0	110	80	120				
Calcium	511111.484	500	500000	0	102	80	120				
Iron	171943.188	20	200000	0	86.0	80	120				
Magnesium	473905.331	100	500000	0	94.8	80	120				

Sample ID **ICSA5** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136384**
Client ID: **ICSA** Batch ID: **R136384** TestNo: **EPA 6010B** Analysis Date: **9/10/2019** SeqNo: **3507368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	473868.575	50	500000	0	94.8	80	120				
Boron	44.107	100									
Calcium	478274.388	500	500000	0	95.7	80	120				
Iron	205745.822	20	200000	0	103	80	120				
Magnesium	451472.669	100	500000	0	90.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **136384**
Client ID: **ICSAB**	Batch ID: **R136384**	TestNo: **EPA 6010B**		Analysis Date: **9/10/2019**	SeqNo: **3507369**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	526926.600	50	500000	0	105	80	120				
Boron	1119.889	100	1000	0	112	80	120				
Calcium	516800.291	500	500000	0	103	80	120				
Iron	175059.002	20	200000	0	87.5	80	120				
Magnesium	484974.023	100	500000	0	97.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.86	65-125	PASS
Standard2	ICAL	1	1.0002	100.02	65-125	PASS
Standard3	ICAL	1	1	99.88	65-125	PASS
Standard4	ICAL	1	0.98	98.37	65-125	PASS
Standard5	ICAL	1	0.99	98.91	65-125	PASS
Standard6	ICAL	1	0.98	98.015	65-125	PASS
Standard7	ICAL	1	0.95	95.009	65-125	PASS
ICV	ICV	1	0.99	98.5	65-125	PASS
ICB	ICB	1	1	99.95	65-125	PASS
LLICV	CCV1	1	1	99.54	65-125	PASS
ICSA1	ICSA	1	0.99	99.062	65-125	PASS
ICSAB1	ICSAB	1	0.86	86.086	65-125	PASS
CCV1	CCV	1	0.99	99.48	65-125	PASS
CCB1	CCB	1	1.0046	100.46	65-125	PASS
CCV2	CCV	1	1.004	100.4	65-125	PASS
CCB2	CCB	1	1.016	101.55	65-125	PASS
MB-75132	MBLK	1	0.99	99.43	65-125	PASS
LCS-75132	LCS	1	0.93	92.8	65-125	PASS
CCV3	CCV	1	0.99	98.95	65-125	PASS
CCB3	CCB	1	1	99.91	65-125	PASS
N037118-001C	SAMP	1	1.028	102.77	65-125	PASS
N037118-001C	SAMP	5	1.0021	100.21	65-125	PASS
N037118-001C-PS	PS	1	1.029	102.86	65-125	PASS
N037118-001C-MS	MS	1	1.063	106.28	65-125	PASS
N037118-001C-MSD	MSD	1	1.039	103.87	65-125	PASS
N037118-002C	SAMP	1	1.054	105.45	65-125	PASS
N037118-003C	SAMP	1	1.055	105.54	65-125	PASS
N037118-004C	SAMP	1	1.067	106.71	65-125	PASS
N037118-005C	SAMP	1	1.061	106.13	65-125	PASS
N037118-006C	SAMP	1	1.058	105.76	65-125	PASS
CCV4	CCV	1	1.0081	100.81	65-125	PASS
CCB4	CCB	1	1.0094	100.94	65-125	PASS
ICSA2	ICSA	1	1.017	101.72	65-125	PASS
ICSAB2	ICSAB	1	0.88	88.18	65-125	PASS
N037118-007C	SAMP	1	1.036	103.61	65-125	PASS
N037118-008C	SAMP	1	1.057	105.72	65-125	PASS
N037118-009C	SAMP	1	1.055	105.5	65-125	PASS
N037118-010C	SAMP	1	1.056	105.62	65-125	PASS
N037118-011C	SAMP	1	1.049	104.86	65-125	PASS
N037118-012C	SAMP	1	1.041	104.13	65-125	PASS

INTERNAL STANDARD: 190904C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037118-013C	SAMP	1	1.045	104.5	65-125	PASS
N037148-001C	SAMP	1	1.046	104.57	65-125	PASS
N037148-002C	SAMP	1	1.066	106.56	65-125	PASS
N037148-003C	SAMP	1	1.09	109.03	65-125	PASS
CCV5	CCV	1	1.018	101.78	65-125	PASS
CCB5	CCB	1	1.019	101.93	65-125	PASS
N037148-004C	SAMP	1	1.081	108.07	65-125	PASS
N037148-005C	SAMP	1	1.068	106.85	65-125	PASS
N037148-006C	SAMP	1	1.074	107.42	65-125	PASS
N037148-007C	SAMP	1	1.083	108.28	65-125	PASS
CCV6	CCV	1	1.014	101.38	65-125	PASS
CCB6	CCB	1	1.017	101.74	65-125	PASS
ICSA3	ICSA	1	1.022	102.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.055	65-125	PASS

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0061	100.61	65-125	PASS
Standard2	ICAL	1	1.055	105.47	65-125	PASS
Standard3	ICAL	1	1	99.67	65-125	PASS
Standard4	ICAL	1	0.98	98.43	65-125	PASS
Standard5	ICAL	1	0.99	98.73	65-125	PASS
Standard6	ICAL	1	0.98	97.76	65-125	PASS
Standard7	ICAL	1	0.97	96.52	65-125	PASS
ICV	ICV	1	0.98	98.019	65-125	PASS
ICB	ICB	1	0.99	99.21	65-125	PASS
LLICV	CCV1	1	1.0095	100.95	65-125	PASS
LLICV	CCV1	1	0.99	99.38	65-125	PASS
ICSA1	ICSA	1	1.22	121.63	65-125	PASS
ICSAB1	ICSAB	1	0.84	83.9	65-125	PASS
CCV1	CCV	1	0.92	91.61	65-125	PASS
CCV1	CCV	1	0.96	95.87	65-125	PASS
CCB1	CCB	1	1.024	102.38	65-125	PASS
CCB1	CCB	1	1	99.98	65-125	PASS
CCV2	CCV	1	0.99	98.54	65-125	PASS
CCB2	CCB	1	1.0023	100.23	65-125	PASS
CCV3	CCV	1	0.98	98.17	65-125	PASS
CCB3	CCB	1	1	99.99	65-125	PASS
ICSA2	ICSA	1	1.23	122.96	65-125	PASS
ICSAB2	ICSAB	1	0.85	84.59	65-125	PASS
MB-75186	MBLK	1	0.99	99.34	65-125	PASS
LCS-75186	LCS	1	0.91	91.24	65-125	PASS
N037148-008C	SAMP	1	1.072	107.18	65-125	PASS
N037148-009C	SAMP	1	1.065	106.54	65-125	PASS
N037148-010C	SAMP	1	1.061	106.06	65-125	PASS
CCV4	CCV	1	1	99.55	65-125	PASS
CCB4	CCB	1	1.012	101.25	65-125	PASS
N037148-011C	SAMP	1	1.067	106.66	65-125	PASS
N037148-012C	SAMP	1	1.073	107.27	65-125	PASS
N037176-001E	SAMP	1	0.84	84.48	65-125	PASS
N037176-001E	SAMP	5	0.91	90.75	65-125	PASS
N037176-001E-PS	PS	1	0.88	88.085	65-125	PASS
N037176-001E-MS	MS	1	0.86	86.44	65-125	PASS
N037176-001E-MSD	MSD	1	0.84	84.27	65-125	PASS
N037176-002E	SAMP	1	0.81	81.3	65-125	PASS
CCV5	CCV	1	0.96	95.84	65-125	PASS
CCB5	CCB	1	0.99	98.84	65-125	PASS

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
ICSA3	ICSA	1	1.23	123.06	65-125	PASS
ICSAB3	ICSAB	1	0.85	85.24	65-125	PASS
N037181-001F	SAMP	1	0.88	88.16	65-125	PASS
N037225-001F	SAMP	1	1.021	102.08	65-125	PASS
CCV6	CCV	1	1.032	103.25	65-125	PASS
CCB6	CCB	1	1.019	101.93	65-125	PASS
CCB6	CCB	1	1.017	101.7	65-125	PASS
N037176-002E	SAMP	5	0.92	92.019	65-125	PASS
N037176-003E	SAMP	5	0.92	91.66	65-125	PASS
N037176-004E	SAMP	5	0.91	90.94	65-125	PASS
CCV7	CCV	1	1.022	102.17	65-125	PASS
CCB7	CCB	1	1.041	104.14	65-125	PASS
N037181-001F	SAMP	5	0.91	91.023	65-125	PASS
N037225-001F	SAMP	5	0.99	99.045	65-125	PASS
CCV8	CCV	1	1.031	103.07	65-125	PASS
CCB8	CCB	1	1.043	104.32	65-125	PASS
ICSA4	ICSA	1	1.3	129.92	65-125	NR!
ICSA4	ICSA	1	1.21	120.88	65-125	PASS
ICSAB4	ICSAB	1	1.071	107.1	65-125	PASS
ICSAB4	ICSAB	1	0.94	94.18	65-125	PASS
N037176-003E	SAMP	5	0.9	90.18	65-125	PASS
N037176-004E	SAMP	5	0.91	90.51	65-125	PASS
N037225-001F	SAMP	1	1	99.81	65-125	PASS
N037176-002E	SAMP	5	0.9	90.099	65-125	PASS
CCV9	CCV	1	1.02	101.96	65-125	PASS
CCB9	CCB	1	1	99.59	65-125	PASS
ICSA5	ICSA	1	1.19	119.17	65-125	PASS
ICSAB5	ICSAB	1	0.92	92.082	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037148
Test Method: EPA 6010B
Analysis Date: 9/4/2019

Matrix: Groundwater
Batch No.: 75132

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037118-001C DT 5x	Iron	Fe	ug/L	0	NA	35.57993	100.00%	10

Note: NA - Not Applicable

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037148
Test Method: EPA 6010B
Analysis Date: 9/9/2019

Matrix: Groundwater
Batch No.: 75186

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Fe failed.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037176-001E DT 5x	Iron	Fe	ug/L	2444.192	FAIL	2097.074	16.55%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **N037118-001C-PS** SampType: **PS** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136301**
Client ID: **ZZZZZZ** Batch ID: **75132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **9/5/2019** SeqNo: **3503476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.722	20	100.0	35.58	72.1	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **N037176-001E-PS** SampType: **PS** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **136384**
Client ID: **ZZZZZZ** Batch ID: **75186** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **9/9/2019** SeqNo: **3507316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	11279.029	50	10000	1083	102	80	120				
Boron	6184.302	100	5000	1269	98.3	80	120				
Calcium	395293.827	500	10000	414100	-188	80	120				S
Iron	1838.590	20	100.0	2097	-258	80	120				S
Magnesium	44821.888	100	10000	37500	73.2	80	120				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75182
ASSET #: N037148

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/11/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N037148-006B / 008B failed. For rerun.
% RSD of Se in CCV4 failed. However, % Recovery passed criteria.
% RSD of Se and As in LLICV failed. However, % Recovery passed criteria.
% rec of Ba in N037148-001B-PS failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75182
ASSET #: N037148

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/13/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits			X			X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Se rerun

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/16/2019

2nd Level Reviewer NS 9/16/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Barium concentration, in ug/L , in the original sample as follows:

Barium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037148-001B** , the concentration in ug/L is calculated as follows:

Barium , ug/L = 111.717 * 1 *(25 / 25)

Barium , ug/L = 111.717

Reporting results in two significant figures,

Barium , ug/L = 110

NS 9/20/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	17.44	15	<PQL	0.099	18.66	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	8.8	15	PASS	0.55	9.06	15	PASS
Std3-5/50 ppb	ICAL	1	5.0065	1.17	15	PASS	5.17	0.26	15	PASS
Std4-10/100 ppb	ICAL	1	10.0072	1.71	15	PASS	10.17	1.15	15	PASS
Std5-20/200 ppb	ICAL	1	20.16	1.83	15	PASS	19.99	1.33	15	PASS
Std6-40/400 ppb	ICAL	1	39.82	0.33	15	PASS	40.24	0.63	15	PASS
Std7-100/1000 ppb	ICAL	1	99.69	1.51	15	PASS	99.73	0.46	15	PASS
Std8-200/2000 ppb	ICAL	1	200.17	1.72	15	PASS	200.078	2.59	15	PASS
ICV	ICV	1	9.92	2.71	15	PASS	10.46	0.82	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.018	30.54	15	<PQL
LLICV	CCV1	1	1	5.49	20	PASS	0.99	1.25	20	PASS
ICSA1	ICSA	1	0.14	7.16	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.23	1.17	15	PASS	20.56	2.092	15	PASS
LLICV	CCV1	1	0.99	5.57	20	PASS	1.017	7.044	20	PASS
MB-75182	MBLK	1	<0.000	N/A	15	<PQL	0.0074	243.25	15	<PQL
LCS75182	LCS	1	10.011	2.23	15	PASS	10.22	3.24	15	PASS
N037148-001B	SAMP	1	111.72	0.97	15	PASS	0.066	15.87	15	<PQL
N037148-001B	SAMP	5	23.19	1.21	15	PASS	0.032	62.086	15	<PQL
N037148-001B-PS	PS	1	117.73	1.66	15	PASS	10.065	2.87	15	PASS
N037148-001B-MS	MS	1	121.18	1.09	15	PASS	10.11	1.2	15	PASS
N037148-001B-MSD	MSD	1	122.86	1.15	15	PASS	10.16	2.51	15	PASS
N037148-002B	SAMP	1	118.87	1.82	15	PASS	0.21	14.12	15	PASS
N037148-003B	SAMP	1	114.48	1.062	15	PASS	0.051	22.12	15	<PQL
N037148-004B	SAMP	1	113.52	1.23	15	PASS	0.21	0.97	15	PASS
CCV1	CCV	1	20.43	1.0048	15	PASS	20.34	1.52	15	PASS
CCB1	CCB	1	0.023	40.33	15	<PQL	0.016	38.95	15	<PQL
N037148-005B	SAMP	1	114.19	1.76	15	PASS	0.07	36.56	15	<PQL
N037148-006B	SAMP	1	120.33	0.48	15	PASS	0.029	76.19	15	<PQL
N037148-007B	SAMP	1	112.73	1.047	15	PASS	0.032	35.63	15	<PQL
N037148-008B	SAMP	1	112.57	0.42	15	PASS	0.037	9.4	15	PASS
N037148-009B	SAMP	1	110.84	1.19	15	PASS	0.059	44.95	15	<PQL
N037148-010B	SAMP	1	113.069	1.72	15	PASS	0.033	130.72	15	<PQL
N037148-011B	SAMP	1	114.061	0.11	15	PASS	0.044	86.76	15	<PQL
N037148-012B	SAMP	1	118.27	1.032	15	PASS	0.039	19.9	15	<PQL
N037178-001A	SAMP	1	80.49	0.84	15	PASS	0.52	9.93	15	PASS
N037178-003A	SAMP	1	75.25	0.79	15	PASS	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.9	0.38	15	PASS	19.67	0.79	15	PASS
CCB2	CCB	1	0.0048	66.98	15	<PQL	<0.000	N/A	15	<PQL
N037180-001A	SAMP	1	197.59	0.97	15	PASS	<0.000	N/A	15	<PQL
N037180-003A	SAMP	1	223.77	2.88	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037184-001A	SAMP	1	157.41	4.71	15	PASS	<0.000	N/A	15	<PQL
N037186-001A	SAMP	1	178.53	8.55	15	PASS	<0.000	N/A	15	<PQL
N037180-001A	SAMP	10	21.46	1.2	15	PASS	<0.000	N/A	15	<PQL
N037180-003A	SAMP	10	21.86	0.75	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.89	1.57	15	PASS	19.57	1.37	15	PASS
CCB3	CCB	1	0.0053	183.035	15	<PQL	0.0046	258.24	15	<PQL
N037184-001A	SAMP	5	29.6	0.6	15	PASS	<0.000	N/A	15	<PQL
N037186-001A	SAMP	10	17.07	1.25	15	PASS	<0.000	N/A	15	<PQL
N037148-001B	SAMP	1	116.34	0.99	15	PASS	0.052	28.61	15	<PQL
N037148-002B	SAMP	1	121.56	0.8	15	PASS	0.15	13.16	15	PASS
N037148-003B	SAMP	1	118.49	0.53	15	PASS	0.076	20.73	15	<PQL
N037148-005B	SAMP	1	117.72	0.84	15	PASS	0.048	40.34	15	<PQL
N037148-006B	SAMP	1	122.087	0.41	15	PASS	0.019	147.16	15	<PQL
N037148-007B	SAMP	1	116.39	1.14	15	PASS	0.039	16.5	15	<PQL
N037148-008B	SAMP	1	114.48	0.46	15	PASS	0.045	5.14	15	PASS
CCV4	CCV	1	21.092	0.62	15	PASS	19.57	0.69	15	PASS
CCB4	CCB	1	0.019	31.68	15	<PQL	0.029	64.62	15	<PQL
N037148-009B	SAMP	1	112.017	1.69	15	PASS	0.075	26.39	15	<PQL
N037148-012B	SAMP	1	120.7	1.21	15	PASS	0.041	3.53	15	PASS
N037148-001B	SAMP	1	115.26	0.64	15	PASS	0.055	16.96	15	<PQL
N037148-002B	SAMP	1	120.47	1.13	15	PASS	0.12	28.61	15	<PQL
N037148-005B	SAMP	1	117.43	1.19	15	PASS	0.051	28.51	15	<PQL
N037148-006B	SAMP	1	122.52	0.5	15	PASS	0.024	48.48	15	<PQL
N037148-007B	SAMP	1	115.11	0.4	15	PASS	0.035	47.58	15	<PQL
N037148-008B	SAMP	1	115.98	0.51	15	PASS	0.04	86.81	15	<PQL
N037148-009B	SAMP	1	113.57	1.33	15	PASS	0.072	9.75	15	PASS
N037148-012B	SAMP	1	121.89	1.023	15	PASS	0.045	7.6	15	PASS
CCV5	CCV	1	21.13	1.25	15	PASS	19.42	1.29	15	PASS
CCB5	CCB	1	0.054	7.42	15	PASS	0.02	30.77	15	<PQL
ICSA2	ICSA	1	0.19	8.55	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.61	1.012	15	PASS	20.23	0.64	15	PASS
N037148-001B	SAMP	1	114.42	0.69	15	PASS	0.066	17.6	15	<PQL
N037148-006B	SAMP	1	121.22	0.74	15	PASS	0.0061	259.41	15	<PQL
N037148-008B	SAMP	1	113.14	0.61	15	PASS	0.032	67.29	15	<PQL
N037148-009B	SAMP	1	112.27	0.31	15	PASS	0.062	26.053	15	<PQL
N037148-001B	SAMP	1	113.41	1	15	PASS	0.046	32.47	15	<PQL
N037148-006B	SAMP	1	122.55	1.3	15	PASS	0.016	70.65	15	<PQL
N037148-008B	SAMP	1	114.15	1.12	15	PASS	0.025	101.89	15	<PQL
N037148-009B	SAMP	1	111.66	1.38	15	PASS	0.064	16.32	15	<PQL
N037148-001B	SAMP	1	114.79	1.32	15	PASS	0.055	12.051	15	PASS
N037148-006B	SAMP	1	122.18	0.85	15	PASS	0.013	116.95	15	<PQL

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCV6	CCV	1	21.042	1.056	15	PASS	19.78	0.73	15	PASS
CCB6	CCB	1	0.0036	183.32	15	<PQL	0.015	63.64	15	<PQL
N037148-009B	SAMP	1	107.79	0.75	15	PASS	0.072	18.13	15	<PQL
N037148-009B	SAMP	1	109.39	0.69	15	PASS	0.096	10.5	15	PASS
N037148-006B	SAMP	1	117.91	0.89	15	PASS	0.018	64.1	15	<PQL
CCV7	CCV	1	20.62	1.14	15	PASS	19.88	0.93	15	PASS
CCB7	CCB	1	0.01	35.39	15	<PQL	0.0093	173.94	15	<PQL
ICSA3	ICSA	1	0.18	1.38	15	PASS	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	21.41	1.4	15	PASS	20.1	1.51	15	PASS

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]				
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment	
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL	
Std1-0.1/1 ppb	ICAL	1	0.1	5.39	15	PASS	0.12	23.47	15	NR!	
Std2-0.5/5 ppb	ICAL	1	0.53	4.95	15	PASS	0.51	2.79	15	PASS	
Std3-5/50 ppb	ICAL	1	5.21	2.6	15	PASS	5.37	10.61	15	PASS	
Std4-10/100 ppb	ICAL	1	10.14	1.91	15	PASS	10.59	5.0074	15	PASS	
Std5-20/200 ppb	ICAL	1	19.9	0.84	15	PASS	21.21	2.72	15	PASS	
Std6-40/400 ppb	ICAL	1	40.19	2.19	15	PASS	40.95	1.8	15	PASS	
Std7-100/1000 ppb	ICAL	1	99.4	1.39	15	PASS	98.76	1.48	15	PASS	
Std8-200/2000 ppb	ICAL	1	200.26	2.8	15	PASS	200.27	0.46	15	PASS	
ICV	ICV	1	104.23	0.35	15	PASS	10.18	1.23	15	PASS	
ICB	ICB	1	0.031	66.2	15	<PQL	<0.000	N/A	15	<PQL	
LLICV	CCV1	1	0.53	7.74	20	PASS	0.1	27.27	20	~~NR!~~	FAIL
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL	
ICSAB1	ICSAB	1	18.71	1.65	15	PASS	21.35	2.55	15	PASS	
LLICV	CCV1	1	0.6	15.89	20	PASS	0.14	14.19	20	PASS	
MB-75182	MBLK	1	0.017	34.56	15	<PQL	0.017	363.82	15	<PQL	
LCS75182	LCS	1	105.13	0.23	15	PASS	10.2	0.86	15	PASS	
N037148-001B	SAMP	1	<0.000	N/A	15	<PQL	2.4	3.4	15	PASS	
N037148-001B	SAMP	5	<0.000	N/A	15	<PQL	0.54	14.042	15	PASS	
N037148-001B-PS	PS	1	101.88	0.97	15	PASS	12.44	1.39	15	PASS	
N037148-001B-MS	MS	1	100.85	0.96	15	PASS	13.051	1.76	15	PASS	
N037148-001B-MSD	MSD	1	101.37	2.043	15	PASS	12.75	2.59	15	PASS	
N037148-002B	SAMP	1	<0.000	N/A	15	<PQL	2.38	10.44	15	PASS	
N037148-003B	SAMP	1	2.57	6.49	15	PASS	2.31	4.36	15	PASS	
N037148-004B	SAMP	1	5.54	3.76	15	PASS	2.3	4.049	15	PASS	
CCV1	CCV	1	20.4	1.67	15	PASS	20.26	2.75	15	PASS	
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.016	144.77	15	<PQL	
N037148-005B	SAMP	1	<0.000	N/A	15	<PQL	2.35	1.56	15	PASS	
N037148-006B	SAMP	1	<0.000	N/A	15	<PQL	2.38	4.81	15	PASS	
N037148-007B	SAMP	1	<0.000	N/A	15	<PQL	2.21	2.76	15	PASS	
N037148-008B	SAMP	1	<0.000	N/A	15	<PQL	2.2	9.17	15	PASS	
N037148-009B	SAMP	1	<0.000	N/A	15	<PQL	2.17	3.28	15	PASS	
N037148-010B	SAMP	1	<0.000	N/A	15	<PQL	2.34	3.33	15	PASS	
N037148-011B	SAMP	1	<0.000	N/A	15	<PQL	2.27	5.17	15	PASS	
N037148-012B	SAMP	1	12.92	2.18	15	PASS	2.34	6.78	15	PASS	
N037178-001A	SAMP	1	41.023	1.53	15	PASS	12.27	1.67	15	PASS	
N037178-003A	SAMP	1	30.13	1.4	15	PASS	5.16	2.29	15	PASS	
CCV2	CCV	1	20.6	0.42	15	PASS	20.62	2.52	15	PASS	
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.01	335.55	15	<PQL	
N037180-001A	SAMP	1	1214.18	1.46	15	PASS	1.26	10.26	15	PASS	
N037180-003A	SAMP	1	1522.64	0.81	15	PASS	2.13	4.68	15	PASS	

NS 9/20/2019

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037184-001A	SAMP	1	471.8	0.71	15	PASS	1.6	5.44	15	PASS
N037186-001A	SAMP	1	1149.078	1.3	15	PASS	1.92	5.26	15	PASS
N037180-001A	SAMP	10	124.069	1.54	15	PASS	0.079	61.17	15	<PQL
N037180-003A	SAMP	10	150.6	0.71	15	PASS	0.12	22.36	15	NR!
CCV3	CCV	1	20.096	1.8	15	PASS	20.27	1.097	15	PASS
CCB3	CCB	1	0.06	31.15	15	<PQL	0.027	141.55	15	<PQL
N037184-001A	SAMP	5	103.54	0.7	15	PASS	0.27	20.38	15	NR!
N037186-001A	SAMP	10	112.87	0.9	15	PASS	0.15	26.54	15	NR!
N037148-001B	SAMP	1	<0.000	N/A	15	<PQL	2.4	4.91	15	PASS
N037148-002B	SAMP	1	<0.000	N/A	15	<PQL	2.52	5.086	15	PASS
N037148-003B	SAMP	1	2.47	8.33	15	PASS	2.34	1.65	15	PASS
N037148-005B	SAMP	1	<0.000	N/A	15	<PQL	2.37	7.76	15	PASS
N037148-006B	SAMP	1	<0.000	N/A	15	<PQL	2.4	0.9	15	PASS
N037148-007B	SAMP	1	<0.000	N/A	15	<PQL	2.37	0.97	15	PASS
N037148-008B	SAMP	1	<0.000	N/A	15	<PQL	2.32	5.31	15	PASS
CCV4	CCV	1	19.86	0.8	15	PASS	19.82	3.14	15	PASS
CCB4	CCB	1	0.031	109.59	15	<PQL	0.048	134.92	15	<PQL
N037148-009B	SAMP	1	<0.000	N/A	15	<PQL	2.18	5.36	15	PASS
N037148-012B	SAMP	1	12.49	0.83	15	PASS	2.26	2.98	15	PASS
N037148-001B	SAMP	1	<0.000	N/A	15	<PQL	2.31	2.63	15	PASS
N037148-002B	SAMP	1	<0.000	N/A	15	<PQL	2.44	5.27	15	PASS
N037148-005B	SAMP	1	<0.000	N/A	15	<PQL	2.34	3.2	15	PASS
N037148-006B	SAMP	1	<0.000	N/A	15	<PQL	2.6	4.36	15	PASS
N037148-007B	SAMP	1	<0.000	N/A	15	<PQL	2.34	4.75	15	PASS
N037148-008B	SAMP	1	<0.000	N/A	15	<PQL	2.31	4.74	15	PASS
N037148-009B	SAMP	1	<0.000	N/A	15	<PQL	2.34	6.41	15	PASS
N037148-012B	SAMP	1	12.77	3.18	15	PASS	2.41	1.52	15	PASS
CCV5	CCV	1	20.25	2.27	15	PASS	20.28	1.61	15	PASS
CCB5	CCB	1	0.061	34.37	15	<PQL	0.018	107.018	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	18.85	2.76	15	PASS	21.21	1.16	15	PASS
N037148-001B	SAMP	1	<0.000	N/A	15	<PQL	2.4	0.96	15	PASS
N037148-006B	SAMP	1	<0.000	N/A	15	<PQL	2.42	7.13	15	PASS
N037148-008B	SAMP	1	<0.000	N/A	15	<PQL	2.32	11.61	15	PASS
N037148-009B	SAMP	1	<0.000	N/A	15	<PQL	2.24	5.81	15	PASS
N037148-001B	SAMP	1	<0.000	N/A	15	<PQL	2.28	5.67	15	PASS
N037148-006B	SAMP	1	<0.000	N/A	15	<PQL	2.35	5.88	15	PASS
N037148-008B	SAMP	1	<0.000	N/A	15	<PQL	2.27	4.83	15	PASS
N037148-009B	SAMP	1	<0.000	N/A	15	<PQL	2.23	6.81	15	PASS
N037148-001B	SAMP	1	<0.000	N/A	15	<PQL	2.48	9.73	15	PASS
N037148-006B	SAMP	1	<0.000	N/A	15	<PQL	2.52	1.9	15	PASS

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCV6	CCV	1	20.24	0.68	15	PASS	20.34	1.89	15	PASS
CCB6	CCB	1	0.0092	105.59	15	<PQL	0.043	147.34	15	<PQL
N037148-009B	SAMP	1	<0.000	N/A	15	<PQL	2.24	7.069	15	PASS
N037148-009B	SAMP	1	<0.000	N/A	15	<PQL	2.24	3.0091	15	PASS
N037148-006B	SAMP	1	<0.000	N/A	15	<PQL	2.54	5.031	15	PASS
CCV7	CCV	1	20.26	1.47	15	PASS	19.98	1.83	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.029	55.88	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.08	0.8	15	PASS	21.63	4.99	15	PASS

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.24	48.91	15	<PQL	0.085	15.97	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.56	54.49	15	NR!	0.5	5.18	15	PASS
Std3-5/50 ppb	ICAL	1	5.086	11.5	15	PASS	5.013	1.096	15	PASS
Std4-10/100 ppb	ICAL	1	11.36	5.84	15	PASS	10.2	2.21	15	PASS
Std5-20/200 ppb	ICAL	1	20.91	7.65	15	PASS	20.11	1.1	15	PASS
Std6-40/400 ppb	ICAL	1	41.54	2.41	15	PASS	40.17	1.022	15	PASS
Std7-100/1000 ppb	ICAL	1	99.062	1.83	15	PASS	99.44	0.53	15	PASS
Std8-200/2000 ppb	ICAL	1	208.66	1.59	15	PASS	200.22	0.078	15	PASS
ICV	ICV	1	10.75	12.57	15	PASS	10.1	2.16	15	PASS
ICB	ICB	1	0.024	173.21	15	<PQL	0.081	31.24	15	<PQL
LLICV	CCV1	1	0.96	30.85	20	NR!	0.46	5.85	20	PASS
ICSA1	ICSA	1	0.064	99.66	15	<PQL	0.047	50.23	15	<PQL
ICSAB1	ICSAB	1	22.19	2.32	15	PASS	22.24	2.58	15	PASS
LLICV	CCV1	1	0.58	48.041	20	NR!	0.41	15.76	20	PASS
MB-75182	MBLK	1	0	N/A	15	<PQL	0.02	80.17	15	<PQL
LCS75182	LCS	1	10.17	8.0074	15	PASS	9.94	2.15	15	PASS
N037148-001B	SAMP	1	1.62	19.74	15	NR!	4.47	3.55	15	PASS
N037148-001B	SAMP	5	0.41	36.11	15	<PQL	0.89	5.69	15	PASS
N037148-001B-PS	PS	1	12.58	0.76	15	PASS	15.5	1.29	15	PASS
N037148-001B-MS	MS	1	11.45	13.89	15	PASS	15.66	2.026	15	PASS
N037148-001B-MSD	MSD	1	10.94	15.024	15	NR!	15.59	1.5	15	PASS
N037148-002B	SAMP	1	1.42	33.91	15	NR!	4.84	3.87	15	PASS
N037148-003B	SAMP	1	1.35	21.72	15	NR!	4.59	2.72	15	PASS
N037148-004B	SAMP	1	1.65	13.25	15	PASS	4.47	1.25	15	PASS
CCV1	CCV	1	19.98	5.37	15	PASS	19.87	1.33	15	PASS
CCB1	CCB	1	0.021	173.21	15	<PQL	0.11	16.033	15	<PQL
N037148-005B	SAMP	1	1.37	45.53	15	NR!	4.57	3.7	15	PASS
N037148-006B	SAMP	1	1.67	42.17	15	NR!	4.72	3.47	15	PASS
N037148-007B	SAMP	1	1.55	16.65	15	NR!	4.58	4.097	15	PASS
N037148-008B	SAMP	1	1.74	34.8	15	NR!	4.58	3.32	15	PASS
N037148-009B	SAMP	1	1.46	18.15	15	NR!	4.4	3.96	15	PASS
N037148-010B	SAMP	1	1.46	5.46	15	PASS	4.41	1.59	15	PASS
N037148-011B	SAMP	1	1.41	9.43	15	PASS	4.63	2.54	15	PASS
N037148-012B	SAMP	1	1.35	20.35	15	NR!	4.53	0.85	15	PASS
N037178-001A	SAMP	1	1.08	9.83	15	PASS	48.9	1.11	15	PASS
N037178-003A	SAMP	1	0.68	39.75	15	NR!	104.87	0.14	15	PASS
CCV2	CCV	1	18.95	7.11	15	PASS	20.45	0.93	15	PASS
CCB2	CCB	1	0.02	173.21	15	<PQL	0.18	16.5	15	<PQL
N037180-001A	SAMP	1	0.64	17.39	15	NR!	75.21	1.99	15	PASS
N037180-003A	SAMP	1	0.81	8.99	15	PASS	200.5	1.45	15	PASS

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037184-001A	SAMP	1	0.9	19.022	15	NR!	280.53	0.2	15	PASS
N037186-001A	SAMP	1	0.72	30.87	15	NR!	235.014	0.077	15	PASS
N037180-001A	SAMP	10	0.1	91.39	15	<PQL	7.83	3.82	15	PASS
N037180-003A	SAMP	10	0	N/A	15	<PQL	20.8	1.18	15	PASS
CCV3	CCV	1	20.15	1.63	15	PASS	20.19	1.052	15	PASS
CCB3	CCB	1	0.058	100.3	15	<PQL	0.15	4.77	15	PASS
N037184-001A	SAMP	5	0.069	100.24	15	<PQL	58.39	0.72	15	PASS
N037186-001A	SAMP	10	0.27	57.77	15	<PQL	24.14	2.35	15	PASS
N037148-001B	SAMP	1	1.26	17.45	15	NR!	4.82	0.89	15	PASS
N037148-002B	SAMP	1	1.52	15.82	15	NR!	4.64	1.18	15	PASS
N037148-003B	SAMP	1	1.59	9.35	15	PASS	4.71	2.046	15	PASS
N037148-005B	SAMP	1	1.53	24.84	15	NR!	4.64	1.91	15	PASS
N037148-006B	SAMP	1	1.28	16.15	15	NR!	4.75	3.24	15	PASS
N037148-007B	SAMP	1	1.51	19.043	15	NR!	4.51	4.87	15	PASS
N037148-008B	SAMP	1	1.98	17.79	15	NR!	4.51	3.0062	15	PASS
CCV4	CCV	1	18.71	16.12	15	NR!	20.51	1.52	15	PASS
CCB4	CCB	1	0.079	86.6	15	<PQL	0.12	19.46	15	<PQL
N037148-009B	SAMP	1	1.57	22.57	15	NR!	4.48	2.96	15	PASS
N037148-012B	SAMP	1	1.46	25.046	15	NR!	4.59	2.58	15	PASS
N037148-001B	SAMP	1	1.58	21.63	15	NR!	4.49	4.19	15	PASS
N037148-002B	SAMP	1	1.57	7.37	15	PASS	4.76	3.28	15	PASS
N037148-005B	SAMP	1	1.46	8.092	15	PASS	4.61	2.4	15	PASS
N037148-006B	SAMP	1	1.76	20.45	15	NR!	4.54	3.33	15	PASS
N037148-007B	SAMP	1	1.74	8.83	15	PASS	4.44	2.13	15	PASS
N037148-008B	SAMP	1	1.43	18.9	15	NR!	4.52	2.82	15	PASS
N037148-009B	SAMP	1	1.79	22.43	15	NR!	4.3	2.43	15	PASS
N037148-012B	SAMP	1	1.58	9.41	15	PASS	4.54	5.22	15	PASS
CCV5	CCV	1	19.9	8.26	15	PASS	20.048	1.11	15	PASS
CCB5	CCB	1	0.019	173.21	15	<PQL	0.11	19.67	15	<PQL
ICSA2	ICSA	1	0.054	99.8	15	<PQL	0.053	31.14	15	<PQL
ICSAB2	ICSAB	1	21.85	4	15	PASS	22.89	1.17	15	PASS
N037148-001B	SAMP	1	1.55	22.52	15	NR!	4.5	2.68	15	PASS
N037148-006B	SAMP	1	1.5	22.3	15	NR!	4.85	2.57	15	PASS
N037148-008B	SAMP	1	1.54	27.15	15	NR!	4.63	1.61	15	PASS
N037148-009B	SAMP	1	1.52	25.14	15	NR!	4.33	2.45	15	PASS
N037148-001B	SAMP	1	1.55	25.64	15	NR!	4.62	0.4	15	PASS
N037148-006B	SAMP	1	1.69	24.68	15	NR!	4.82	2.58	15	PASS
N037148-008B	SAMP	1	1.37	24.6	15	NR!	4.57	2.81	15	PASS
N037148-009B	SAMP	1	1.36	42.0085	15	NR!	4.33	5.5	15	PASS
N037148-001B	SAMP	1	1.61	13.018	15	PASS	4.54	4.42	15	PASS
N037148-006B	SAMP	1	2.067	27.71	15	NR!	4.82	1.67	15	PASS

PERCENT RSD SUMMARY: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCV6	CCV	1	19.81	1.4	15	PASS	20.034	1.28	15	PASS
CCB6	CCB	1	0	N/A	15	<PQL	0.076	18.64	15	<PQL
N037148-009B	SAMP	1	1.65	14.27	15	PASS	4.29	1.73	15	PASS
N037148-009B	SAMP	1	1.65	24.99	15	NR!	4.29	3.85	15	PASS
N037148-006B	SAMP	1	1.81	25.059	15	NR!	4.63	1.1	15	PASS
CCV7	CCV	1	19.35	3.83	15	PASS	20.11	0.25	15	PASS
CCB7	CCB	1	0.063	99.84	15	<PQL	0.11	24.61	15	<PQL
ICSA3	ICSA	1	0.02	173.21	15	<PQL	0.043	10.091	15	PASS
ICSAB3	ICSAB	1	19.66	1.94	15	PASS	22.46	2.9	15	PASS

PERCENT RSD SUMMARY: 190913A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.083	89.78	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.56	9.38	15	PASS
Std3-5/50 ppb	ICAL	1	5.26	11.82	15	PASS
Std4-10/100 ppb	ICAL	1	10.28	5.35	15	PASS
Std5-20/200 ppb	ICAL	1	19.73	4.75	15	PASS
Std6-40/400 ppb	ICAL	1	40.95	4.017	15	PASS
Std7-100/1000 ppb	ICAL	1	98.68	2.34	15	PASS
Std8-200/2000 ppb	ICAL	1	200.48	1.99	15	PASS
ICV	ICV	1	10.4	4.3	15	PASS
ICB	ICB	1	0.038	173.21	15	<PQL
LLICV	CCV1	1	0.53	75.61	20	NR!
ICSA1	ICSA	1	0.11	55.88	15	<PQL
ICSAB1	ICSAB	1	19.59	0.61	15	PASS
LLICV	CCV1	1	0.5	49.087	20	<PQL
N037148-006B	SAMP	1	1.3	33.46	15	NR!
N037148-008B	SAMP	1	1.44	6.74	15	PASS
N037148-006B	SAMP	1	1.37	18.68	15	NR!
N037148-006B	SAMP	1	1.61	11.8	15	PASS
CCV1	CCV	1	20.85	7.69	15	PASS
CCB1	CCB	1	0.025	86.74	15	<PQL
CCV2	CCV	1	19.64	2.83	15	PASS
CCB2	CCB	1	0.17	52.29	15	<PQL
CCV3	CCV	1	20.43	2.88	15	PASS
CCB3	CCB	1	0.049	173.21	15	<PQL
ICSA2	ICSA	1	0.15	15.0053	15	<PQL
ICSAB2	ICSAB	1	20.038	8.32	15	PASS
CCV4	CCV	1	19.85	9.45	15	PASS
CCB4	CCB	1	0.11	87.015	15	<PQL
CCV5	CCV	1	19.74	3.93	15	PASS
CCB5	CCB	1	0.096	57.6	15	<PQL
CCV6	CCV	1	19.46	5.5	15	PASS
CCB6	CCB	1	0.058	91.56	15	<PQL
ICSA3	ICSA	1	0.029	173.21	15	<PQL
ICSAB3	ICSAB	1	19.93	7.53	15	PASS
CCV7	CCV	1	20.26	11.2	15	PASS
CCB7	CCB	1	0.036	1.41	15	PASS
CCV8	CCV	1	19.71	11.97	15	PASS
CCB8	CCB	1	0.039	98.58	15	<PQL
ICSA4	ICSA	1	0.025	173.21	15	<PQL
ICSAB4	ICSAB	1	21.49	3.78	15	PASS

PERCENT RSD SUMMARY: 190913A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
CCV9	CCV	1	20.58	8.58	15	PASS
CCB9	CCB	1	0.13	33.63	15	<PQL
CCV10	CCV	1	21.23	4.61	15	PASS
CCB10	CCB	1	0.073	124.22	15	<PQL
ICSA5	ICSA	1	0.013	173.21	15	<PQL
ICSAB5	ICSAB	1	22.1	2.17	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190911B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0911001.D	RINSE	RINSE	1	09/11/19 1:56 PM
B0911002.D	Cal Blank	IBLK	1	09/11/19 2:01 PM
B0911003.D	Std1-0.1/1 ppb	ICAL	1	09/11/19 2:05 PM
B0911004.D	Std2-0.5/5 ppb	ICAL	1	09/11/19 2:10 PM
B0911005.D	Std3-5/50 ppb	ICAL	1	09/11/19 2:15 PM
B0911006.D	Std4-10/100 ppb	ICAL	1	09/11/19 2:19 PM
B0911007.D	Std5-20/200 ppb	ICAL	1	09/11/19 2:24 PM
B0911008.D	Std6-40/400 ppb	ICAL	1	09/11/19 2:29 PM
B0911009.D	Std7-100/1000 ppb	ICAL	1	09/11/19 2:34 PM
B0911010.D	Std8-200/2000 ppb	ICAL	1	09/11/19 2:39 PM
B0911011.D	ICV	ICV	1	09/11/19 3:00 PM
B0911012.D	ICB	ICB	1	09/11/19 3:04 PM
B0911013.D	LLICV	CCV1	1	09/11/19 3:09 PM
B0911014.D	ICSA1	ICSA	1	09/11/19 3:14 PM
B0911015.D	ICSAB1	ICSAB	1	09/11/19 3:18 PM
B0911016.D	LLICV	CCV1	1	09/11/19 3:23 PM
B0911017.D	MB-75182	MBLK	1	09/11/19 3:28 PM
B0911018.D	LCS75182	LCS	1	09/11/19 3:32 PM
B0911019.D	N037148-001B	SAMP	1	09/11/19 3:37 PM
B0911020.D	N037148-001B	SAMP	5	09/11/19 3:42 PM
B0911021.D	N037148-001B-PS	PS	1	09/11/19 3:47 PM
B0911022.D	N037148-001B-MS	MS	1	09/11/19 3:52 PM
B0911023.D	N037148-001B-MSD	MSD	1	09/11/19 3:57 PM
B0911024.D	N037148-002B	SAMP	1	09/11/19 4:02 PM
B0911025.D	N037148-003B	SAMP	1	09/11/19 4:07 PM
B0911026.D	N037148-004B	SAMP	1	09/11/19 4:12 PM
B0911027.D	CCV1	CCV	1	09/11/19 4:17 PM
B0911028.D	CCB1	CCB	1	09/11/19 4:22 PM
B0911029.D	N037148-005B	SAMP	1	09/11/19 4:26 PM
B0911030.D	N037148-006B	SAMP	1	09/11/19 4:31 PM
B0911031.D	N037148-007B	SAMP	1	09/11/19 4:36 PM
B0911032.D	N037148-008B	SAMP	1	09/11/19 4:41 PM
B0911033.D	N037148-009B	SAMP	1	09/11/19 4:46 PM
B0911034.D	N037148-010B	SAMP	1	09/11/19 4:51 PM
B0911035.D	N037148-011B	SAMP	1	09/11/19 4:56 PM
B0911036.D	N037148-012B	SAMP	1	09/11/19 5:01 PM
B0911037.D	N037178-001A	SAMP	1	09/11/19 5:06 PM
B0911038.D	N037178-003A	SAMP	1	09/11/19 5:11 PM
B0911039.D	CCV2	CCV	1	09/11/19 5:17 PM
B0911040.D	CCB2	CCB	1	09/11/19 5:21 PM
B0911041.D	N037180-001A	SAMP	1	09/11/19 5:26 PM
B0911042.D	N037180-003A	SAMP	1	09/11/19 5:31 PM

INJECTION LOG: 190911B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0911043.D	N037184-001A	SAMP	1	09/11/19 5:36 PM
B0911044.D	N037186-001A	SAMP	1	09/11/19 5:42 PM
B0911045.D	N037117-003D	SAMP	25	09/11/19 5:47 PM
B0911046.D	N037117-004D	SAMP	25	09/11/19 5:52 PM
B0911047.D	N037117-008D	SAMP	25	09/11/19 5:57 PM
B0911048.D	N037147-001E	SAMP	25	09/11/19 6:01 PM
B0911049.D	N037180-001A	SAMP	10	09/11/19 6:06 PM
B0911050.D	N037180-003A	SAMP	10	09/11/19 6:11 PM
B0911051.D	CCV3	CCV	1	09/11/19 6:16 PM
B0911052.D	CCB3	CCB	1	09/11/19 6:21 PM
B0911053.D	N037184-001A	SAMP	5	09/11/19 6:26 PM
B0911054.D	N037186-001A	SAMP	10	09/11/19 6:31 PM
B0911055.D	N037313-002E	SAMP	1	09/11/19 6:36 PM
B0911056.D	N037148-001B	SAMP	1	09/11/19 6:41 PM
B0911057.D	N037148-002B	SAMP	1	09/11/19 6:46 PM
B0911058.D	N037148-003B	SAMP	1	09/11/19 6:51 PM
B0911059.D	N037148-005B	SAMP	1	09/11/19 6:55 PM
B0911060.D	N037148-006B	SAMP	1	09/11/19 7:01 PM
B0911061.D	N037148-007B	SAMP	1	09/11/19 7:06 PM
B0911062.D	N037148-008B	SAMP	1	09/11/19 7:11 PM
B0911063.D	CCV4	CCV	1	09/11/19 7:16 PM
B0911064.D	CCB4	CCB	1	09/11/19 7:20 PM
B0911065.D	N037148-009B	SAMP	1	09/11/19 7:25 PM
B0911066.D	N037148-012B	SAMP	1	09/11/19 7:30 PM
B0911067.D	N037148-001B	SAMP	1	09/11/19 7:35 PM
B0911068.D	N037148-002B	SAMP	1	09/11/19 7:40 PM
B0911069.D	N037148-005B	SAMP	1	09/11/19 7:45 PM
B0911070.D	N037148-006B	SAMP	1	09/11/19 7:50 PM
B0911071.D	N037148-007B	SAMP	1	09/11/19 7:54 PM
B0911072.D	N037148-008B	SAMP	1	09/11/19 7:59 PM
B0911073.D	N037148-009B	SAMP	1	09/11/19 8:04 PM
B0911074.D	N037148-012B	SAMP	1	09/11/19 8:09 PM
B0911075.D	CCV5	CCV	1	09/11/19 8:14 PM
B0911076.D	CCB5	CCB	1	09/11/19 8:18 PM
B0911077.D	ICSA2	ICSA	1	09/11/19 8:23 PM
B0911078.D	ICSAB2	ICSAB	1	09/11/19 8:28 PM
B0911079.D	N037148-001B	SAMP	1	09/11/19 8:32 PM
B0911080.D	N037148-006B	SAMP	1	09/11/19 8:37 PM
B0911081.D	N037148-008B	SAMP	1	09/11/19 8:42 PM
B0911082.D	N037148-009B	SAMP	1	09/11/19 8:47 PM
B0911083.D	N037148-001B	SAMP	1	09/11/19 8:52 PM
B0911084.D	N037148-006B	SAMP	1	09/11/19 8:57 PM

INJECTION LOG: 190911B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0911085.D	N037148-008B	SAMP	1	09/11/19 9:01 PM
B0911086.D	N037148-009B	SAMP	1	09/11/19 9:06 PM
B0911087.D	N037148-001B	SAMP	1	09/11/19 9:12 PM
B0911088.D	N037148-006B	SAMP	1	09/11/19 9:16 PM
B0911089.D	CCV6	CCV	1	09/11/19 9:21 PM
B0911090.D	CCB6	CCB	1	09/11/19 9:26 PM
B0911091.D	N037148-009B	SAMP	1	09/11/19 9:32 PM
B0911092.D	N037148-009B	SAMP	1	09/11/19 9:37 PM
B0911093.D	N037148-006B	SAMP	1	09/11/19 9:42 PM
B0911094.D	CCV7	CCV	1	09/11/19 9:47 PM
B0911095.D	CCB7	CCB	1	09/11/19 9:51 PM
B0911096.D	ICSA3	ICSA	1	09/11/19 9:56 PM
B0911097.D	ICSAB3	ICSAB	1	09/11/19 10:01 PM

INJECTION LOG: 190913A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0913001.D	RINSE	RINSE	1	09/13/19 1:03 PM
A0913002.D	Cal Blank	IBLK	1	09/13/19 1:08 PM
A0913003.D	Std1-0.1/1 ppb	ICAL	1	09/13/19 1:13 PM
A0913004.D	Std2-0.5/5 ppb	ICAL	1	09/13/19 1:18 PM
A0913005.D	Std3-5/50 ppb	ICAL	1	09/13/19 1:23 PM
A0913006.D	Std4-10/100 ppb	ICAL	1	09/13/19 1:28 PM
A0913007.D	Std5-20/200 ppb	ICAL	1	09/13/19 1:33 PM
A0913008.D	Std6-40/400 ppb	ICAL	1	09/13/19 1:39 PM
A0913009.D	Std7-100/1000 ppb	ICAL	1	09/13/19 1:44 PM
A0913010.D	Std8-200/2000 ppb	ICAL	1	09/13/19 1:49 PM
A0913011.D	ICV	ICV	1	09/13/19 1:56 PM
A0913012.D	ICB	ICB	1	09/13/19 2:01 PM
A0913013.D	LLICV	CCV1	1	09/13/19 2:06 PM
A0913014.D	ICSA1	ICSA	1	09/13/19 2:12 PM
A0913015.D	ICSAB1	ICSAB	1	09/13/19 2:17 PM
A0913016.D	LLICV	CCV1	1	09/13/19 2:22 PM
A0913017.D	N037148-006B	SAMP	1	09/13/19 2:32 PM
A0913018.D	N037148-008B	SAMP	1	09/13/19 2:37 PM
A0913019.D	N037148-006B	SAMP	1	09/13/19 2:42 PM
A0913020.D	N037148-006B	SAMP	1	09/13/19 2:47 PM
A0913021.D	MB-75352	MBLK	1	09/13/19 2:52 PM
A0913022.D	LCS-75352	LCS	1	09/13/19 2:58 PM
A0913023.D	N037433-001D	SAMP	1	09/13/19 3:03 PM
A0913024.D	N037433-001D	SAMP	5	09/13/19 3:08 PM
A0913025.D	N037433-001D	SAMP	25	09/13/19 3:13 PM
A0913026.D	N037433-001D-DUP	DUP	1	09/13/19 3:18 PM
A0913027.D	CCV1	CCV	1	09/13/19 3:23 PM
A0913028.D	CCB1	CCB	1	09/13/19 3:28 PM
A0913029.D	N037433-001D-PS	PS	1	09/13/19 3:33 PM
A0913030.D	N037433-001D-MS	MS	1	09/13/19 3:38 PM
A0913031.D	N037433-001D-MSD	MSD	1	09/13/19 3:43 PM
A0913032.D	N037424-001A	SAMP	1	09/13/19 3:48 PM
A0913033.D	N037424-001A	SAMP	1	09/13/19 3:58 PM
A0913034.D	N037424-001A	SAMP	1	09/13/19 4:04 PM
A0913035.D	MB-75354	MBLK	1	09/13/19 4:09 PM
A0913036.D	LCS-75354	LCS	1	09/13/19 4:14 PM
A0913037.D	N037249-001A	SAMP	1	09/13/19 4:19 PM
A0913038.D	N037249-001A	SAMP	5	09/13/19 4:24 PM
A0913039.D	CCV2	CCV	1	09/13/19 4:29 PM
A0913040.D	CCB2	CCB	1	09/13/19 4:35 PM
A0913041.D	N037249-001A-PS	PS	1	09/13/19 4:40 PM
A0913042.D	N037249-001A-MS	MS	1	09/13/19 4:44 PM

INJECTION LOG: 190913A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0913043.D	N037249-001A-MSD	MSD	1	09/13/19 4:49 PM
A0913044.D	MB-75270	MBLK	1	09/13/19 4:54 PM
A0913045.D	LCS-75270	LCS	1	09/13/19 4:59 PM
A0913046.D	N037176-001E	SAMP	1	09/13/19 5:04 PM
A0913047.D	N037176-001E	SAMP	5	09/13/19 5:09 PM
A0913048.D	N037176-001E	SAMP	25	09/13/19 5:14 PM
A0913049.D	N037176-001E	SAMP	125	09/13/19 5:19 PM
A0913050.D	N037176-001E-PS	PS	1	09/13/19 5:25 PM
A0913051.D	CCV3	CCV	1	09/13/19 5:30 PM
A0913052.D	CCB3	CCB	1	09/13/19 5:35 PM
A0913053.D	ICSA2	ICSA	1	09/13/19 5:40 PM
A0913054.D	ICSAB2	ICSAB	1	09/13/19 5:45 PM
A0913055.D	N037176-001E-PS	PS	5	09/13/19 5:49 PM
A0913056.D	N037176-001E-PS	PS	25	09/13/19 5:54 PM
A0913057.D	N037176-001E-MS	MS	1	09/13/19 6:00 PM
A0913058.D	N037176-001E-MS	MS	5	09/13/19 6:05 PM
A0913059.D	N037176-001E-MS	MS	25	09/13/19 6:10 PM
A0913060.D	N037176-001E-MSD	MSD	1	09/13/19 6:15 PM
A0913061.D	N037176-001E-MSD	MSD	5	09/13/19 6:20 PM
A0913062.D	N037176-001E-MSD	MSD	25	09/13/19 6:25 PM
A0913063.D	N037176-002E	SAMP	1	09/13/19 6:30 PM
A0913064.D	N037176-002E	SAMP	5	09/13/19 6:35 PM
A0913065.D	CCV4	CCV	1	09/13/19 6:41 PM
A0913066.D	CCB4	CCB	1	09/13/19 6:46 PM
A0913067.D	N037176-002E	SAMP	25	09/13/19 6:51 PM
A0913068.D	N037176-003E	SAMP	1	09/13/19 6:56 PM
A0913069.D	N037176-003E	SAMP	5	09/13/19 7:01 PM
A0913070.D	N037176-004E	SAMP	1	09/13/19 7:06 PM
A0913071.D	N037176-004E	SAMP	5	09/13/19 7:11 PM
A0913072.D	N037181-001F	SAMP	1	09/13/19 7:16 PM
A0913073.D	N037181-001F	SAMP	5	09/13/19 7:22 PM
A0913074.D	N037181-001F	SAMP	25	09/13/19 7:27 PM
A0913075.D	N037225-001F	SAMP	1	09/13/19 7:32 PM
A0913076.D	N037225-001F	SAMP	5	09/13/19 7:37 PM
A0913077.D	CCV5	CCV	1	09/13/19 7:42 PM
A0913078.D	CCB5	CCB	1	09/13/19 7:47 PM
A0913079.D	MB-75271	MBLK	1	09/13/19 7:52 PM
A0913080.D	LCS-75271	LCS	1	09/13/19 7:57 PM
A0913081.D	N037176-001D	SAMP	1	09/13/19 8:03 PM
A0913082.D	N037176-001D	SAMP	5	09/13/19 8:08 PM
A0913083.D	N037176-001D	SAMP	25	09/13/19 8:13 PM
A0913084.D	N037176-001D	SAMP	125	09/13/19 8:18 PM

INJECTION LOG: 190913A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0913085.D	N037176-001D-PS	PS	1	09/13/19 8:23 PM
A0913086.D	N037176-001D-PS	PS	5	09/13/19 8:28 PM
A0913087.D	N037176-001D-PS	PS	25	09/13/19 8:33 PM
A0913088.D	N037176-001D-MS	MS	1	09/13/19 8:38 PM
A0913089.D	CCV6	CCV	1	09/13/19 8:44 PM
A0913090.D	CCB6	CCB	1	09/13/19 8:49 PM
A0913091.D	ICSA3	ICSA	1	09/13/19 8:54 PM
A0913092.D	ICSAB3	ICSAB	1	09/13/19 8:59 PM
A0913093.D	N037176-001D-MS	MS	5	09/13/19 9:04 PM
A0913094.D	N037176-001D-MS	MS	25	09/13/19 9:09 PM
A0913095.D	N037176-001D-MSD	MSD	1	09/13/19 9:14 PM
A0913096.D	N037176-001D-MSD	MSD	5	09/13/19 9:19 PM
A0913097.D	N037176-001D-MSD	MSD	25	09/13/19 9:24 PM
A0913098.D	N037176-002D	SAMP	1	09/13/19 9:29 PM
A0913099.D	N037176-002D	SAMP	5	09/13/19 9:34 PM
A0913100.D	N037176-002D	SAMP	25	09/13/19 9:40 PM
A0913101.D	N037176-003D	SAMP	1	09/13/19 9:45 PM
A0913102.D	N037176-003D	SAMP	5	09/13/19 9:50 PM
A0913103.D	CCV7	CCV	1	09/13/19 9:55 PM
A0913104.D	CCB7	CCB	1	09/13/19 10:00 PM
A0913105.D	N037176-004D	SAMP	1	09/13/19 10:05 PM
A0913106.D	N037176-004D	SAMP	5	09/13/19 10:10 PM
A0913107.D	N037181-001E	SAMP	1	09/13/19 10:15 PM
A0913108.D	N037181-001E	SAMP	5	09/13/19 10:21 PM
A0913109.D	N037181-001E	SAMP	25	09/13/19 10:26 PM
A0913110.D	N037225-001E	SAMP	1	09/13/19 10:31 PM
A0913111.D	N037225-001E	SAMP	5	09/13/19 10:36 PM
A0913112.D	N037296-001B	SAMP	1	09/13/19 10:41 PM
A0913113.D	N037296-001B	SAMP	5	09/13/19 10:46 PM
A0913114.D	N037296-002B	SAMP	1	09/13/19 10:51 PM
A0913115.D	CCV8	CCV	1	09/13/19 10:57 PM
A0913116.D	CCB8	CCB	1	09/13/19 11:02 PM
A0913117.D	ICSA4	ICSA	1	09/13/19 11:07 PM
A0913118.D	ICSAB4	ICSAB	1	09/13/19 11:11 PM
A0913119.D	N037296-002B	SAMP	5	09/13/19 11:16 PM
A0913120.D	N037297-001B	SAMP	1	09/13/19 11:21 PM
A0913121.D	N037297-001B	SAMP	5	09/13/19 11:26 PM
A0913122.D	N037297-002B	SAMP	1	09/13/19 11:32 PM
A0913123.D	N037297-002B	SAMP	5	09/13/19 11:37 PM
A0913124.D	N037298-001B	SAMP	1	09/13/19 11:42 PM
A0913125.D	N037298-001B	SAMP	5	09/13/19 11:47 PM
A0913126.D	N037315-001B	SAMP	1	09/13/19 11:52 PM

INJECTION LOG: 190913A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0913127.D	N037315-001B	SAMP	5	09/13/19 11:57 PM
A0913128.D	N037315-001B	SAMP	25	09/14/19 12:02 AM
A0913129.D	CCV9	CCV	1	09/14/19 12:07 AM
A0913130.D	CCB9	CCB	1	09/14/19 12:13 AM
A0913131.D	N037315-002B	SAMP	1	09/14/19 12:18 AM
A0913132.D	N037315-002B	SAMP	5	09/14/19 12:23 AM
A0913133.D	N037315-003B	SAMP	1	09/14/19 12:28 AM
A0913134.D	N037315-003B	SAMP	5	09/14/19 12:33 AM
A0913135.D	N037315-004B	SAMP	1	09/14/19 12:38 AM
A0913136.D	N037315-004B	SAMP	5	09/14/19 12:44 AM
A0913137.D	N037315-005B	SAMP	1	09/14/19 12:49 AM
A0913138.D	N037315-005B	SAMP	5	09/14/19 12:54 AM
A0913139.D	CCV10	CCV	1	09/14/19 12:59 AM
A0913140.D	CCB10	CCB	1	09/14/19 1:04 AM
A0913141.D	ICSA5	ICSA	1	09/14/19 1:09 AM
A0913142.D	ICSAB5	ICSAB	1	09/14/19 1:13 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/28/2019 8:55:56 A**
Prep End Date: **8/28/2019 1:00:00 P**
Reviewed/ Date: NS 9/20/2019
Initials/ Date: for

Prep Batch **75182** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-19**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75182	Aqueous		25	☐	25	1.000		
MB-75182	Aqueous		25	☐	25	1.000		
N037148-001B	Groundwater	<2	25	☐	25	1.000		
N037148-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037148-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037148-002B	Groundwater	<2	25	☐	25	1.000		
N037148-003B	Groundwater	<2	25	☐	25	1.000		
N037148-004B	Groundwater	<2	25	☐	25	1.000		
N037148-005B	Groundwater	<2	25	☐	25	1.000		
N037148-006B	Groundwater	<2	25	☐	25	1.000		
N037148-007B	Groundwater	<2	25	☐	25	1.000		
N037148-008B	Groundwater	<2	25	☐	25	1.000		
N037148-009B	Groundwater	<2	25	☐	25	1.000		
N037148-010B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/28/2019 8:55:56 A**
Prep End Date: **8/28/2019 1:00:00 P**
Reviewed/ Date: NS 9/20/2019
Initials/ Date: for

Prep Batch **75182** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-19**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037148-011B	Groundwater	<2	25	☐	25	1.000		
N037148-012B	Groundwater	<2	25	☐	25	1.000		
N037178-001A	Groundwater	<2	25	☐	25	1.000		
N037178-003A	Groundwater	<2	25	☐	25	1.000		
N037180-001A	Groundwater	<2	25	☐	25	1.000		
N037180-003A	Groundwater	<2	25	☐	25	1.000		
N037184-001A	Groundwater	<2	25	☐	25	1.000		
N037186-001A	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Sep 2019 10:32:11 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	73120.70	0.00	
24	Mg	382581.00	0.00	
25	Mg	47518.60	0.00	
26	Mg	52788.20	0.00	
59	Co	138939.00	0.00	
115	In	220600.00	0.00	
206	Pb	70495.10	0.00	
207	Pb	60850.40	0.00	
208	Pb	149483.00	0.00	

RSD (%)

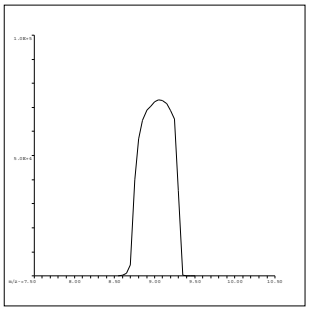
Element		Actual	Required	Flag
9	Be	0.56	5.00	
24	Mg	0.37	5.00	
25	Mg	0.80	5.00	
26	Mg	0.76	5.00	
59	Co	1.49	5.00	
115	In	0.91	5.00	
206	Pb	1.05	5.00	
207	Pb	1.30	5.00	
208	Pb	1.36	5.00	

Ion Ratio

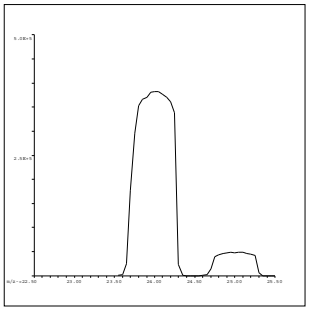
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

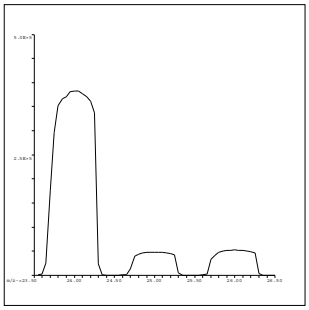
Element	Actual	Required	Flag



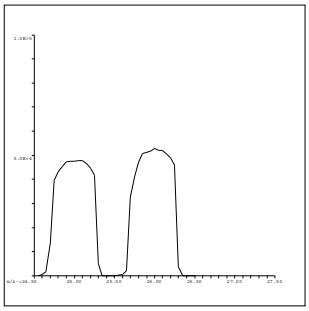
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



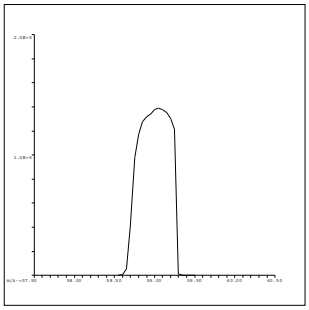
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



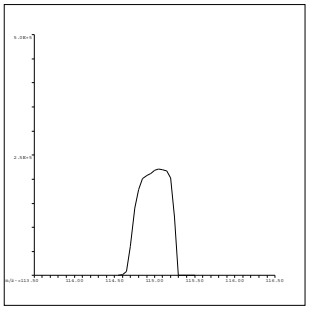
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



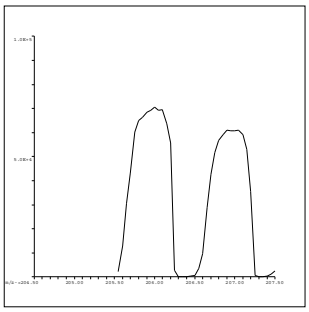
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



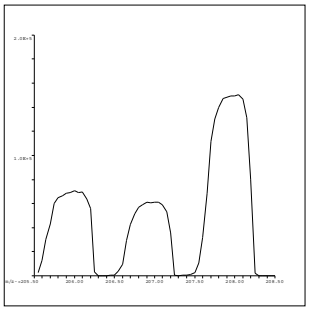
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



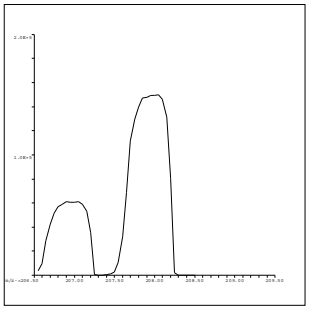
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 13 Sep 2019 11:19:19 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	145106.00	0.00	
24 Mg	289793.00	0.00	
25 Mg	37952.70	0.00	
26 Mg	43376.70	0.00	
59 Co	272296.00	0.00	
115 In	359084.00	0.00	
206 Pb	105607.00	0.00	
207 Pb	91633.40	0.00	
208 Pb	223816.00	0.00	

RSD (%)

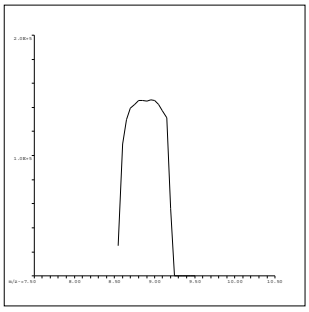
Element	Actual	Required	Flag
9 Be	1.25	5.00	
24 Mg	0.67	5.00	
25 Mg	1.12	5.00	
26 Mg	1.26	5.00	
59 Co	0.55	5.00	
115 In	1.21	5.00	
206 Pb	1.24	5.00	
207 Pb	1.59	5.00	
208 Pb	0.71	5.00	

Ion Ratio

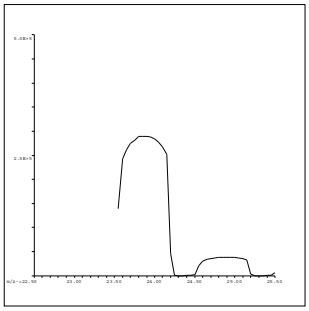
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

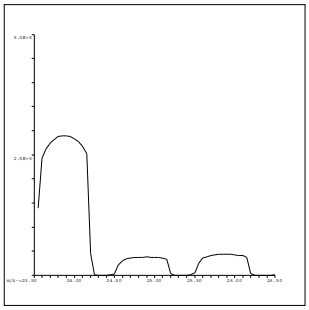
Element	Actual	Required	Flag



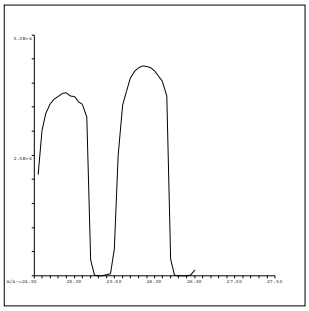
9 Be
Mass Calib.
Actual: 8.90
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



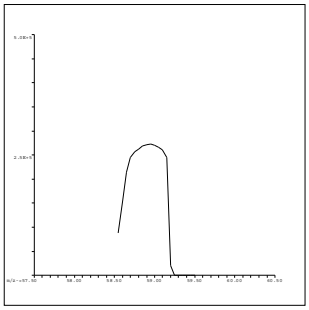
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



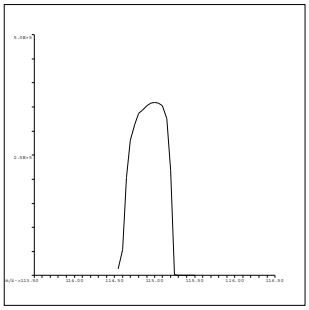
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



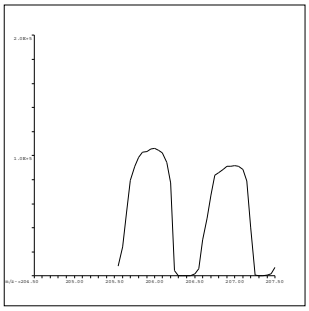
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



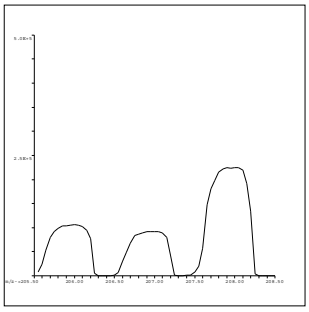
59 Co
Mass Calib.
Actual: 58.95
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



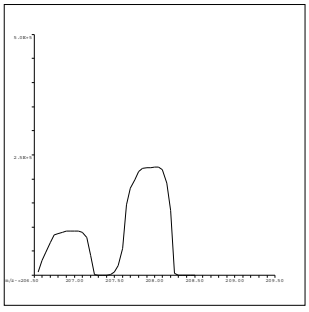
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190911B

Instrument ID: ICPMS-02

Analyte	Data File	B0911002.D	B0911003.D	B0911004.D	B0911005.D	B0911006.D	B0911007.D	B0911008.D	B0911009.D	B0911010.D	
	Acq. Date-Time	09/11/2019 02:01 PM	09/11/2019 02:05 PM	09/11/2019 02:10 PM	09/11/2019 02:15 PM	09/11/2019 02:19 PM	09/11/2019 02:24 PM	09/11/2019 02:29 PM	09/11/2019 02:34 PM	09/11/2019 02:39 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	38946.6		37326.1	36841.8	36355	36126.9	35556.9	35359.5	35045.7	
55 Mn [2]	CPS	37.9		682	6331.9	12110.2	23596.7	46873.9	115242.1	229981.8	1.0000
52 Cr [2]	CPS	147.4		1498.8	12741.7	24576.2	47860	94700	233218.6	463407.4	1.0000
72 Ge (ISTD) [1]	CPS	14757.3		14207.9	14233.5	13290.4	13759.7	13426.1	13429.4	12892.2	
78 Se [1]	CPS	0		28.9	263.4	550	1047.9	2031.3	4844.3	9796.7	0.9997
72 Ge (ISTD) [2]	CPS	21419.2	21005.5	20577.1	20324.5	19847.2	19722.7	19546.9	19836.2	19640.3	
75 As [2]	CPS	45.3	83.6	201.3	1697.4	3229.2	6386.2	12181.5	29748.4	59692.8	0.9999
103 Rh (ISTD) [2]	CPS	539412.2		520772.2	515360.7	506117.4	502541.3	495767.1	494434.6	491272.8	
95 Mo [2]	CPS	37.8		682.3	6414.9	12777.8	24985.9	49209.8	121439.4	242915.7	1.0000
159 Tb (ISTD) [3]	CPS	1639562.4		1602257.5	1588512.3	1581458.4	1564726.8	1579589.7	1544297.9	1533278.8	
137 Ba [3]	CPS	45.6		1186.8	11766.1	23368.5	46532.9	92749.7	226926.8	452401.4	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190913A

Instrument ID: ICPMS-02

Analyte	Data File	A0913002.D	A0913004.D	A0913005.D	A0913006.D	A0913007.D	A0913008.D	A0913009.D	A0913010.D	
	Acq. Date-Time	09/13/2019 01:08 PM	09/13/2019 01:18 PM	09/13/2019 01:23 PM	09/13/2019 01:28 PM	09/13/2019 01:33 PM	09/13/2019 01:39 PM	09/13/2019 01:44 PM	09/13/2019 01:49 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	26462.4	25959.4	25875.8	25295.1	25488.5	25642.1	25435.1	24564.9	
78 Se [1]	CPS	0	52.2	490	935.6	1808	3777.3	9027.4	17713.8	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136415**
Client ID: **ICV** Batch ID: **R136415** TestNo: **EPA 6020** Analysis Date: **9/11/2019** SeqNo: **3509938**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.181	0.10	10.00	0	102	90	110				
Barium	9.916	1.0	10.00	0	99.2	90	110				
Manganese	104.231	0.50	100.0	0	104	90	110				
Molybdenum	10.100	0.50	10.00	0	101	90	110				
Selenium	10.755	0.50	10.00	0	108	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136415**
Client ID: **ZZZZZZ** Batch ID: **R136415** TestNo: **EPA 6020** Analysis Date: **9/11/2019** SeqNo: **3509940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.103	0.10	0.1000	0	103	80	120				
Barium	0.998	1.0	1.000	0	99.8	80	120				
Manganese	0.533	0.50	0.5000	0	107	80	120				
Molybdenum	0.463	0.50	0.5000	0	92.6	80	120				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136415**
Client ID: **ZZZZZZ** Batch ID: **R136415** TestNo: **EPA 6020** Analysis Date: **9/11/2019** SeqNo: **3509943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.584	0.50	0.5000	0	117	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136415**
Client ID: **CCV** Batch ID: **R136415** TestNo: **EPA 6020** Analysis Date: **9/11/2019** SeqNo: **3509954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.259	0.10	20.00	0	101	90	110				
Barium	20.426	1.0	20.00	0	102	90	110				
Manganese	20.405	0.50	20.00	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	19.869	0.50	20.00	0	99.3	90	110				
Selenium	19.979	0.50	20.00	0	99.9	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.624	0.10	20.00	0	103	90	110				
Barium	20.904	1.0	20.00	0	105	90	110				
Manganese	20.596	0.50	20.00	0	103	90	110				
Molybdenum	20.448	0.50	20.00	0	102	90	110				
Selenium	18.951	0.50	20.00	0	94.8	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.268	0.10	20.00	0	101	90	110				
Barium	20.894	1.0	20.00	0	104	90	110				
Manganese	20.096	0.50	20.00	0	100	90	110				
Molybdenum	20.189	0.50	20.00	0	101	90	110				
Selenium	20.150	0.50	20.00	0	101	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.817	0.10	20.00	0	99.1	90	110				
Barium	21.092	1.0	20.00	0	105	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.861	0.50	20.00	0	99.3	90	110				
Molybdenum	20.506	0.50	20.00	0	103	90	110				
Selenium	18.708	0.50	20.00	0	93.5	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.284	0.10	20.00	0	101	90	110				
Barium	21.130	1.0	20.00	0	106	90	110				
Manganese	20.247	0.50	20.00	0	101	90	110				
Molybdenum	20.048	0.50	20.00	0	100	90	110				
Selenium	19.902	0.50	20.00	0	99.5	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.336	0.10	20.00	0	102	90	110				
Barium	21.042	1.0	20.00	0	105	90	110				
Manganese	20.245	0.50	20.00	0	101	90	110				
Molybdenum	20.034	0.50	20.00	0	100	90	110				
Selenium	19.808	0.50	20.00	0	99.0	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.976	0.10	20.00	0	99.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	20.618	1.0	20.00	0	103	90	110				
Manganese	20.261	0.50	20.00	0	101	90	110				
Molybdenum	20.111	0.50	20.00	0	101	90	110				
Selenium	19.354	0.50	20.00	0	96.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136459**
Client ID: **ICV** Batch ID: **R136459** TestNo: **EPA 6020** Analysis Date: **9/13/2019** SeqNo: **3511672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.003	0.10	10.00	0	100	90	110				
Barium	9.888	1.0	10 ~~100.0~~	0	98.9~~99.89~~	90	110				~~S~~
Manganese	102.308	0.50	100.0	0	102	90	110				
Molybdenum	9.800	0.50	10.00	0	98.0	90	110				
Selenium	10.405	0.50	10.00	0	104	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136459**
Client ID: **ZZZZZZ** Batch ID: **R136459** TestNo: **EPA 6020** Analysis Date: **9/13/2019** SeqNo: **3511674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.111	0.10	0.1000	0	111	80	120				
Barium	0.965	1.0	1.000	0	96.5	80	120				
Manganese	0.508	0.50	0.5000	0	102	80	120				
Molybdenum	0.536	0.50	0.5000	0	107	80	120				
Selenium	0.525	0.50	0.5000	0	105	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136459**
Client ID: **CCV** Batch ID: **R136459** TestNo: **EPA 6020** Analysis Date: **9/13/2019** SeqNo: **3511688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.176	0.10	20.00	0	101	90	110				
Barium	20.166	1.0	20.00	0	101	90	110				
Manganese	19.739	0.50	20.00	0	98.7	90	110				
Molybdenum	19.847	0.50	20.00	0	99.2	90	110				
Selenium	20.851	0.50	20.00	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

NS 9/20/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136459**
Client ID: **CCV** Batch ID: **R136459** TestNo: **EPA 6020** Analysis Date: **9/13/2019** SeqNo: **3511700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.163	0.10	20.00	0	101	90	110				
Barium	20.857	1.0	20.00	0	104	90	110				
Manganese	19.662	0.50	20.00	0	98.3	90	110				
Molybdenum	19.725	0.50	20.00	0	98.6	90	110				
Selenium	19.635	0.50	20.00	0	98.2	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136459**
Client ID: **CCV** Batch ID: **R136459** TestNo: **EPA 6020** Analysis Date: **9/13/2019** SeqNo: **3511712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.832	0.10	20.00	0	99.2	90	110				
Barium	21.399	1.0	20.00	0	107	90	110				
Manganese	19.778	0.50	20.00	0	98.9	90	110				
Molybdenum	20.167	0.50	20.00	0	101	90	110				
Selenium	20.426	0.50	20.00	0	102	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136459**
Client ID: **CCV** Batch ID: **R136459** TestNo: **EPA 6020** Analysis Date: **9/13/2019** SeqNo: **3511726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.986	0.10	20.00	0	99.9	90	110				
Barium	21.575	1.0	20.00	0	108	90	110				
Manganese	19.343	0.50	20.00	0	96.7	90	110				
Molybdenum	20.076	0.50	20.00	0	100	90	110				
Selenium	19.851	0.50	20.00	0	99.3	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.541	0.10	20.00	0	97.7	90	110				
Barium	21.259	1.0	20.00	0	106	90	110				
Manganese	19.613	0.50	20.00	0	98.1	90	110				
Molybdenum	19.988	0.50	20.00	0	99.9	90	110				
Selenium	19.744	0.50	20.00	0	98.7	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.978	0.10	20.00	0	99.9	90	110				
Barium	21.578	1.0	20.00	0	108	90	110				
Manganese	19.979	0.50	20.00	0	99.9	90	110				
Molybdenum	20.168	0.50	20.00	0	101	90	110				
Selenium	19.464	0.50	20.00	0	97.3	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.820	0.10	20.00	0	99.1	90	110				
Barium	21.674	1.0	20.00	0	108	90	110				
Manganese	19.499	0.50	20.00	0	97.5	90	110				
Molybdenum	20.272	0.50	20.00	0	101	90	110				
Selenium	20.258	0.50	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.750	0.10	20.00	0	98.7	90	110				
Barium	20.975	1.0	20.00	0	105	90	110				
Manganese	19.612	0.50	20.00	0	98.1	90	110				
Molybdenum	19.836	0.50	20.00	0	99.2	90	110				
Selenium	19.706	0.50	20.00	0	98.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510112**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.462	1.0	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ZZZZZZ**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.994	1.0	1.000	0	99.4	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.344	1.0	20.00	0	102	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.671	1.0	20.00	0	98.4	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.566	1.0	20.00	0	97.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.573	1.0	20.00	0	97.9	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.416	1.0	20.00	0	97.1	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.784	1.0	20.00	0	98.9	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCV**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.879	1.0	20.00	0	99.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.337	1.0	10.00	0	103	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ZZZZZZ**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511938**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.992	1.0	1.000	0	99.2	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.190	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511964**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.083	1.0	20.00	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511976**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.687	1.0	20.00	0	98.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.565	1.0	20.00	0	97.8	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.910	1.0	20.00	0	99.5	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.844	1.0	20.00	0	99.2	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.829	1.0	20.00	0	99.1	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.928	1.0	20.00	0	99.6	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/14/2019**	SeqNo: **3512054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.981	1.0	20.00	0	99.9	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCV**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/14/2019**	SeqNo: **3512064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.909	1.0	20.00	0	99.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509939**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510191**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **CCB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511937**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511965**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511977**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/14/2019**	SeqNo: **3512055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **CCB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/14/2019**	SeqNo: **3512065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSA**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSAB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3509942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.345	0.10	20.00	0	107	80	120				
Barium	21.234	1.0	20.00	0	106	80	120				
Manganese	18.709	0.50	20.00	0	93.5	80	120				
Molybdenum	22.240	0.50	20.00	0	111	80	120				
Selenium	22.187	0.50	20.00	0	111	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSA**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510004**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.186	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSAB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.215	0.10	20.00	0	106	80	120				
Barium	21.609	1.0	20.00	0	108	80	120				
Manganese	18.850	0.50	20.00	0	94.2	80	120				
Molybdenum	22.894	0.50	20.00	0	114	80	120				
Selenium	21.853	0.50	20.00	0	109	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSA**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.178	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSAB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.630	0.10	20.00	0	108	80	120				
Barium	21.407	1.0	20.00	0	107	80	120				
Manganese	19.080	0.50	20.00	0	95.4	80	120				
Molybdenum	22.461	0.50	20.00	0	112	80	120				
Selenium	19.660	0.50	20.00	0	98.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.164	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511676**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.491	0.10	20.00	0	107	80	120				
Barium	21.084	1.0	20.00	0	105	80	120				
Manganese	19.622	0.50	20.00	0	98.1	80	120				
Molybdenum	22.478	0.50	20.00	0	112	80	120				
Selenium	19.594	0.50	20.00	0	98.0	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.186	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.586	0.10	20.00	0	103	80	120				
Barium	21.203	1.0	20.00	0	106	80	120				
Manganese	18.873	0.50	20.00	0	94.4	80	120				
Molybdenum	21.930	0.50	20.00	0	110	80	120				
Selenium	20.038	0.50	20.00	0	100	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.029	0.10	20.00	0	105	80	120				
Barium	21.075	1.0	20.00	0	105	80	120				
Manganese	18.916	0.50	20.00	0	94.6	80	120				
Molybdenum	22.301	0.50	20.00	0	112	80	120				
Selenium	19.932	0.50	20.00	0	99.7	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.191	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.925	0.10	20.00	0	105	80	120				
Barium	21.705	1.0	20.00	0	109	80	120				
Manganese	19.030	0.50	20.00	0	95.1	80	120				
Molybdenum	22.321	0.50	20.00	0	112	80	120				
Selenium	21.490	0.50	20.00	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSA**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSAB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.562	1.0	20.00	0	103	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSA**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSAB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.230	1.0	20.00	0	101	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSA**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ICSAB**	Batch ID: **R136415**	TestNo: **EPA 6020**		Analysis Date: **9/11/2019**	SeqNo: **3510198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.104	1.0	20.00	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511939**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.155	1.0	20.00	0	101	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3511979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.699	1.0	20.00	0	103	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.436	1.0	20.00	0	102	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/13/2019**	SeqNo: **3512043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.174	1.0	20.00	0	101	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSA**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/14/2019**	SeqNo: **3512066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136459**
Client ID: **ICSAB**	Batch ID: **R136459**	TestNo: **EPA 6020**		Analysis Date: **9/14/2019**	SeqNo: **3512067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.481	1.0	20.00	0	102	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	1639562.4	1639562.4	100	PASS	70-125	38946.6	38946.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	1609707.9	1639562.4	98.18	PASS	70-125	37861.8	38946.6	97.21	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	1602257.5	1639562.4	97.72	PASS	70-125	37326.1	38946.6	95.84	PASS	70-125
Std3-5/50 ppb	ICAL	1	1588512.3	1639562.4	96.89	PASS	70-125	36841.8	38946.6	94.6	PASS	70-125
Std4-10/100 ppb	ICAL	1	1581458.4	1639562.4	96.46	PASS	70-125	36355	38946.6	93.35	PASS	70-125
Std5-20/200 ppb	ICAL	1	1564726.8	1639562.4	95.44	PASS	70-125	36126.9	38946.6	92.76	PASS	70-125
Std6-40/400 ppb	ICAL	1	1579589.7	1639562.4	96.34	PASS	70-125	35556.9	38946.6	91.3	PASS	70-125
Std7-100/1000 ppb	ICAL	1	1544297.9	1639562.4	94.19	PASS	70-125	35359.5	38946.6	90.79	PASS	70-125
Std8-200/2000 ppb	ICAL	1	1533278.8	1639562.4	93.52	PASS	70-125	35045.7	38946.6	89.98	PASS	70-125
ICV	ICV	1	1680558.2	1639562.4	102.5	PASS	70-125	37073.4	38946.6	95.19	PASS	70-125
ICB	ICB	1	1524434.5	1639562.4	92.98	PASS	70-125	33676.2	38946.6	86.47	PASS	70-125
LLICV	CCV1	1	1544025.1	1639562.4	94.17	PASS	70-125	32629.8	38946.6	83.78	PASS	70-125
ICSA1	ICSA	1	1652100.5	1639562.4	100.76	PASS	70-125	39285.1	38946.6	100.87	PASS	70-125
ICSAB1	ICSAB	1	1684464.4	1639562.4	102.74	PASS	70-125	41845.8	38946.6	107.44	PASS	70-125
LLICV	CCV1	1	1558262.8	1639562.4	95.041	PASS	70-125	32450.5	38946.6	83.32	PASS	70-125
MB-75182	MBLK	1	1617702.8	1639562.4	98.67	PASS	70-125	38707	38946.6	99.38	PASS	70-125
LCS75182	LCS	1	1533986.3	1639562.4	93.56	PASS	70-125	31577.6	38946.6	81.079	PASS	70-125
N037148-001B	SAMP	1	1676862.9	1639562.4	102.28	PASS	70-125	37130.2	38946.6	95.34	PASS	70-125
N037148-001B	SAMP	5	1671114.9	1639562.4	101.92	PASS	70-125	37568.9	38946.6	96.46	PASS	70-125
N037148-001B-PS	PS	1	1718954.1	1639562.4	104.84	PASS	70-125	37835.3	38946.6	97.15	PASS	70-125
N037148-001B-MS	MS	1	1722650.1	1639562.4	105.07	PASS	70-125	38856.2	38946.6	99.77	PASS	70-125
N037148-001B-MSD	MSD	1	1728705.2	1639562.4	105.44	PASS	70-125	38549	38946.6	98.98	PASS	70-125
N037148-002B	SAMP	1	1675087.1	1639562.4	102.17	PASS	70-125	37903.2	38946.6	97.32	PASS	70-125
N037148-003B	SAMP	1	1680354.9	1639562.4	102.49	PASS	70-125	37864.1	38946.6	97.22	PASS	70-125
N037148-004B	SAMP	1	1682283	1639562.4	102.61	PASS	70-125	37553.5	38946.6	96.42	PASS	70-125
CCV1	CCV	1	1640082.8	1639562.4	100.03	PASS	70-125	36962.1	38946.6	94.9	PASS	70-125
CCB1	CCB	1	1592411.3	1639562.4	97.12	PASS	70-125	35973.1	38946.6	92.37	PASS	70-125
N037148-005B	SAMP	1	1638362.5	1639562.4	99.93	PASS	70-125	35190.5	38946.6	90.36	PASS	70-125
N037148-006B	SAMP	1	1674885.8	1639562.4	102.15	PASS	70-125	36388.6	38946.6	93.43	PASS	70-125
N037148-007B	SAMP	1	1734131.4	1639562.4	105.77	PASS	70-125	38533.5	38946.6	98.94	PASS	70-125
N037148-008B	SAMP	1	1678991.5	1639562.4	102.4	PASS	70-125	36746	38946.6	94.35	PASS	70-125
N037148-009B	SAMP	1	1663472.5	1639562.4	101.46	PASS	70-125	36592.4	38946.6	93.96	PASS	70-125
N037148-010B	SAMP	1	1657571.3	1639562.4	101.1	PASS	70-125	36741.5	38946.6	94.34	PASS	70-125
N037148-011B	SAMP	1	1680979.7	1639562.4	102.53	PASS	70-125	37208	38946.6	95.54	PASS	70-125
N037148-012B	SAMP	1	1670349.6	1639562.4	101.88	PASS	70-125	36939.9	38946.6	94.85	PASS	70-125
N037178-001A	SAMP	1	1557690.2	1639562.4	95.007	PASS	70-125	37006.7	38946.6	95.019	PASS	70-125
N037178-003A	SAMP	1	1588182.1	1639562.4	96.87	PASS	70-125	38857.6	38946.6	99.77	PASS	70-125
CCV2	CCV	1	1680928.2	1639562.4	102.52	PASS	70-125	40979.3	38946.6	105.22	PASS	70-125
CCB2	CCB	1	1656859.1	1639562.4	101.06	PASS	70-125	39604.8	38946.6	101.69	PASS	70-125
N037180-001A	SAMP	1	1366225.6	1639562.4	83.33	PASS	70-125	35405.5	38946.6	90.91	PASS	70-125
N037180-003A	SAMP	1	1227353.2	1639562.4	74.86	PASS	70-125	35039	38946.6	89.97	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037184-001A	SAMP	1	1213826.5	1639562.4	74.034	PASS	70-125	36002.1	38946.6	92.44	PASS	70-125
N037186-001A	SAMP	1	1258342.7	1639562.4	76.75	PASS	70-125	37213.8	38946.6	95.55	PASS	70-125
N037180-001A	SAMP	10	1565280.5	1639562.4	95.47	PASS	70-125	39249.6	38946.6	100.78	PASS	70-125
N037180-003A	SAMP	10	1543683.8	1639562.4	94.15	PASS	70-125	39823.1	38946.6	102.25	PASS	70-125
CCV3	CCV	1	1654087	1639562.4	100.89	PASS	70-125	42540	38946.6	109.23	PASS	70-125
CCB3	CCB	1	1658299.8	1639562.4	101.14	PASS	70-125	41644.3	38946.6	106.93	PASS	70-125
N037184-001A	SAMP	5	1478683.1	1639562.4	90.19	PASS	70-125	37023.4	38946.6	95.062	PASS	70-125
N037186-001A	SAMP	10	1540020.4	1639562.4	93.93	PASS	70-125	39560.3	38946.6	101.58	PASS	70-125
N037148-001B	SAMP	1	1658169.4	1639562.4	101.13	PASS	70-125	43699.6	38946.6	112.2	PASS	70-125
N037148-002B	SAMP	1	1665033.2	1639562.4	101.55	PASS	70-125	42764.8	38946.6	109.8	PASS	70-125
N037148-003B	SAMP	1	1705501	1639562.4	104.02	PASS	70-125	43140.2	38946.6	110.77	PASS	70-125
N037148-005B	SAMP	1	1652780.8	1639562.4	100.81	PASS	70-125	40886.7	38946.6	104.98	PASS	70-125
N037148-006B	SAMP	1	1671857.8	1639562.4	101.97	PASS	70-125	41966.2	38946.6	107.75	PASS	70-125
N037148-007B	SAMP	1	1705773.7	1639562.4	104.04	PASS	70-125	42838.4	38946.6	109.99	PASS	70-125
N037148-008B	SAMP	1	1656318.6	1639562.4	101.02	PASS	70-125	41207.8	38946.6	105.81	PASS	70-125
CCV4	CCV	1	1638472.6	1639562.4	99.93	PASS	70-125	41261.1	38946.6	105.94	PASS	70-125
CCB4	CCB	1	1614818.8	1639562.4	98.49	PASS	70-125	40257.7	38946.6	103.37	PASS	70-125
N037148-009B	SAMP	1	1638748.1	1639562.4	99.95	PASS	70-125	39016.9	38946.6	100.18	PASS	70-125
N037148-012B	SAMP	1	1627144.9	1639562.4	99.24	PASS	70-125	39726.3	38946.6	102	PASS	70-125
N037148-001B	SAMP	1	1713500.7	1639562.4	104.51	PASS	70-125	41348	38946.6	106.17	PASS	70-125
N037148-002B	SAMP	1	1717477.5	1639562.4	104.75	PASS	70-125	42506.4	38946.6	109.14	PASS	70-125
N037148-005B	SAMP	1	1681393.9	1639562.4	102.55	PASS	70-125	40902.4	38946.6	105.02	PASS	70-125
N037148-006B	SAMP	1	1704674	1639562.4	103.97	PASS	70-125	41747.9	38946.6	107.19	PASS	70-125
N037148-007B	SAMP	1	1755553.2	1639562.4	107.07	PASS	70-125	42500.8	38946.6	109.13	PASS	70-125
N037148-008B	SAMP	1	1682718.1	1639562.4	102.63	PASS	70-125	41193.2	38946.6	105.77	PASS	70-125
N037148-009B	SAMP	1	1695615.4	1639562.4	103.42	PASS	70-125	41064	38946.6	105.44	PASS	70-125
N037148-012B	SAMP	1	1682473.1	1639562.4	102.62	PASS	70-125	40430.1	38946.6	103.81	PASS	70-125
CCV5	CCV	1	1692314.3	1639562.4	103.22	PASS	70-125	42069.8	38946.6	108.02	PASS	70-125
CCB5	CCB	1	1666240.9	1639562.4	101.63	PASS	70-125	40233	38946.6	103.3	PASS	70-125
ICSA2	ICSA	1	1711152.4	1639562.4	104.37	PASS	70-125	43032.2	38946.6	110.49	PASS	70-125
ICSAB2	ICSAB	1	1726628.1	1639562.4	105.31	PASS	70-125	43266.3	38946.6	111.09	PASS	70-125
N037148-001B	SAMP	1	1647737.9	1639562.4	100.5	PASS	70-125	38079.3	38946.6	97.77	PASS	70-125
N037148-006B	SAMP	1	1671877.3	1639562.4	101.97	PASS	70-125	38745.9	38946.6	99.48	PASS	70-125
N037148-008B	SAMP	1	1675464	1639562.4	102.19	PASS	70-125	38663.8	38946.6	99.27	PASS	70-125
N037148-009B	SAMP	1	1646276.6	1639562.4	100.41	PASS	70-125	38517.8	38946.6	98.9	PASS	70-125
N037148-001B	SAMP	1	1641925.2	1639562.4	100.14	PASS	70-125	39063.5	38946.6	100.3	PASS	70-125
N037148-006B	SAMP	1	1658824.1	1639562.4	101.17	PASS	70-125	38648.1	38946.6	99.23	PASS	70-125
N037148-008B	SAMP	1	1658190.5	1639562.4	101.14	PASS	70-125	39092.6	38946.6	100.37	PASS	70-125
N037148-009B	SAMP	1	1656397.9	1639562.4	101.03	PASS	70-125	38576.9	38946.6	99.051	PASS	70-125
N037148-001B	SAMP	1	1649704.2	1639562.4	100.62	PASS	70-125	39051.1	38946.6	100.27	PASS	70-125
N037148-006B	SAMP	1	1661928.4	1639562.4	101.36	PASS	70-125	38465.3	38946.6	98.76	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCV6	CCV	1	1647682.5	1639562.4	100.5	PASS	70-125	39258.4	38946.6	100.8	PASS	70-125
CCB6	CCB	1	1616741.9	1639562.4	98.61	PASS	70-125	38001.1	38946.6	97.57	PASS	70-125
N037148-009B	SAMP	1	1601145.7	1639562.4	97.66	PASS	70-125	32178.8	38946.6	82.62	PASS	70-125
N037148-009B	SAMP	1	1612802.8	1639562.4	98.37	PASS	70-125	34126	38946.6	87.62	PASS	70-125
N037148-006B	SAMP	1	1611494.3	1639562.4	98.29	PASS	70-125	34759.6	38946.6	89.25	PASS	70-125
CCV7	CCV	1	1597447.7	1639562.4	97.43	PASS	70-125	35370.7	38946.6	90.82	PASS	70-125
CCB7	CCB	1	1573989	1639562.4	96.001	PASS	70-125	35212.8	38946.6	90.41	PASS	70-125
ICSA3	ICSA	1	1627861.3	1639562.4	99.29	PASS	70-125	38956.8	38946.6	100.03	PASS	70-125
ICSAB3	ICSAB	1	1676249.7	1639562.4	102.24	PASS	70-125	39515.7	38946.6	101.46	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	21419.2	21419.2	100	PASS	70-125	14757.3	14757.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	21005.5	21419.2	98.069	PASS	70-125	14984.1	14757.3	101.54	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	20577.1	21419.2	96.068	PASS	70-125	14207.9	14757.3	96.28	PASS	70-125
Std3-5/50 ppb	ICAL	1	20324.5	21419.2	94.89	PASS	70-125	14233.5	14757.3	96.45	PASS	70-125
Std4-10/100 ppb	ICAL	1	19847.2	21419.2	92.66	PASS	70-125	13290.4	14757.3	90.06	PASS	70-125
Std5-20/200 ppb	ICAL	1	19722.7	21419.2	92.08	PASS	70-125	13759.7	14757.3	93.24	PASS	70-125
Std6-40/400 ppb	ICAL	1	19546.9	21419.2	91.26	PASS	70-125	13426.1	14757.3	90.98	PASS	70-125
Std7-100/1000 ppb	ICAL	1	19836.2	21419.2	92.61	PASS	70-125	13429.4	14757.3	91.002	PASS	70-125
Std8-200/2000 ppb	ICAL	1	19640.3	21419.2	91.69	PASS	70-125	12892.2	14757.3	87.36	PASS	70-125
ICV	ICV	1	20505.9	21419.2	95.74	PASS	70-125	13753	14757.3	93.19	PASS	70-125
ICB	ICB	1	18826.1	21419.2	87.89	PASS	70-125	12702.1	14757.3	86.073	PASS	70-125
LLICV	CCV1	1	18427.7	21419.2	86.034	PASS	70-125	13282.6	14757.3	90.007	PASS	70-125
ICSA1	ICSA	1	21389.3	21419.2	99.86	PASS	70-125	14262.4	14757.3	96.65	PASS	70-125
ICSAB1	ICSAB	1	22890.2	21419.2	106.87	PASS	70-125	14958.6	14757.3	101.36	PASS	70-125
LLICV	CCV1	1	18347.7	21419.2	85.66	PASS	70-125	13062.4	14757.3	88.51	PASS	70-125
MB-75182	MBLK	1	21391.4	21419.2	99.87	PASS	70-125	14610.5	14757.3	99.005	PASS	70-125
LCS75182	LCS	1	17672.5	21419.2	82.51	PASS	70-125	13073.6	14757.3	88.59	PASS	70-125
N037148-001B	SAMP	1	20689.4	21419.2	96.59	PASS	70-125	14762.9	14757.3	100.04	PASS	70-125
N037148-001B	SAMP	5	21319.2	21419.2	99.53	PASS	70-125	14632.7	14757.3	99.16	PASS	70-125
N037148-001B-PS	PS	1	21651.9	21419.2	101.09	PASS	70-125	14886.3	14757.3	100.87	PASS	70-125
N037148-001B-MS	MS	1	21667.4	21419.2	101.16	PASS	70-125	15287.8	14757.3	103.59	PASS	70-125
N037148-001B-MSD	MSD	1	22124.6	21419.2	103.29	PASS	70-125	15497.9	14757.3	105.02	PASS	70-125
N037148-002B	SAMP	1	21350.3	21419.2	99.68	PASS	70-125	14994.1	14757.3	101.6	PASS	70-125
N037148-003B	SAMP	1	21348.1	21419.2	99.67	PASS	70-125	15136.5	14757.3	102.57	PASS	70-125
N037148-004B	SAMP	1	21470.5	21419.2	100.24	PASS	70-125	14987.5	14757.3	101.56	PASS	70-125
CCV1	CCV	1	20693.9	21419.2	96.61	PASS	70-125	14660.5	14757.3	99.34	PASS	70-125
CCB1	CCB	1	20147.7	21419.2	94.064	PASS	70-125	14440.3	14757.3	97.85	PASS	70-125
N037148-005B	SAMP	1	19937.4	21419.2	93.082	PASS	70-125	14070	14757.3	95.34	PASS	70-125
N037148-006B	SAMP	1	20741.7	21419.2	96.84	PASS	70-125	14634.9	14757.3	99.17	PASS	70-125
N037148-007B	SAMP	1	21751.9	21419.2	101.55	PASS	70-125	15345.6	14757.3	103.99	PASS	70-125
N037148-008B	SAMP	1	21112.2	21419.2	98.57	PASS	70-125	14759.5	14757.3	100.02	PASS	70-125
N037148-009B	SAMP	1	20819.6	21419.2	97.2	PASS	70-125	14782.9	14757.3	100.17	PASS	70-125
N037148-010B	SAMP	1	20834.2	21419.2	97.27	PASS	70-125	15042	14757.3	101.93	PASS	70-125
N037148-011B	SAMP	1	21598.5	21419.2	100.84	PASS	70-125	15312.2	14757.3	103.76	PASS	70-125
N037148-012B	SAMP	1	20456.9	21419.2	95.51	PASS	70-125	14722.8	14757.3	99.77	PASS	70-125
N037178-001A	SAMP	1	20441.3	21419.2	95.43	PASS	70-125	14132.2	14757.3	95.76	PASS	70-125
N037178-003A	SAMP	1	21015.5	21419.2	98.12	PASS	70-125	14699.4	14757.3	99.61	PASS	70-125
CCV2	CCV	1	22645.4	21419.2	105.72	PASS	70-125	16509	14757.3	111.87	PASS	70-125
CCB2	CCB	1	21940	21419.2	102.43	PASS	70-125	15514.8	14757.3	105.13	PASS	70-125
N037180-001A	SAMP	1	18718.1	21419.2	87.39	PASS	70-125	12437.5	14757.3	84.28	PASS	70-125
N037180-003A	SAMP	1	17987.3	21419.2	83.98	PASS	70-125	13118	14757.3	88.89	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037184-001A	SAMP	1	18694.7	21419.2	87.28	PASS	70-125	13156.9	14757.3	89.16	PASS	70-125
N037186-001A	SAMP	1	19415.6	21419.2	90.65	PASS	70-125	13497.3	14757.3	91.46	PASS	70-125
N037180-001A	SAMP	10	21494.9	21419.2	100.35	PASS	70-125	14659.4	14757.3	99.34	PASS	70-125
N037180-003A	SAMP	10	21776.4	21419.2	101.67	PASS	70-125	14920.8	14757.3	101.11	PASS	70-125
CCV3	CCV	1	23251.8	21419.2	108.56	PASS	70-125	16274.4	14757.3	110.28	PASS	70-125
CCB3	CCB	1	22519.5	21419.2	105.14	PASS	70-125	15798.2	14757.3	107.05	PASS	70-125
N037184-001A	SAMP	5	20238.8	21419.2	94.49	PASS	70-125	13319.3	14757.3	90.26	PASS	70-125
N037186-001A	SAMP	10	21573.9	21419.2	100.72	PASS	70-125	14720.6	14757.3	99.75	PASS	70-125
N037148-001B	SAMP	1	23651.4	21419.2	110.42	PASS	70-125	16422.3	14757.3	111.28	PASS	70-125
N037148-002B	SAMP	1	23503.3	21419.2	109.73	PASS	70-125	16227.6	14757.3	109.96	PASS	70-125
N037148-003B	SAMP	1	23764.8	21419.2	110.95	PASS	70-125	15937.3	14757.3	108	PASS	70-125
N037148-005B	SAMP	1	22468.5	21419.2	104.9	PASS	70-125	15431.2	14757.3	104.57	PASS	70-125
N037148-006B	SAMP	1	23123.9	21419.2	107.96	PASS	70-125	15925.1	14757.3	107.91	PASS	70-125
N037148-007B	SAMP	1	23555.6	21419.2	109.97	PASS	70-125	16329.9	14757.3	110.66	PASS	70-125
N037148-008B	SAMP	1	22276	21419.2	104	PASS	70-125	15912.8	14757.3	107.83	PASS	70-125
CCV4	CCV	1	22931.4	21419.2	107.06	PASS	70-125	15798.3	14757.3	107.05	PASS	70-125
CCB4	CCB	1	22024.5	21419.2	102.83	PASS	70-125	15469.1	14757.3	104.82	PASS	70-125
N037148-009B	SAMP	1	21667.4	21419.2	101.16	PASS	70-125	15013.1	14757.3	101.73	PASS	70-125
N037148-012B	SAMP	1	21952.3	21419.2	102.49	PASS	70-125	15275.5	14757.3	103.51	PASS	70-125
N037148-001B	SAMP	1	23246.3	21419.2	108.53	PASS	70-125	16709.2	14757.3	113.23	PASS	70-125
N037148-002B	SAMP	1	23465.5	21419.2	109.55	PASS	70-125	16331.1	14757.3	110.66	PASS	70-125
N037148-005B	SAMP	1	22703.2	21419.2	105.99	PASS	70-125	16256.5	14757.3	110.16	PASS	70-125
N037148-006B	SAMP	1	22725.6	21419.2	106.1	PASS	70-125	16516.8	14757.3	111.92	PASS	70-125
N037148-007B	SAMP	1	23478.8	21419.2	109.62	PASS	70-125	16713.7	14757.3	113.26	PASS	70-125
N037148-008B	SAMP	1	22579.7	21419.2	105.42	PASS	70-125	16009.6	14757.3	108.49	PASS	70-125
N037148-009B	SAMP	1	22947	21419.2	107.13	PASS	70-125	16440	14757.3	111.4	PASS	70-125
N037148-012B	SAMP	1	22356.1	21419.2	104.37	PASS	70-125	15876	14757.3	107.58	PASS	70-125
CCV5	CCV	1	22922.5	21419.2	107.02	PASS	70-125	16397.7	14757.3	111.12	PASS	70-125
CCB5	CCB	1	21982.3	21419.2	102.63	PASS	70-125	16129.7	14757.3	109.3	PASS	70-125
ICSA2	ICSA	1	23660.2	21419.2	110.46	PASS	70-125	16888.3	14757.3	114.44	PASS	70-125
ICSAB2	ICSAB	1	24059.7	21419.2	112.33	PASS	70-125	17208.6	14757.3	116.61	PASS	70-125
N037148-001B	SAMP	1	21769.7	21419.2	101.64	PASS	70-125	15684.8	14757.3	106.29	PASS	70-125
N037148-006B	SAMP	1	21803.2	21419.2	101.79	PASS	70-125	15618.1	14757.3	105.83	PASS	70-125
N037148-008B	SAMP	1	21430.5	21419.2	100.05	PASS	70-125	15443.4	14757.3	104.65	PASS	70-125
N037148-009B	SAMP	1	21644.1	21419.2	101.05	PASS	70-125	15712.6	14757.3	106.47	PASS	70-125
N037148-001B	SAMP	1	21721.9	21419.2	101.41	PASS	70-125	15588	14757.3	105.63	PASS	70-125
N037148-006B	SAMP	1	21431.6	21419.2	100.06	PASS	70-125	15529.1	14757.3	105.23	PASS	70-125
N037148-008B	SAMP	1	22009	21419.2	102.75	PASS	70-125	15534.7	14757.3	105.27	PASS	70-125
N037148-009B	SAMP	1	21481.7	21419.2	100.29	PASS	70-125	15347.9	14757.3	104	PASS	70-125
N037148-001B	SAMP	1	21786.4	21419.2	101.71	PASS	70-125	15761.6	14757.3	106.81	PASS	70-125
N037148-006B	SAMP	1	21648.5	21419.2	101.07	PASS	70-125	15783.8	14757.3	106.96	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCV6	CCV	1	21847.6	21419.2	102	PASS	70-125	16031.8	14757.3	108.64	PASS	70-125
CCB6	CCB	1	21105.6	21419.2	98.54	PASS	70-125	15235.5	14757.3	103.24	PASS	70-125
N037148-009B	SAMP	1	17928.3	21419.2	83.7	PASS	70-125	12982.3	14757.3	87.97	PASS	70-125
N037148-009B	SAMP	1	19421.2	21419.2	90.67	PASS	70-125	14085.6	14757.3	95.45	PASS	70-125
N037148-006B	SAMP	1	20048.6	21419.2	93.6	PASS	70-125	14335.7	14757.3	97.14	PASS	70-125
CCV7	CCV	1	19917.4	21419.2	92.99	PASS	70-125	14645	14757.3	99.24	PASS	70-125
CCB7	CCB	1	19741.6	21419.2	92.17	PASS	70-125	14531.5	14757.3	98.47	PASS	70-125
ICSA3	ICSA	1	21539.4	21419.2	100.56	PASS	70-125	15415.7	14757.3	104.46	PASS	70-125
ICSAB3	ICSAB	1	21434.8	21419.2	100.07	PASS	70-125	16011.8	14757.3	108.5	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	539412.2	539412.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	526049.2	539412.2	97.52	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	520772.2	539412.2	96.54	PASS	70-125
Std3-5/50 ppb	ICAL	1	515360.7	539412.2	95.54	PASS	70-125
Std4-10/100 ppb	ICAL	1	506117.4	539412.2	93.83	PASS	70-125
Std5-20/200 ppb	ICAL	1	502541.3	539412.2	93.16	PASS	70-125
Std6-40/400 ppb	ICAL	1	495767.1	539412.2	91.91	PASS	70-125
Std7-100/1000 ppb	ICAL	1	494434.6	539412.2	91.66	PASS	70-125
Std8-200/2000 ppb	ICAL	1	491272.8	539412.2	91.076	PASS	70-125
ICV	ICV	1	534864.8	539412.2	99.16	PASS	70-125
ICB	ICB	1	479617.3	539412.2	88.91	PASS	70-125
LLICV	CCV1	1	466799.9	539412.2	86.54	PASS	70-125
ICSA1	ICSA	1	506052.6	539412.2	93.82	PASS	70-125
ICSAB1	ICSAB	1	531429.3	539412.2	98.52	PASS	70-125
LLICV	CCV1	1	460367.7	539412.2	85.35	PASS	70-125
MB-75182	MBLK	1	534640	539412.2	99.12	PASS	70-125
LCS75182	LCS	1	449285.2	539412.2	83.29	PASS	70-125
N037148-001B	SAMP	1	492582.3	539412.2	91.32	PASS	70-125
N037148-001B	SAMP	5	516438.9	539412.2	95.74	PASS	70-125
N037148-001B-PS	PS	1	503892.8	539412.2	93.42	PASS	70-125
N037148-001B-MS	MS	1	513045.6	539412.2	95.11	PASS	70-125
N037148-001B-MSD	MSD	1	509462.8	539412.2	94.45	PASS	70-125
N037148-002B	SAMP	1	497411.3	539412.2	92.21	PASS	70-125
N037148-003B	SAMP	1	498957.6	539412.2	92.5	PASS	70-125
N037148-004B	SAMP	1	494993.6	539412.2	91.77	PASS	70-125
CCV1	CCV	1	517071.1	539412.2	95.86	PASS	70-125
CCB1	CCB	1	509243.8	539412.2	94.41	PASS	70-125
N037148-005B	SAMP	1	475094.4	539412.2	88.076	PASS	70-125
N037148-006B	SAMP	1	489255.9	539412.2	90.7	PASS	70-125
N037148-007B	SAMP	1	503687.6	539412.2	93.38	PASS	70-125
N037148-008B	SAMP	1	491212.3	539412.2	91.064	PASS	70-125
N037148-009B	SAMP	1	489035.8	539412.2	90.66	PASS	70-125
N037148-010B	SAMP	1	481399.3	539412.2	89.25	PASS	70-125
N037148-011B	SAMP	1	495517.1	539412.2	91.86	PASS	70-125
N037148-012B	SAMP	1	485097	539412.2	89.93	PASS	70-125
N037178-001A	SAMP	1	465734.1	539412.2	86.34	PASS	70-125
N037178-003A	SAMP	1	476927.4	539412.2	88.42	PASS	70-125
CCV2	CCV	1	551482.6	539412.2	102.24	PASS	70-125
CCB2	CCB	1	536953.8	539412.2	99.54	PASS	70-125
N037180-001A	SAMP	1	414033	539412.2	76.76	PASS	70-125
N037180-003A	SAMP	1	405969.8	539412.2	75.26	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N037184-001A	SAMP	1	409965	539412.2	76.002	PASS	70-125
N037186-001A	SAMP	1	424887.4	539412.2	78.77	PASS	70-125
N037180-001A	SAMP	10	492852.7	539412.2	91.37	PASS	70-125
N037180-003A	SAMP	10	494822	539412.2	91.73	PASS	70-125
CCV3	CCV	1	558859.6	539412.2	103.61	PASS	70-125
CCB3	CCB	1	550409.7	539412.2	102.04	PASS	70-125
N037184-001A	SAMP	5	457244.8	539412.2	84.77	PASS	70-125
N037186-001A	SAMP	10	486745.1	539412.2	90.24	PASS	70-125
N037148-001B	SAMP	1	531581.6	539412.2	98.55	PASS	70-125
N037148-002B	SAMP	1	526880.5	539412.2	97.68	PASS	70-125
N037148-003B	SAMP	1	532459.2	539412.2	98.71	PASS	70-125
N037148-005B	SAMP	1	508411.3	539412.2	94.25	PASS	70-125
N037148-006B	SAMP	1	515808	539412.2	95.62	PASS	70-125
N037148-007B	SAMP	1	534800.8	539412.2	99.15	PASS	70-125
N037148-008B	SAMP	1	511574.9	539412.2	94.84	PASS	70-125
CCV4	CCV	1	540628.7	539412.2	100.23	PASS	70-125
CCB4	CCB	1	539905.8	539412.2	100.09	PASS	70-125
N037148-009B	SAMP	1	497105.1	539412.2	92.16	PASS	70-125
N037148-012B	SAMP	1	497224.5	539412.2	92.18	PASS	70-125
N037148-001B	SAMP	1	525684.2	539412.2	97.46	PASS	70-125
N037148-002B	SAMP	1	526218.8	539412.2	97.55	PASS	70-125
N037148-005B	SAMP	1	513847	539412.2	95.26	PASS	70-125
N037148-006B	SAMP	1	527111.5	539412.2	97.72	PASS	70-125
N037148-007B	SAMP	1	540769.1	539412.2	100.25	PASS	70-125
N037148-008B	SAMP	1	522967.7	539412.2	96.95	PASS	70-125
N037148-009B	SAMP	1	521336.5	539412.2	96.65	PASS	70-125
N037148-012B	SAMP	1	512237	539412.2	94.96	PASS	70-125
CCV5	CCV	1	556871	539412.2	103.24	PASS	70-125
CCB5	CCB	1	542259.5	539412.2	100.53	PASS	70-125
ICSA2	ICSA	1	534092.5	539412.2	99.014	PASS	70-125
ICSAB2	ICSAB	1	537241.3	539412.2	99.6	PASS	70-125
N037148-001B	SAMP	1	496700	539412.2	92.082	PASS	70-125
N037148-006B	SAMP	1	497889	539412.2	92.3	PASS	70-125
N037148-008B	SAMP	1	496479.4	539412.2	92.041	PASS	70-125
N037148-009B	SAMP	1	490619.7	539412.2	90.95	PASS	70-125
N037148-001B	SAMP	1	493549.3	539412.2	91.5	PASS	70-125
N037148-006B	SAMP	1	490747	539412.2	90.98	PASS	70-125
N037148-008B	SAMP	1	497707.8	539412.2	92.27	PASS	70-125
N037148-009B	SAMP	1	490057.6	539412.2	90.85	PASS	70-125
N037148-001B	SAMP	1	494590.2	539412.2	91.69	PASS	70-125
N037148-006B	SAMP	1	493715.8	539412.2	91.53	PASS	70-125

INTERNAL STANDARD: 190911B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
CCV6	CCV	1	528082.6	539412.2	97.9	PASS	70-125
CCB6	CCB	1	514762.3	539412.2	95.43	PASS	70-125
N037148-009B	SAMP	1	432187.7	539412.2	80.12	PASS	70-125
N037148-009B	SAMP	1	455719.3	539412.2	84.48	PASS	70-125
N037148-006B	SAMP	1	461291.5	539412.2	85.52	PASS	70-125
CCV7	CCV	1	488068.7	539412.2	90.48	PASS	70-125
CCB7	CCB	1	486070.8	539412.2	90.11	PASS	70-125
ICSA3	ICSA	1	494940.1	539412.2	91.76	PASS	70-125
ICSAB3	ICSAB	1	500065.2	539412.2	92.71	PASS	70-125

INTERNAL STANDARD: 190913A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	26462.4	26462.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	26078.4	26462.4	98.55	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	25959.4	26462.4	98.099	PASS	70-125
Std3-5/50 ppb	ICAL	1	25875.8	26462.4	97.78	PASS	70-125
Std4-10/100 ppb	ICAL	1	25295.1	26462.4	95.59	PASS	70-125
Std5-20/200 ppb	ICAL	1	25488.5	26462.4	96.32	PASS	70-125
Std6-40/400 ppb	ICAL	1	25642.1	26462.4	96.9	PASS	70-125
Std7-100/1000 ppb	ICAL	1	25435.1	26462.4	96.12	PASS	70-125
Std8-200/2000 ppb	ICAL	1	24564.9	26462.4	92.83	PASS	70-125
ICV	ICV	1	26469	26462.4	100.03	PASS	70-125
ICB	ICB	1	24602.8	26462.4	92.97	PASS	70-125
LLICV	CCV1	1	27894.8	26462.4	105.41	PASS	70-125
ICSA1	ICSA	1	30320.2	26462.4	114.58	PASS	70-125
ICSAB1	ICSAB	1	31722.9	26462.4	119.88	PASS	70-125
LLICV	CCV1	1	30879.1	26462.4	116.69	PASS	70-125
N037148-006B	SAMP	1	24669.6	26462.4	93.23	PASS	70-125
N037148-008B	SAMP	1	27681.1	26462.4	104.61	PASS	70-125
N037148-006B	SAMP	1	27182.5	26462.4	102.72	PASS	70-125
N037148-006B	SAMP	1	27755.6	26462.4	104.89	PASS	70-125
CCV1	CCV	1	25208.1	26462.4	95.26	PASS	70-125
CCB1	CCB	1	24750.8	26462.4	93.53	PASS	70-125
CCV2	CCV	1	26432.4	26462.4	99.89	PASS	70-125
CCB2	CCB	1	27799.1	26462.4	105.05	PASS	70-125
CCV3	CCV	1	26683.8	26462.4	100.84	PASS	70-125
CCB3	CCB	1	25713.3	26462.4	97.17	PASS	70-125
ICSA2	ICSA	1	27276.1	26462.4	103.08	PASS	70-125
ICSAB2	ICSAB	1	24576	26462.4	92.87	PASS	70-125
CCV4	CCV	1	26397.8	26462.4	99.76	PASS	70-125
CCB4	CCB	1	25946.1	26462.4	98.049	PASS	70-125
CCV5	CCV	1	26194.3	26462.4	98.99	PASS	70-125
CCB5	CCB	1	25831.3	26462.4	97.62	PASS	70-125
CCV6	CCV	1	27982.8	26462.4	105.75	PASS	70-125
CCB6	CCB	1	26848.6	26462.4	101.46	PASS	70-125
ICSA3	ICSA	1	21929.9	26462.4	82.87	PASS	70-125
ICSAB3	ICSAB	1	25167.1	26462.4	95.11	PASS	70-125
CCV7	CCV	1	27166.9	26462.4	102.66	PASS	70-125
CCB7	CCB	1	26026.1	26462.4	98.35	PASS	70-125
CCV8	CCV	1	23227.4	26462.4	87.78	PASS	70-125
CCB8	CCB	1	23458.8	26462.4	88.65	PASS	70-125
ICSA4	ICSA	1	24750.7	26462.4	93.53	PASS	70-125
ICSAB4	ICSAB	1	26047.1	26462.4	98.43	PASS	70-125

INTERNAL STANDARD: 190913A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
CCV9	CCV	1	22131.4	26462.4	83.63	PASS	70-125
CCB9	CCB	1	21775.3	26462.4	82.29	PASS	70-125
CCV10	CCV	1	21324.8	26462.4	80.59	PASS	70-125
CCB10	CCB	1	21213.5	26462.4	80.16	PASS	70-125
ICSA5	ICSA	1	23006	26462.4	86.94	PASS	70-125
ICSAB5	ICSAB	1	24281.2	26462.4	91.76	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037148
Test Method: EPA 6020
Analysis Date: 9/11/2019

Matrix: Groundwater
Batch No.: 75182

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037148-001B DT 5x	Arsenic	As	µg/L	2.678161	NA	2.402175	11.49%	10
N037148-001B DT 5x	Barium	Ba	µg/L	115.9356	PASS	111.7166	3.78%	10
N037148-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N037148-001B DT 5x	Molybdenum	Mo	µg/L	4.445647	NA	4.466146	0.46%	10
N037148-001B DT 5x	Selenium	Se	µg/L	2.074343	NA	1.6087	28.95%	10
N037148-001B DT 5x	Chromium	Cr	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N037148-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ZZZZZZ**	Batch ID: **75182**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/11/2019**	SeqNo: **3509948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.441	0.10	10.00	2.402	100	80	120				
Barium	117.728	1.0	10.00	111.7	60.1	80	120				S
Manganese	101.882	0.50	100.0	0	102	80	120				
Molybdenum	15.495	0.50	10.00	4.466	110	80	120				

Sample ID **N037148-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID: **ZZZZZZ**	Batch ID: **75182**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/11/2019**	SeqNo: **3510843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	12.583	0.50	10.00	1.609	110	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037148
Project: PG&E Topock - RMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N037148-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136415**
Client ID:	**ZZZZZZ**	Batch ID: **75182**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/11/2019**	SeqNo: **3510122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.065	1.0	10.00	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

September 19, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037314

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 04, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N037313-001C-MS1 and N037313-001C-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N037313-001C-MS1 and N037313-001C-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N037314-001B-MS2 and N037314-001B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *19-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N037314
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037314-001A	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-001B	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-001C	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-001D	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-002A	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019
N037314-002B	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019
N037314-002C	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019
N037314-002D	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190905D**	QC Batch: **R136304**		PrepDate				Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	9/5/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190905D**	QC Batch: **R136304**			PrepDate			Analyst: **LR**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	9/5/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037314-002CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:			RunNo: **136304**		
Client ID: **ZZZZZZ**	Batch ID: **R136304**	TestNo: **EPA 120.1**		Analysis Date: **9/5/2019**			SeqNo: **3503602**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7170.000	0.10						7180	0.139	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190905C**	QC Batch: **R136303**			PrepDate			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	9/5/2019 09:30 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	9/5/2019 09:30 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190905C**	QC Batch: **R136303**			PrepDate			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	9/5/2019 09:30 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	9/5/2019 09:30 AM

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037314-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **136303**
Client ID: **ZZZZZZ** Batch ID: **R136303** TestNo: **SM4500-H+B** Analysis Date: **9/5/2019** SeqNo: **3503592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.500	0.10						7.480	0.267	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190905G**	QC Batch: **75279**			PrepDate		**9/5/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1400	17	17		mg/L	1	9/5/2019 01:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190905G**	QC Batch: **75279**			PrepDate	**9/5/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	9/5/2019 01:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-75279**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/5/2019**	RunNo: **136321**
Client ID: **LCSW**	Batch ID: **75279**	TestNo: **SM2540C**		Analysis Date: **9/5/2019**	SeqNo: **3503994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	969.000	10	1000	0	96.9	80	120				

Sample ID **MB-75279**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/5/2019**	RunNo: **136321**
Client ID: **PBW**	Batch ID: **75279**	TestNo: **SM2540C**		Analysis Date: **9/5/2019**	SeqNo: **3503995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N037314-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/5/2019**	RunNo: **136321**
Client ID: **ZZZZZZ**	Batch ID: **75279**	TestNo: **SM2540C**		Analysis Date: **9/5/2019**	SeqNo: **3504000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4170.000	50						4235	1.55	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190909D**	QC Batch: **75296**			PrepDate		**9/6/2019**	Analyst: **CEI**
Calcium	130000	85	500		µg/L	1	9/10/2019 06:28 AM
Iron	150	18	20		µg/L	1	9/10/2019 06:28 AM
Magnesium	31000	48	100		µg/L	1	9/10/2019 06:28 AM
Sodium	300000	2400	12000		µg/L	25	9/10/2019 07:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190909D**	QC Batch: **75296**			PrepDate	**9/6/2019**		Analyst: **CEI**
Calcium	190000	85	500		µg/L	1	9/10/2019 06:33 AM
Iron	ND	18	20		µg/L	1	9/10/2019 06:33 AM
Magnesium	25000	48	100		µg/L	1	9/10/2019 06:33 AM
Sodium	1300000	4800	25000		µg/L	50	9/10/2019 07:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-75296**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/6/2019**	RunNo: **136385**
Client ID: **PBW**	Batch ID: **75296**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS1-75296**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/6/2019**	RunNo: **136385**
Client ID: **LCSW**	Batch ID: **75296**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10074.332	500	10000	0	101	85	115				
Iron	105.063	20	100.0	0	105	85	115				
Magnesium	10465.594	100	10000	0	105	85	115				

Sample ID **N037313-001C-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/6/2019**	RunNo: **136385**
Client ID: **ZZZZZZ**	Batch ID: **75296**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	199834.057	500	10000	206400	-65.5	75	125				S
Iron	72.717	20	100.0	0	72.7	75	125				S
Magnesium	33982.410	100	10000	26790	71.9	75	125				S

Sample ID **N037313-001C-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/6/2019**	RunNo: **136385**
Client ID: **ZZZZZZ**	Batch ID: **75296**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	195789.881	500	10000	206400	-106	75	125	199800	2.04	20	S
Iron	71.637	20	100.0	0	71.6	75	125	72.72	1.50	20	S
Magnesium	33486.385	100	10000	26790	67.0	75	125	33980	1.47	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-75296	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	PBW	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508836

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID	LCS2-75296	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	LCSW	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508837

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	18979.391	500	20000	0	94.9	85	115				

Sample ID	N037314-001B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508845

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	300576.840	12000	20000	296300	21.2	75	125				S

Sample ID	N037314-001B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508846

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	303669.844	12000	20000	296300	36.7	75	125	300600	1.02	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	N037313-001C-PS	SampType:	PS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	136385
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3507569

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	209948.277	500	10000	206400	35.6	80	120				S
Iron	72.730	20	100.0	0	72.7	80	120				S
Magnesium	35379.253	100	10000	26790	85.9	80	120				

Sample ID	N037314-001B-PS	SampType:	PS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	303397.004	12000	20000	296300	35.3	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**			PrepDate	**9/9/2019**		Analyst: **CEI**
Manganese	410	1.3	2.5		µg/L	5	9/10/2019 01:07 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**			PrepDate	**9/9/2019**		Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	9/10/2019 01:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-75309**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **PBW**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **LCS-75309**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **LCSW**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.931	0.50	100.0	0	102	85	115				

Sample ID **N037355-001A-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **ZZZZZZ**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	248.875	2.5	100.0	147.6	101	75	125				

Sample ID **N037355-001A-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **ZZZZZZ**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	247.448	2.5	100.0	147.6	99.8	75	125	248.9	0.575	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190911A**	QC Batch: **R136400**			PrepDate			Analyst: **HG**
Hexavalent Chromium	0.69	0.033	0.20		µg/L	1	9/11/2019 01:16 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**			PrepDate	**9/9/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/10/2019 01:02 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190911A**	QC Batch: **R136400**			PrepDate			Analyst: **HG**
Hexavalent Chromium	500	1.7	10		µg/L	50	9/11/2019 01:35 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**			PrepDate	**9/9/2019**		Analyst: **CEI**
Chromium	450	0.65	5.0		µg/L	5	9/10/2019 01:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-75309	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	PBW	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/9/2019	SeqNo:	3508321

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75309	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	LCSW	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/9/2019	SeqNo:	3508322

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.281	1.0	10.00	0	103	85	115				

Sample ID	N037355-001A-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	ZZZZZZ	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/10/2019	SeqNo:	3508328

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.303	1.0	10.00	1.842	94.6	75	125				

Sample ID	N037355-001A-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	ZZZZZZ	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/10/2019	SeqNo:	3508334

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.392	1.0	10.00	1.842	95.5	75	125	11.30	0.781	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136400	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	PBW	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508749

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136400	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	LCSW	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.948	0.20	5.000	0	99.0	90	110				

Sample ID	N037403-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508754

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.697	1.0	5.000	0	93.9	90	110				

Sample ID	N037403-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508755

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.066	1.0	5.000	0	101	90	110				

Sample ID	N037405-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508756

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.901	1.0	5.000	0	98.0	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037403-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	1.0	5.000	0	99.2	90	110	4.697	5.47	20	

Sample ID **N037405-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	1.0						0	0	20	

Sample ID **N037313-002CMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.100	0.20	1.000	0.07670	102	90	110				

Sample ID **N037314-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.746	0.20	1.000	0.6929	105	90	110				

Sample ID **N037314-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	776.110	10	250.0	503.9	109	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037313-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3509851

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	692.960	10	250.0	440.3	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190905B**	QC Batch: **R136302**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	9/5/2019 09:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190905B**	QC Batch: **R136302**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	9/5/2019 09:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R136302**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **LCSW**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503584**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	101.293	5.0	100.0	0	101	85	115				

Sample ID **MB-R136302**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **PBW**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503585**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N037314-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **ZZZZZZ**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503587**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	221.983	5.0						223.1	0.484	30	

Sample ID **N037314-001CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **ZZZZZZ**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503588**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	323.276	5.0	100.0	223.1	100	75	125				

Sample ID **N037314-001CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **ZZZZZZ**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503589**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	321.121	5.0	100.0	223.1	98.1	75	125	323.3	0.669	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190910B**	QC Batch: **R136413**			PrepDate			Analyst: **HG**
Chloride	430	3.5	50		mg/L	100	9/10/2019 01:44 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190910B**	QC Batch: **R136413**			PrepDate			Analyst: **HG**
Sulfate	250	2.0	25		mg/L	50	9/10/2019 11:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190910B** QC Batch: **R136413**				PrepDate			Analyst: **HG**
Chloride	1900	17	250		mg/L	500	9/10/2019 02:34 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190910B** QC Batch: **R136413**				PrepDate			Analyst: **HG**
Sulfate	480	2.0	25		mg/L	50	9/10/2019 11:29 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R136413_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	PBW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509625

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.096	0.50									

Sample ID	LCS-R136413_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	LCSW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509626

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.007	0.50	2.000	0	100	90	110				

Sample ID	N037225-001BMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509628

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	961.820	100	400.0	549.9	103	80	120				

Sample ID	N037225-001BMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509629

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	964.260	100	400.0	549.9	104	80	120	961.8	0.253	20	

Sample ID	N037314-001CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509633

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	435.540	50						434.8	0.172	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136413_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	PBW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509651

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R136413_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	LCSW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509652

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.003	0.50	4.000	0	100	90	110				

Sample ID	N037225-001BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509656

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	241.944	10	80.00	162.0	100	80	120				

Sample ID	N037225-001BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509657

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	242.666	10	80.00	162.0	101	80	120	241.9	0.298	20	

Sample ID	N037314-002CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509660

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	482.865	25						480.5	0.496	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N037313-002BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509662

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	675.005	25	200.0	478.5	98.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**		PrepDate				Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**		PrepDate				Analyst: **MBC**
Nitrate/Nitrite as N	2.7	0.16	0.25		mg/L	5	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136491	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	PBW	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513045

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136491	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	LCSW	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513046

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.556	0.050	0.5000	0	111	85	115				

Sample ID	N037148-012EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513048

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.331	0.050						0.3220	2.73	20	

Sample ID	N037176-004BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513050

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	24.435	2.5	25.00	0	97.7	75	125				

Sample ID	N037176-004BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513051

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	26.250	2.5	25.00	0	105	75	125	24.44	7.16	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

ARCUS02 C: 9/18/2019 12:00 AM
FOLDER R: 9/4/2019
N037314-003A 1 of 1

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: [redacted]	Address:	
Phone: 916-786-3302 / Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@nivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Spencer Doolittle		Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech	Phone: 916-786-3302 / Fax:		
Signature: SD Date: 9/4/19	Sampled By: Spencer Doolittle		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		
Project Name: PG&E Topock - PMP	Signature: SD Date: 9/4/19		
Project Number: RC000753.801D			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

| | | |

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/4/2019	Workorder:	N037314
Rep sample Temp (Deg C):	3.1	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 9/5/2019

Reviewed By: LG 091019

ASSET Laboratories

WORK ORDER Summary

05-Sep-19

WorkOrder: N037314

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 9/4/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037314-001A	PE-01-0919	9/4/2019 12:40:00 PM	9/18/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037314-001B			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037314-001C			9/18/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/18/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/18/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/18/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/18/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037314-001D			9/18/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037314-002A	TW-03D-0919	9/4/2019 12:30:00 PM	9/18/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037314-002B			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037314-002C			9/18/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/18/2019		SM4500-H+B	pH	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

05-Sep-19

WorkOrder: N037314

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 9/4/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037314-002C	TW-03D-0919	9/4/2019 12:30:00 PM	9/18/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/18/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/18/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037314-002D			9/18/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037314-003A	FOLDER	9/18/2019	9/18/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/18/2019		Folder	Folder	☐	☐	☐	LAB
			9/18/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N037314

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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September 19, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037314

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 04, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N037313-001C-MS1 and N037313-001C-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N037313-001C-MS1 and N037313-001C-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N037314-001B-MS2 and N037314-001B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *19-Sep-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N037314
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037314-001A	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-001B	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-001C	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-001D	PE-01-0919	Groundwater	9/4/2019 12:40:00 PM	9/4/2019	9/19/2019
N037314-002A	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019
N037314-002B	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019
N037314-002C	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019
N037314-002D	TW-03D-0919	Groundwater	9/4/2019 12:30:00 PM	9/4/2019	9/19/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190905D**	QC Batch: **R136304**			PrepDate			Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	9/5/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190905D**	QC Batch: **R136304**			PrepDate			Analyst: **LR**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	9/5/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037314-002CDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **136304**
Client ID: **ZZZZZZ** Batch ID: **R136304** TestNo: **EPA 120.1** Analysis Date: **9/5/2019** SeqNo: **3503602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7170.000	0.10						7180	0.139	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190905C**	QC Batch: **R136303**			PrepDate			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	9/5/2019 09:30 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	9/5/2019 09:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190905C**	QC Batch: **R136303**			PrepDate			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	9/5/2019 09:30 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	9/5/2019 09:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N037314-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **136303**
Client ID: **ZZZZZZ** Batch ID: **R136303** TestNo: **SM4500-H+B** Analysis Date: **9/5/2019** SeqNo: **3503592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.500	0.10						7.480	0.267	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190905G**	QC Batch: **75279**			PrepDate		**9/5/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1400	17	17		mg/L	1	9/5/2019 01:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190905G**	QC Batch: **75279**			PrepDate	**9/5/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	9/5/2019 01:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-75279**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/5/2019**	RunNo: **136321**
Client ID: **LCSW**	Batch ID: **75279**	TestNo: **SM2540C**		Analysis Date: **9/5/2019**	SeqNo: **3503994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	969.000	10	1000	0	96.9	80	120				

Sample ID **MB-75279**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/5/2019**	RunNo: **136321**
Client ID: **PBW**	Batch ID: **75279**	TestNo: **SM2540C**		Analysis Date: **9/5/2019**	SeqNo: **3503995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N037314-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/5/2019**	RunNo: **136321**
Client ID: **ZZZZZZ**	Batch ID: **75279**	TestNo: **SM2540C**		Analysis Date: **9/5/2019**	SeqNo: **3504000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4170.000	50						4235	1.55	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037314
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037314-001

Client Sample ID: PE-01-0919
Collection Date: 9/4/2019 12:40:00 PM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP

EPA 200.7

RunID: **NV00922-ICP2_190909D** QC Batch: **75296** PrepDate **9/6/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Calcium	130000	85	500		µg/L	1	9/10/2019 06:28 AM
Iron	150	18	20		µg/L	1	9/10/2019 06:28 AM
Magnesium	31000	48	100		µg/L	1	9/10/2019 06:28 AM
Sodium	300000	2400	12000		µg/L	25	9/10/2019 07:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190909D**	QC Batch: **75296**			PrepDate	**9/6/2019**	Analyst: **CEI**	
Calcium	190000	85	500		µg/L	1	9/10/2019 06:33 AM
Iron	ND	18	20		µg/L	1	9/10/2019 06:33 AM
Magnesium	25000	48	100		µg/L	1	9/10/2019 06:33 AM
Sodium	1300000	4800	25000		µg/L	50	9/10/2019 07:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-75296** SampType: **MBLK** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/6/2019** RunNo: **136385**
Client ID: **PBW** Batch ID: **75296** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS1-75296** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/6/2019** RunNo: **136385**
Client ID: **LCSW** Batch ID: **75296** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10074.332	500	10000	0	101	85	115				
Iron	105.063	20	100.0	0	105	85	115				
Magnesium	10465.594	100	10000	0	105	85	115				

Sample ID **N037313-001C-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/6/2019** RunNo: **136385**
Client ID: **ZZZZZZ** Batch ID: **75296** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	199834.057	500	10000	206400	-65.5	75	125				S
Iron	72.717	20	100.0	0	72.7	75	125				S
Magnesium	33982.410	100	10000	26790	71.9	75	125				S

Sample ID **N037313-001C-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/6/2019** RunNo: **136385**
Client ID: **ZZZZZZ** Batch ID: **75296** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	195789.881	500	10000	206400	-106	75	125	199800	2.04	20	S
Iron	71.637	20	100.0	0	71.6	75	125	72.72	1.50	20	S
Magnesium	33486.385	100	10000	26790	67.0	75	125	33980	1.47	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-75296	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	PBW	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508836

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID	LCS2-75296	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	LCSW	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508837

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	18979.391	500	20000	0	94.9	85	115				

Sample ID	N037314-001B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508845

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	300576.840	12000	20000	296300	21.2	75	125				S

Sample ID	N037314-001B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/6/2019	RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508846

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	303669.844	12000	20000	296300	36.7	75	125	300600	1.02	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	N037313-001C-PS	SampType:	PS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	136385
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3507569

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	209948.277	500	10000	206400	35.6	80	120				S
Iron	72.730	20	100.0	0	72.7	80	120				S
Magnesium	35379.253	100	10000	26790	85.9	80	120				

Sample ID	N037314-001B-PS	SampType:	PS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:		RunNo:	136398
Client ID:	ZZZZZZ	Batch ID:	75296	TestNo:	EPA 200.7			Analysis Date:	9/10/2019	SeqNo:	3508844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	303397.004	12000	20000	296300	35.3	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037314
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037314-001

Client Sample ID: PE-01-0919
Collection Date: 9/4/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**				PrepDate	**9/9/2019**	Analyst: **CEI**
Manganese	410	1.3	2.5		µg/L	5	9/10/2019 01:07 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**				PrepDate	**9/9/2019**	Analyst: **CEI**
Manganese	ND	0.26	0.50		µg/L	1	9/10/2019 01:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-75309**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **PBW**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **LCS-75309**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **LCSW**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.931	0.50	100.0	0	102	85	115				

Sample ID **N037355-001A-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **ZZZZZZ**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	248.875	2.5	100.0	147.6	101	75	125				

Sample ID **N037355-001A-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/9/2019**	RunNo: **136393**
Client ID: **ZZZZZZ**	Batch ID: **75309**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	247.448	2.5	100.0	147.6	99.8	75	125	248.9	0.575	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190911A**	QC Batch: **R136400**			PrepDate			Analyst: **HG**
Hexavalent Chromium	0.69	0.033	0.20		µg/L	1	9/11/2019 01:16 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**			PrepDate	**9/9/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	9/10/2019 01:02 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190911A**	QC Batch: **R136400**			PrepDate			Analyst: **HG**
Hexavalent Chromium	500	1.7	10		µg/L	50	9/11/2019 01:35 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190909C**	QC Batch: **75309**			PrepDate	**9/9/2019**		Analyst: **CEI**
Chromium	450	0.65	5.0		µg/L	5	9/10/2019 01:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-75309	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	PBW	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/9/2019	SeqNo:	3508321

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75309	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	LCSW	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/9/2019	SeqNo:	3508322

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.281	1.0	10.00	0	103	85	115				

Sample ID	N037355-001A-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	ZZZZZZ	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/10/2019	SeqNo:	3508328

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.303	1.0	10.00	1.842	94.6	75	125				

Sample ID	N037355-001A-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/9/2019	RunNo:	136393
Client ID:	ZZZZZZ	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/10/2019	SeqNo:	3508334

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.392	1.0	10.00	1.842	95.5	75	125	11.30	0.781	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136400	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	PBW	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508749

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136400	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	LCSW	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.948	0.20	5.000	0	99.0	90	110				

Sample ID	N037403-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508754

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.697	1.0	5.000	0	93.9	90	110				

Sample ID	N037403-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508755

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.066	1.0	5.000	0	101	90	110				

Sample ID	N037405-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3508756

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.901	1.0	5.000	0	98.0	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037403-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	1.0	5.000	0	99.2	90	110	4.697	5.47	20	

Sample ID **N037405-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	1.0						0	0	20	

Sample ID **N037313-002CMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.100	0.20	1.000	0.07670	102	90	110				

Sample ID **N037314-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.746	0.20	1.000	0.6929	105	90	110				

Sample ID **N037314-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **ZZZZZZ** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3508773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	776.110	10	250.0	503.9	109	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037313-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136400
Client ID:	ZZZZZZ	Batch ID:	R136400	TestNo:	EPA 218.6			Analysis Date:	9/11/2019	SeqNo:	3509851

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	692.960	10	250.0	440.3	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:40:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190905B**	QC Batch: **R136302**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	9/5/2019 09:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190905B**	QC Batch: **R136302**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	9/5/2019 09:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R136302**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **LCSW**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503584**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	101.293	5.0	100.0	0	101	85	115				

Sample ID **MB-R136302**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **PBW**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503585**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N037314-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **ZZZZZZ**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503587**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	221.983	5.0						223.1	0.484	30	

Sample ID **N037314-001CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **ZZZZZZ**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503588**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	323.276	5.0	100.0	223.1	100	75	125				

Sample ID **N037314-001CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **136302**			
Client ID: **ZZZZZZ**	Batch ID: **R136302**	TestNo: **SM 2320 B**		Analysis Date: **9/5/2019**			SeqNo: **3503589**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	321.121	5.0	100.0	223.1	98.1	75	125	323.3	0.669	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037314
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037314-001

Client Sample ID: PE-01-0919
Collection Date: 9/4/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190910B** QC Batch: **R136413**				PrepDate			Analyst: **HG**
Chloride	430	3.5	50		mg/L	100	9/10/2019 01:44 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190910B** QC Batch: **R136413**				PrepDate			Analyst: **HG**
Sulfate	250	2.0	25		mg/L	50	9/10/2019 11:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190910B** QC Batch: **R136413**				PrepDate			Analyst: **HG**
Chloride	1900	17	250		mg/L	500	9/10/2019 02:34 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190910B** QC Batch: **R136413**				PrepDate			Analyst: **HG**
Sulfate	480	2.0	25		mg/L	50	9/10/2019 11:29 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R136413_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	PBW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509625

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.096	0.50									

Sample ID	LCS-R136413_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	LCSW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509626

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.007	0.50	2.000	0	100	90	110				

Sample ID	N037225-001BMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509628

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	961.820	100	400.0	549.9	103	80	120				

Sample ID	N037225-001BMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509629

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	964.260	100	400.0	549.9	104	80	120	961.8	0.253	20	

Sample ID	N037314-001CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509633

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	435.540	50						434.8	0.172	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R136413_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	PBW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509651

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R136413_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	LCSW	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509652

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.003	0.50	4.000	0	100	90	110				

Sample ID	N037225-001BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509656

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	241.944	10	80.00	162.0	100	80	120				

Sample ID	N037225-001BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509657

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	242.666	10	80.00	162.0	101	80	120	241.9	0.298	20	

Sample ID	N037314-002CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	136413
Client ID:	ZZZZZZ	Batch ID:	R136413	TestNo:	EPA 300.0			Analysis Date:	9/10/2019	SeqNo:	3509660

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	482.865	25						480.5	0.496	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **N037313-002BMS**	SampType: **MS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **ZZZZZZ**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	675.005	25	200.0	478.5	98.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037314
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N037314-001

Client Sample ID: PE-01-0919
Collection Date: 9/4/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**		PrepDate				Analyst: **MBC**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0919
Lab Order:	N037314	**Collection Date:**	9/4/2019 12:30:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N037314-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190916F**	QC Batch: **R136491**		PrepDate				Analyst: **MBC**
Nitrate/Nitrite as N	2.7	0.16	0.25		mg/L	5	9/16/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136491	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	PBW	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513045

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136491	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	LCSW	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513046

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.556	0.050	0.5000	0	111	85	115				

Sample ID	N037148-012EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513048

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.331	0.050						0.3220	2.73	20	

Sample ID	N037176-004BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513050

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	24.435	2.5	25.00	0	97.7	75	125				

Sample ID	N037176-004BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136491
Client ID:	ZZZZZZ	Batch ID:	R136491	TestNo:	SM4500-NO3			Analysis Date:	9/16/2019	SeqNo:	3513051

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	26.250	2.5	25.00	0	105	75	125	24.44	7.16	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

ARCUS02 C: 9/18/2019 12:00 AM
FOLDER R: 9/4/2019
N037314-003A 1 of 1

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email:	Address:	
Phone: 916-786-3302 / Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@nivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Spencer Doolittle		Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech	Phone: 916-786-3302 / Fax:		
Signature: SD Date: 9/4/19	Sampled By: Spencer Doolittle		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		
Project Name: PG&E Topock - PMP	Signature: SD Date: 9/4/19		
Project Number: RC000753.801D			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact		
4. Seal Present		
5. IR number	2	
6. Method of Cooling: ice		
Sample Temp: 3.1°C		

Courier:

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly (1 L poly) Cr, Mn	Dissolved metals (EPA200.7) FF; HNO3 (1 L poly) Ca, Mg, Fe, Na,	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 (1 L poly) As, Mn, Fe, Se, Mo, Ba	Total metals (SW6010B); HNO3 (500 mL poly) Fe	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037314-01	PE-01-0919	9/4/19	1240		X	X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-0919	9/4/19	1230		X	X	X			X	X	X	X	X		X	E	4	P	BN	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Spencer Doolittle

Relinquished by (Signature and Printed Name): SD	Date/Time: 1345 / 9/4/19	Relinquished by (Signature and Printed Name): SEAN MCGRANE	Date/Time: 9/4/19 1345
Relinquished by (Signature and Printed Name): SEAN MCGRANE	Date/Time: 9/4/19 1620	Relinquished by (Signature and Printed Name): JULIA BUNDRIAN	Date/Time: 9/4/19 1620
Relinquished by (Signature and Printed Name): JULIA BUNDRIAN 9/4/19 18:41	Date/Time:	Relinquished by (Signature and Printed Name): JULIA BUNDRIAN	Date/Time: 9/4/19 18:41

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	$N=HNO_3$	$S=H_2SO_4$	C=4°C	T=Tube	V=VOA	P=Pint
$Z=Zn(AC)_2$	O=NaOH	$T=Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/4/2019	Workorder:	N037314
Rep sample Temp (Deg C):	3.1	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 9/5/2019

Reviewed By: LG 091019

ASSET Laboratories

WORK ORDER Summary

05-Sep-19

WorkOrder: N037314

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 9/4/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037314-001A	PE-01-0919	9/4/2019 12:40:00 PM	9/18/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037314-001B			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037314-001C			9/18/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/18/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			9/18/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/18/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/18/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037314-001D			9/18/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037314-002A	TW-03D-0919	9/4/2019 12:30:00 PM	9/18/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037314-002B			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/18/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/18/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037314-002C			9/18/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			9/18/2019		SM4500-H+B	pH	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

05-Sep-19

WorkOrder: N037314

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 9/4/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037314-002C	TW-03D-0919	9/4/2019 12:30:00 PM	9/18/2019	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			9/18/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			9/18/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			9/18/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
N037314-002D			9/18/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037314-003A	FOLDER	9/18/2019	9/18/2019		EDD	RWQCB	☐	☐	☐	LAB
			9/18/2019		Folder	Folder	☐	☐	☐	LAB
			9/18/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037314

NAME	TEST METHOD
Claire Ignacio	EPA 200.7_Dissolved, EPA 200.8_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B
Hanah Glodoviza	EPA 218.6, EPA 300.0

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136304 **Analyst:** LSR

ASSET #: N037314 **Date Analyzed:** 5-Sep

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/6/2019

2nd Level Reviewer: 9/18/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 8/23/19 1720 KSR 8/23

Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 µS/cm	CINV-190516A	10.06 @ 22.4°C	% Rec: (90-110%)
1410	190724D	1408 @ 22.3°C	
9985	190724F	9940 @ 22.3°C	
99999	190613A	100900 @ 22.2°C	

	Sample ID	Matrix	Reading	Comments
1	N037125-1AB	H2O	9700 @ 25.9°C	
2	~~N037169-1B~~ DUP		9720 @ 25.8°C	
3	N037169-1A		1.09 @ 22.1°C	
4	N037170-1A		1033 @ 22.5°C	
5	N037171-1A		1075 @ 22.5°C	
6	N037172-1A		1087 @ 23.1°C	
7	N037173-1A		1024 @ 22.4°C	
8	N037174-1A		96800 @ 24.4°C	
9	1413 µS/cm	CINV-190313A	1411 @ 26.5°C	
10	10000	B	97100 @ 26.7°C	
Dup	99999	CINV-190524A	97500 @ 26.7°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 9/5/19 1035

Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 µS/cm	CINV-190724B	10.10 @ 25.4°C	% Rec: (90-110%)
1410	190724D	1437 @ 25.4°C	
9985	190724F	10040 @ 25.4°C	
99999	190613A	100600 @ 25.4°C	

	Sample ID	Matrix	Reading	Comments
1	~~N037313-1A~~ MB	H2O	0.45	
2	N037313-1A		6900 @ 23.0°C	
3	2B		7060 @ 22.8°C	
4	N037314-1C		7170 @ 23.6°C	
5	2C		7180 @ 23.9°C	
6	2CDUP		7170 @ 23.8°C	
7				
8			Julia Ramit	9/6/2019
9				
10	1413 µS/cm	CINV-190726A	1447 @ 25.7°C	
Dup	10000	190313B	9930 @ 25.8°C	RPD Criteria: 2%
	Std Chk: 99999	190524A	99700 @ 25.8°C	% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136303 **Instrument ID:** pH meter

ASSET #: N037314 **Analyst:** LSR

Date Analyzed: 5-Sep

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?			X			
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/6/2019

2nd Level Reviewer: 9/18/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 9/5/19 930
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CINV-190724H	7.00 @25°C	
Buffer 4	↓ J	4.01 @25°C	
Buffer 10	CINV-190801A	10.02 @25°C	
Slope		99.1%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB37314-1C	H2O	7.48 @25°C	
2	↓ 1C DUP	↓	7.50 @25°C	
3	↓ 2C	↓	7.19 @25°C	
4				
5				
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CINV-190724K	6.96 @25°C	Accept: +/-0.05 pH units from expected value

Date: 9/5/19
Analyst: JS

Julia Ramit 9/6/2019

Standard	Std ID	pH	Comments
Buffer 7	CINV-190724H J	7.00 @ 25°C	
Buffer 4		4.01 @ 25°C	
Buffer 10	CINV-190801A	10.02 @ 25°C	
Slope		99.1%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB37317-1A	Soil	9.04 | 1.82	
2	2A	↓	8.25 | 1.93	
3	3A		5.16 | 1.85	
4	4A		7.95 | 2.69	
5	5A		7.60 | 3.1	
6	6A		7.75 | 2.5	
7	7A		8.12 | 2.8	
8	8A		7.67 | 2.76	
9	9A		7.50 | 2.79	
10	10A		7.70 | 2.81	
Dup	11A	↓	7.81 | 2.06	Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CINV-190724K	6.98 @ 25°C	Accept: +/-0.05 pH units from expected value

Logbook #16

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75279 **Analyst:** LSR

ASSET #: N037314 **Date Analyzed:** 5-Sep

Method: EPA 160.1 / SM 2540C

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 9/6/2019

2nd Level Reviewer 9/18/2019 Date: →

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N037314-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(49.6680-49.5867)*1000000}{60}$$

= 1355 mg/L

Reporting result in two significant figures,

TDS=1400 mg/L

Divia Ramit 9/6/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/5/2019 1:08:00 P**
Prep End Date: **9/6/2019 11:10:00 A**

Reviewed/ Date: 9/18/2019
Initials/ Date: Lilia Ramit 9/6/2019

Prep Batch **75279** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75279	Water		100	☐	100	1.000		
MB-75279	Water		100	☐	100	1.000		
N037313-001A	Water		20	☐	100	5.000		
N037313-002B	Water		20	☐	100	5.000		
N037314-001C	Groundwater		60	☐	100	1.667		
N037314-002C	Groundwater		20	☐	100	5.000		
N037314-002C-DU	Groundwater		20	☐	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10417	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190819A	1000 ppm ~~Talc~~ NaCl	LCS	100

9/18/2019
for

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/5/2019 1:08:00 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 9/6/2019

Prep Batch **75279** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75279	Water	1005190819A	100	☐	100	1.000		
MB-75279	Water		100	☐	100	1.000		
N037313-001A	Water	6900	100/20	☐	100	1.000		
N037313-002B	Water	7060	100/20	☐	100	1.000		
N037314-001C	Groundwater	2120	100/60	☐	100	1.000		
N037314-002C	Groundwater	7180	100/20	☐	100	1.000		
N037314-002C-DU	Groundwater	1	100/20	☐	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10417

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments Initial
9/5/19 1308 1A	MB 75279	100	76.3878 76.3881	76.3882 76.3881	USR
KK	LCS 75279	100	70.0754 70.0757	70.1724 70.1726	
B1	N037313-1A	USR 9/5 Q 20	49.0406 49.0410	49.1248 49.1249	
USR 9/5 Q	2B	20	~~49.9150~~ USR 9/5 50.6261 50.6265	50.7092 50.7094	
B	N037314-1C	60	49.5866 49.5867	49.6681 49.6680	
R	2C	20	48.0994 48.0998	48.1842 48.1845	
V	2C DUP	20	48.8489 48.8493	48.9324 48.9327	
	Julia Ramit	9/6/2019			
	49.9996 @ 1110	9/6/19 USR			

180°C TIME IN: 800 USR
TIME OUT: 1030

ASSET Laboratories

Logbook#17

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
9/6/2019									
MB-75279	100	76.3881	76.3881	0	1	0			MBLK
LCS-75279	100	70.0757	70.1726	969	1	969			LCS
N037313-001A	20	49.041	49.1249	839	5	4195	6900	0.608	SAMP
N037313-002B	20	50.6265	50.7094	829	5	4145	7060	0.587	SAMP
N037314-001C	60	49.5867	49.668	813	1.66666667	1355	2170	0.624	SAMP
N037314-002C	20	48.0998	48.1845	847	5	4235	7180	0.590	SAMP
N037314-002CDUP	20	48.8493	48.9327	834	5	4170	7180	0.581	DUP

Julia Ramit 9/6/2019

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75296
ASSET #: N037314
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/9/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Ca and Fe in N037313-001C-PS/MS/MSD failed, low bias. However, LCS passed criteria.
% Rec of Mg in N037313-001C-MS/MSD failed, low bias. However, LCS passed criteria.
Dilution test of Mg failed. However, PS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/11/2019

2nd Level Reviewer NS 9/11/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75296
ASSET #: N037314
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/10/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Na in N037314-001B-PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/13/2019

2nd Level Reviewer NS 9/13/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N037314-001B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.15467 * 1 *(25/25) * 1000

Iron , ug/L = 154.67

Reporting results in two significant figures,

Iron , ug/L = 150

% RSD SUMMARY

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Ca	0	6.15	15	PASS
Standard1	ICAL	1	Ca	0.2	5.27	15	PASS
Standard2	ICAL	1	Ca	1	4.6	15	PASS
Standard3	ICAL	1	Ca	2	1.47	15	PASS
Standard4	ICAL	1	Ca	5	0.44	15	PASS
Standard5	ICAL	1	Ca	7.5	0.2	15	PASS
Standard6	ICAL	1	Ca	10	0.43	15	PASS
Standard7	ICAL	1	Ca	20	0.38	15	PASS
ICV	ICV	1	Ca	10.16	0.71	15	PASS
ICB	ICB	1	Ca	-0.00072	2712.43	15	<PQL
LLICV	CCV1	1	Ca	0.2	11.34	20	PASS
LLICV	CCV1	1	Ca	0.18	6.12	20	PASS
ICSA1	ICSA	1	Ca	451.25	0.046	15	PASS
ICSAB1	ICSAB	1	Ca	540.41	0.092	15	PASS
CCV1	CCV	1	Ca	10.54	0.94	15	PASS
CCV1	CCV	1	Ca	10.38	0.77	15	PASS
CCB1	CCB	1	Ca	-0.042	33.73	15	<PQL
CCB1	CCB	1	Ca	-0.035	12.98	15	PASS
CCV2	CCV	1	Ca	10.12	1.18	15	PASS
CCB2	CCB	1	Ca	-0.043	47.82	15	<PQL
CCV3	CCV	1	Ca	10.31	1.042	15	PASS
CCB3	CCB	1	Ca	-0.013	157.83	15	<PQL
ICSA2	ICSA	1	Ca	452.59	0.063	15	PASS
ICSAB2	ICSAB	1	Ca	543.44	0.077	15	PASS
CCV4	CCV	1	Ca	10.044	0.25	15	PASS
CCB4	CCB	1	Ca	-0.05	29.66	15	<PQL
CCV5	CCV	1	Ca	10.19	0.85	15	PASS
CCB5	CCB	1	Ca	-0.035	36.52	15	<PQL
ICSA3	ICSA	1	Ca	464	0.57	15	PASS
ICSAB3	ICSAB	1	Ca	552.3	0.097	15	PASS
MB-75296	MBLK	1	Ca	0.027	81.005	15	<PQL
LCS1-75296	LCS	1	Ca	10.074	0.29	15	PASS
N037313-001C	SAMP	1	Ca	206.39	0.28	15	PASS
N037313-001C	SAMP	5	Ca	41.18	0.69	15	PASS
N037313-001C-PS	PS	1	Ca	209.95	0.52	15	PASS
N037313-001C-MS1	MS	1	Ca	199.83	1.055	15	PASS
N037313-001C-MSD1	MSD	1	Ca	195.79	0.63	15	PASS
CCV6	CCV	1	Ca	10.12	0.71	15	PASS
CCB6	CCB	1	Ca	0.0073	412.85	15	<PQL
CCB6	CCB	1	Ca	-0.0045	616.14	15	<PQL
N037313-002E	SAMP	1	Ca	143.26	0.44	15	PASS
N037314-001B	SAMP	1	Ca	127.87	0.21	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N037314-002B	SAMP	1	Ca	192.71	0.28	15	PASS
CCV7	CCV	1	Ca	10.32	0.37	15	PASS
CCB7	CCB	1	Ca	-0.0087	96.9	15	<PQL
CCV8	CCV	1	Ca	10.31	0.62	15	PASS
CCB8	CCB	1	Ca	-0.015	51.15	15	<PQL
ICSA4	ICSA	1	Ca	457.84	0.12	15	PASS
ICSA4	ICSA	1	Ca	474.96	0.094	15	PASS
ICSAB4	ICSAB	1	Ca	456.08	0.28	15	PASS
ICSAB4	ICSAB	1	Ca	511.11	0.092	15	PASS
N037314-001B	SAMP	1	Ca	127.76	0.33	15	PASS
CCV9	CCV	1	Ca	10.38	0.68	15	PASS
CCB9	CCB	1	Ca	-0.051	19.28	15	<PQL
ICSA5	ICSA	1	Ca	478.27	0.078	15	PASS
ICSAB5	ICSAB	1	Ca	516.8	0.0023	15	PASS
CalBlk	IBLK	1	Fe	0	803.87	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.63	15	PASS
Standard2	ICAL	1	Fe	0.05	1.13	15	PASS
Standard3	ICAL	1	Fe	2	0.045	15	PASS
Standard4	ICAL	1	Fe	5	0.033	15	PASS
Standard5	ICAL	1	Fe	7.5	0.076	15	PASS
Standard6	ICAL	1	Fe	10	0.62	15	PASS
Standard7	ICAL	1	Fe	20	0.022	15	PASS
ICV	ICV	1	Fe	10.15	0.23	15	PASS
ICB	ICB	1	Fe	-0.00055	68.3	15	<PQL
LLICV	CCV1	1	Fe	0.027	1.91	20	PASS
LLICV	CCV1	1	Fe	0.02	4.66	20	PASS
ICSA1	ICSA	1	Fe	176.61	0.72	15	PASS
ICSAB1	ICSAB	1	Fe	177.52	0.41	15	PASS
CCV1	CCV	1	Fe	11.56	0.49	15	PASS
CCV1	CCV	1	Fe	10.63	0.33	15	PASS
CCB1	CCB	1	Fe	-0.0006	106.015	15	<PQL
CCB1	CCB	1	Fe	-0.00051	14.76	15	PASS
CCV2	CCV	1	Fe	10.16	0.11	15	PASS
CCB2	CCB	1	Fe	-0.001	7.72	15	PASS
CCV3	CCV	1	Fe	10.33	0.086	15	PASS
CCB3	CCB	1	Fe	-0.0011	4.48	15	PASS
ICSA2	ICSA	1	Fe	179.66	0.19	15	PASS
ICSAB2	ICSAB	1	Fe	185.35	0.39	15	PASS
CCV4	CCV	1	Fe	10.18	0.087	15	PASS
CCB4	CCB	1	Fe	-0.00012	467.49	15	<PQL
CCV5	CCV	1	Fe	10.48	0.038	15	PASS
CCB5	CCB	1	Fe	0.0064	15.8	15	<PQL

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA3	ICSA	1	Fe	177.7	0.35	15	PASS
ICSAB3	ICSAB	1	Fe	183.6	0.35	15	PASS
MB-75296	MBLK	1	Fe	0.0033	27.7	15	<PQL
LCS1-75296	LCS	1	Fe	0.11	1.32	15	PASS
N037313-001C	SAMP	1	Fe	0.0051	11.68	15	PASS
N037313-001C	SAMP	5	Fe	0.0015	55.051	15	<PQL
N037313-001C-PS	PS	1	Fe	0.073	0.62	15	PASS
N037313-001C-MS1	MS	1	Fe	0.073	1.5	15	PASS
N037313-001C-MSD1	MSD	1	Fe	0.072	0.57	15	PASS
CCV6	CCV	1	Fe	10.2	0.12	15	PASS
CCB6	CCB	1	Fe	0.007	9.11	15	PASS
CCB6	CCB	1	Fe	0.0043	29.3	15	<PQL
N037313-002E	SAMP	1	Fe	0.015	2.079	15	PASS
N037314-001B	SAMP	1	Fe	0.15	0.25	15	PASS
N037314-002B	SAMP	1	Fe	-0.0015	62.59	15	<PQL
CCV7	CCV	1	Fe	10.37	0.098	15	PASS
CCB7	CCB	1	Fe	0.0083	18.85	15	<PQL
CCV8	CCV	1	Fe	10.35	0.091	15	PASS
CCB8	CCB	1	Fe	0.0078	12.62	15	PASS
ICSA4	ICSA	1	Fe	177.14	0.25	15	PASS
ICSA4	ICSA	1	Fe	203.97	0.018	15	PASS
ICSAB4	ICSAB	1	Fe	153.4	0.39	15	PASS
ICSAB4	ICSAB	1	Fe	171.94	0.5	15	PASS
N037314-001B	SAMP	1	Fe	0.16	0.34	15	PASS
CCV9	CCV	1	Fe	10.49	0.037	15	PASS
CCB9	CCB	1	Fe	-0.0023	7.76	15	PASS
ICSA5	ICSA	1	Fe	205.75	0.6	15	PASS
ICSAB5	ICSAB	1	Fe	175.06	0.32	15	PASS
CalBlk	IBLK	1	Mg	0	6.17	15	PASS
Standard1	ICAL	1	Mg	0.1	1.63	15	PASS
Standard2	ICAL	1	Mg	1	0.22	15	PASS
Standard3	ICAL	1	Mg	2	0.44	15	PASS
Standard4	ICAL	1	Mg	5	0.13	15	PASS
Standard5	ICAL	1	Mg	7.5	0.19	15	PASS
Standard6	ICAL	1	Mg	10	1.14	15	PASS
Standard7	ICAL	1	Mg	20	0.12	15	PASS
ICV	ICV	1	Mg	10.2	0.55	15	PASS
ICB	ICB	1	Mg	-0.0099	8.43	15	PASS
LLICV	CCV1	1	Mg	0.11	2.26	20	PASS
LLICV	CCV1	1	Mg	0.095	1.8	20	PASS
ICSA1	ICSA	1	Mg	422.45	1.075	15	PASS
ICSAB1	ICSAB	1	Mg	489.95	0.41	15	PASS

RSD SUMMARY: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV1	CCV	1	Mg	12.28	0.71	15	PASS
CCV1	CCV	1	Mg	10.83	0.39	15	PASS
CCB1	CCB	1	Mg	-0.017	2.9	15	PASS
CCB1	CCB	1	Mg	-0.016	3.81	15	PASS
CCV2	CCV	1	Mg	10.24	0.15	15	PASS
CCB2	CCB	1	Mg	-0.016	1.83	15	PASS
CCV3	CCV	1	Mg	10.45	0.11	15	PASS
CCB3	CCB	1	Mg	-0.014	14.19	15	PASS
ICSA2	ICSA	1	Mg	431.24	0.22	15	PASS
ICSAB2	ICSAB	1	Mg	519.65	0.37	15	PASS
CCV4	CCV	1	Mg	10.44	0.083	15	PASS
CCB4	CCB	1	Mg	-0.015	5.64	15	PASS
CCV5	CCV	1	Mg	10.75	0.054	15	PASS
CCB5	CCB	1	Mg	0.004	73.88	15	<PQL
ICSA3	ICSA	1	Mg	423.68	0.28	15	PASS
ICSAB3	ICSAB	1	Mg	512.71	0.38	15	PASS
MB-75296	MBLK	1	Mg	0.0078	42.077	15	<PQL
LCS1-75296	LCS	1	Mg	10.47	0.067	15	PASS
N037313-001C	SAMP	1	Mg	26.79	0.24	15	PASS
N037313-001C	SAMP	5	Mg	5.98	0.11	15	PASS
N037313-001C-PS	PS	1	Mg	35.38	0.12	15	PASS
N037313-001C-MS1	MS	1	Mg	33.98	0.2	15	PASS
N037313-001C-MSD1	MSD	1	Mg	33.49	0.24	15	PASS
CCV6	CCV	1	Mg	10.31	0.15	15	PASS
CCB6	CCB	1	Mg	0.0052	41.66	15	<PQL
CCB6	CCB	1	Mg	0.0009	397.82	15	<PQL
N037313-002E	SAMP	1	Mg	26.15	0.081	15	PASS
N037314-001B	SAMP	1	Mg	31.46	0.039	15	PASS
N037314-002B	SAMP	1	Mg	24.98	0.37	15	PASS
CCV7	CCV	1	Mg	10.4	0.15	15	PASS
CCB7	CCB	1	Mg	0.0027	83.6	15	<PQL
CCV8	CCV	1	Mg	10.34	0.23	15	PASS
CCB8	CCB	1	Mg	0.005	42.091	15	<PQL
ICSA4	ICSA	1	Mg	420.63	0.24	15	PASS
ICSA4	ICSA	1	Mg	446.66	0.024	15	PASS
ICSAB4	ICSAB	1	Mg	423.47	0.39	15	PASS
ICSAB4	ICSAB	1	Mg	473.91	0.52	15	PASS
N037314-001B	SAMP	1	Mg	31.33	0.22	15	PASS
CCV9	CCV	1	Mg	10.44	0.14	15	PASS
CCB9	CCB	1	Mg	-0.02	2.16	15	PASS
ICSA5	ICSA	1	Mg	451.47	0.69	15	PASS
ICSAB5	ICSAB	1	Mg	484.97	0.36	15	PASS

RSD SUMMARY: 190910A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Na	0	1.41	15	PASS
Standard1	ICAL	1	Na	0.1	0.78	15	PASS
Standard2	ICAL	1	Na	1	0.36	15	PASS
Standard3	ICAL	1	Na	5	0.13	15	PASS
Standard4	ICAL	1	Na	10	0.096	15	PASS
Standard5	ICAL	1	Na	20	0.17	15	PASS
Standard6	ICAL	1	Na	40	0.2	15	PASS
ICV	ICV	1	Na	10.16	0.037	15	PASS
ICB	ICB	1	Na	0.019	8.3	15	PASS
LLICV	CCV	1	Na	0.12	5.46	20	PASS
LLICV	CCV	1	Na	0.12	1.5	20	PASS
ICSA1	ICSA	1	Na	-0.021	12.41	15	PASS
ICSAB1	ICSAB	1	Na	9.85	0.027	15	PASS
CCV1	CCV	1	Na	9.98	0.085	15	PASS
CCB1	CCB	1	Na	-0.01	14.85	15	PASS
CCV2	CCV	1	Na	10.047	0.079	15	PASS
CCB2	CCB	1	Na	-0.021	17.98	15	<PQL
CCV3	CCV	1	Na	10.3	0.52	15	PASS
CCB3	CCB	1	Na	0.17	5.0033	15	PASS
CCV4	CCV	1	Na	10.064	0.12	15	PASS
CCB4	CCB	1	Na	0.12	1.58	15	PASS
ICSA2	ICSA	1	Na	0.067	7.71	15	PASS
ICSAB2	ICSAB	1	Na	9.77	0.14	15	PASS
MB-75296	MBLK	1	Na	0.023	23.018	15	<PQL
LCS2-75296	LCS	1	Na	18.98	0.0098	15	PASS
N037314-001B	SAMP	5	Na	56.09	0.048	15	PASS
N037314-002B	SAMP	5	Na	250.93	0.8	15	PASS
CCV5	CCV	1	Na	10.11	0.13	15	PASS
CCB5	CCB	1	Na	0.1	2	15	PASS
N037314-001B	SAMP	25	Na	11.85	0.041	15	PASS
N037314-001B	SAMP	125	Na	2.42	0.15	15	PASS
N037314-001B-PS	PS	25	Na	12.14	0.15	15	PASS
N037314-001B-MS2	MS	25	Na	12.023	0.2	15	PASS
N037314-001B-MSD2	MSD	25	Na	12.15	0.079	15	PASS
N037314-002B	SAMP	50	Na	26.35	0.041	15	PASS
CCV6	CCV	1	Na	9.96	0.064	15	PASS
CCB6	CCB	1	Na	0.063	7.72	15	PASS
ICSA3	ICSA	1	Na	0.0054	25.1	15	<PQL
ICSAB3	ICSAB	1	Na	9.76	0.17	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190909B

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820D,0.5<50mL
Standard2	MWST-190820I
Standard3	MWST-190820N,5<50mL
Standard4	MWST-190820N,12.5<50mL
Standard5	MWST-190820N,15<40mL
Standard6	MWST-190820N,25<50mL
Standard7	MWST-190820N
ICV	MWST-190820S
CCV	MWST-190820N,25<50mL
ICSA/ICSAB	MWST-190820T/U
Int. Std. (Y)	MSST-190708A
PS Spike	MWST-190820AF/ AG/ AH

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/09/2019	04:41:18 PM
2	Standard1	ICAL	1	09/09/2019	04:45:40 PM
3	Standard2	ICAL	1	09/09/2019	04:50:03 PM
4	Standard3	ICAL	1	09/09/2019	04:53:57 PM
5	Standard4	ICAL	1	09/09/2019	04:57:54 PM
6	Standard5	ICAL	1	09/09/2019	05:02:51 PM
7	Standard6	ICAL	1	09/09/2019	05:07:48 PM
8	Standard7	ICAL	1	09/09/2019	05:12:46 PM
250	ICV	ICV	1	09/09/2019	05:15:41 PM
1	ICB	ICB	1	09/09/2019	05:27:19 PM
2	LLICV	CCV1	1	09/09/2019	05:44:10 PM
2	LLICV	CCV1	1	09/09/2019	05:58:56 PM
9	ICSA1	ICSA	1	09/09/2019	06:03:19 PM
10	ICSAB1	ICSAB	1	09/09/2019	06:07:25 PM
11	MB-75121	MBLK	1	09/09/2019	06:17:33 PM
12	N037107-002D	SAMP	5	09/09/2019	06:22:16 PM
13	N037107-005D	SAMP	1	09/09/2019	06:26:08 PM
14	N037107-006D	SAMP	1	09/09/2019	06:30:01 PM
15	N037107-007D	SAMP	1	09/09/2019	06:34:55 PM
16	N037107-008D	SAMP	1	09/09/2019	06:39:48 PM
17	N037147-002D	SAMP	1	09/09/2019	06:44:42 PM
18	N037107-002E	SAMP	5	09/09/2019	06:49:36 PM
19	N037107-006E	SAMP	1	09/09/2019	06:53:30 PM
20	N037147-001E	SAMP	1	09/09/2019	06:58:02 PM
7	CCV1	CCV	1	09/09/2019	07:02:57 PM
7	CCV1	CCV	1	09/09/2019	07:07:20 PM
1	CCB1	CCB	1	09/09/2019	07:12:19 PM
1	CCB1	CCB	1	09/09/2019	07:20:11 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
21	N037118-003B	SAMP	1	09/09/2019	07:24:33 PM
22	MB-75308	MBLK	1	09/09/2019	07:28:27 PM
23	LCS-75308	LCS	1	09/09/2019	07:32:26 PM
24	N037355-001A	SAMP	1	09/09/2019	07:37:19 PM
25	N037355-001A	SAMP	5	09/09/2019	07:41:11 PM
26	N037355-001A-PS	PS	1	09/09/2019	07:45:03 PM
27	N037355-001A-MS	MS	1	09/09/2019	07:49:58 PM
28	N037355-001A-MSD	MSD	1	09/09/2019	07:54:52 PM
29	MB-75187	MBLK	1	09/09/2019	07:59:48 PM
30	LCS1-75187	LCS	1	09/09/2019	08:04:12 PM
7	CCV2	CCV	1	09/09/2019	08:09:10 PM
1	CCB2	CCB	1	09/09/2019	08:17:30 PM
31	N037148-008B	SAMP	1	09/09/2019	08:21:53 PM
32	N037148-008B	SAMP	5	09/09/2019	08:25:48 PM
33	N037148-008B-PS	PS	1	09/09/2019	08:29:42 PM
34	N037148-008B-MS1	MS	1	09/09/2019	08:34:40 PM
35	N037148-008B-MSD1	MSD	1	09/09/2019	08:39:36 PM
36	N037148-009B	SAMP	1	09/09/2019	08:44:30 PM
37	N037148-010B	SAMP	1	09/09/2019	08:48:24 PM
38	N037148-011B	SAMP	1	09/09/2019	08:52:18 PM
39	N037148-012B	SAMP	1	09/09/2019	08:56:11 PM
40	N037176-001D	SAMP	1	09/09/2019	09:00:04 PM
7	CCV3	CCV	1	09/09/2019	09:04:57 PM
1	CCB3	CCB	1	09/09/2019	09:09:56 PM
9	ICSA2	ICSA	1	09/09/2019	09:28:33 PM
10	ICSAB2	ICSAB	1	09/09/2019	09:33:42 PM
44	N037181-001E	SAMP	1	09/09/2019	09:59:40 PM
45	N037225-001E	SAMP	1	09/09/2019	10:18:38 PM
46	MB-75186	MBLK	1	09/09/2019	10:23:33 PM
47	LCS-75186	LCS	1	09/09/2019	10:27:57 PM
48	N037148-008C	SAMP	1	09/09/2019	10:32:51 PM
49	N037148-009C	SAMP	1	09/09/2019	10:36:43 PM
50	N037148-010C	SAMP	1	09/09/2019	10:40:34 PM
7	CCV4	CCV	1	09/09/2019	10:44:46 PM
1	CCB4	CCB	1	09/09/2019	10:52:38 PM
51	N037148-011C	SAMP	1	09/09/2019	10:57:01 PM
52	N037148-012C	SAMP	1	09/09/2019	11:00:53 PM
53	N037176-001E	SAMP	1	09/09/2019	11:04:46 PM
54	N037176-001E	SAMP	5	09/09/2019	11:09:40 PM
55	N037176-001E-PS	PS	1	09/09/2019	11:13:34 PM
56	N037176-001E-MS	MS	1	09/09/2019	11:18:29 PM
57	N037176-001E-MSD	MSD	1	09/09/2019	11:23:24 PM
58	N037176-002E	SAMP	1	09/09/2019	11:28:18 PM
7	CCV5	CCV	1	09/10/2019	04:26:03 AM
1	CCB5	CCB	1	09/10/2019	04:47:58 AM
9	ICSA3	ICSA	1	09/10/2019	04:52:21 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB3	ICSAB	1	09/10/2019	04:57:59 AM
61	N037181-001F	SAMP	1	09/10/2019	05:27:15 AM
62	N037225-001F	SAMP	1	09/10/2019	05:32:08 AM
63	MB-75296	MBLK	1	09/10/2019	05:36:59 AM
64	LCS1-75296	LCS	1	09/10/2019	05:41:21 AM
65	N037313-001C	SAMP	1	09/10/2019	05:46:15 AM
66	N037313-001C	SAMP	5	09/10/2019	05:51:08 AM
67	N037313-001C-PS	PS	1	09/10/2019	05:55:03 AM
68	N037313-001C-MS1	MS	1	09/10/2019	05:59:57 AM
69	N037313-001C-MSD1	MSD	1	09/10/2019	06:04:52 AM
7	CCV6	CCV	1	09/10/2019	06:09:48 AM
1	CCB6	CCB	1	09/10/2019	06:14:43 AM
1	CCB6	CCB	1	09/10/2019	06:19:23 AM
70	N037313-002E	SAMP	1	09/10/2019	06:23:43 AM
71	N037314-001B	SAMP	1	09/10/2019	06:28:39 AM
72	N037314-002B	SAMP	1	09/10/2019	06:33:32 AM
73	N037176-002D	SAMP	5	09/10/2019	06:38:25 AM
74	N037176-002E	SAMP	5	09/10/2019	06:43:31 AM
75	N037176-003D	SAMP	5	09/10/2019	06:48:23 AM
76	N037176-003E	SAMP	5	09/10/2019	06:52:16 AM
77	N037176-004D	SAMP	5	09/10/2019	06:56:08 AM
78	N037176-004E	SAMP	5	09/10/2019	07:00:01 AM
79	N037181-001E	SAMP	5	09/10/2019	07:03:53 AM
7	CCV7	CCV	1	09/10/2019	07:07:46 AM
1	CCB7	CCB	1	09/10/2019	07:12:44 AM
80	N037181-001F	SAMP	5	09/10/2019	07:17:05 AM
81	N037225-001F	SAMP	5	09/10/2019	07:20:59 AM
82	N037225-001E	SAMP	5	09/10/2019	07:24:55 AM
7	CCV8	CCV	1	09/10/2019	07:43:38 AM
1	CCB8	CCB	1	09/10/2019	07:48:37 AM
9	ICSA4	ICSA	1	09/10/2019	07:52:58 AM
9	ICSA4	ICSA	1	09/10/2019	08:03:44 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:11:08 AM
10	ICSAB4	ICSAB	1	09/10/2019	08:14:38 AM
73	N037176-002D	SAMP	5	09/10/2019	08:34:18 AM
75	N037176-003D	SAMP	5	09/10/2019	08:39:11 AM
77	N037176-004D	SAMP	5	09/10/2019	08:43:05 AM
45	N037225-001E	SAMP	1	09/10/2019	08:46:58 AM
76	N037176-003E	SAMP	5	09/10/2019	09:05:32 AM
78	N037176-004E	SAMP	5	09/10/2019	09:09:26 AM
62	N037225-001F	SAMP	1	09/10/2019	09:13:18 AM
71	N037314-001B	SAMP	1	09/10/2019	09:18:11 AM
74	N037176-002E	SAMP	5	09/10/2019	09:23:06 AM
7	CCV9	CCV	1	09/10/2019	09:27:58 AM
1	CCB9	CCB	1	09/10/2019	09:32:57 AM
9	ICSA5	ICSA	1	09/10/2019	09:37:19 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
10	ICSAB5	ICSAB	1	09/10/2019	09:42:28 AM

INJECTION LOG: 190910A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190820V,0.025<50mL
Standard2	MWST-190820V,0.25<50mL
Standard3	MWST-190820V,1.25<50mL
Standard4	MWST-190820V,2.5<50mL
Standard5	MWST-190820V,5<50mL
Standard6	MWST-190820V,10<50mL
ICV	MWST-190820W
CCV	MWST-190820V,2.5<50mL
ICSA/ICSAB	MWST-190820T/MWST-190820X
Int. Std. (Sc):	MSST-190708B
PS Spike	MSST-140120B/ -180608B/A

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/10/2019	02:42:24 PM
11	Standard1	ICAL	1	09/10/2019	02:45:35 PM
12	Standard2	ICAL	1	09/10/2019	02:48:47 PM
13	Standard3	ICAL	1	09/10/2019	02:52:29 PM
14	Standard4	ICAL	1	09/10/2019	02:56:13 PM
15	Standard5	ICAL	1	09/10/2019	03:00:00 PM
16	Standard6	ICAL	1	09/10/2019	03:03:57 PM
17	ICV	ICV	1	09/10/2019	03:06:31 PM
1	ICB	ICB	1	09/10/2019	03:10:30 PM
11	LLICV	CCV	1	09/10/2019	03:15:50 PM
11	LLICV	CCV	1	09/10/2019	03:19:55 PM
18	ICSA1	ICSA	1	09/10/2019	03:23:07 PM
19	ICSAB1	ICSAB	1	09/10/2019	03:26:20 PM
23	MB-75156	MBLK	1	09/10/2019	03:30:57 PM
24	LCS2-75156	LCS	1	09/10/2019	03:34:07 PM
25	N074145-001B	SAMP	5	09/10/2019	03:38:04 PM
26	N074145-002B	SAMP	5	09/10/2019	03:41:47 PM
27	N074145-001B	SAMP	25	09/10/2019	03:46:33 PM
28	N074145-001B	SAMP	125	09/10/2019	03:49:45 PM
29	N074145-001B-PS	PS	25	09/10/2019	03:52:58 PM
30	N074145-001B-MS2	MS	25	09/10/2019	03:56:54 PM
31	N074145-001B-MSD2	MSD	25	09/10/2019	04:00:37 PM
32	N074145-002B	SAMP	50	09/10/2019	04:04:20 PM
14	CCV1	CCV	1	09/10/2019	04:07:34 PM
1	CCB1	CCB	1	09/10/2019	04:11:19 PM
33	MB-75259	MBLK	1	09/10/2019	04:14:29 PM
34	LCS2-75259	LCS	1	09/10/2019	04:17:43 PM
35	N037249-002A	SAMP	5	09/10/2019	04:21:41 PM
36	N037169-001B	SAMP	1	09/10/2019	04:24:53 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
37	N037170-001B	SAMP	10	09/10/2019	04:28:03 PM
38	N037171-001B	SAMP	10	09/10/2019	04:31:14 PM
39	N037172-001B	SAMP	10	09/10/2019	04:34:25 PM
40	N037173-001B	SAMP	10	09/10/2019	04:37:35 PM
41	N037174-001B	SAMP	100	09/10/2019	04:40:48 PM
42	N037249-002A	SAMP	25	09/10/2019	04:45:36 PM
14	CCV2	CCV	1	09/10/2019	04:48:48 PM
1	CCB2	CCB	1	09/10/2019	04:52:35 PM
43	N037249-002A-PS	PS	5	09/10/2019	04:55:47 PM
44	N037249-002A-MS2	MS	5	09/10/2019	04:59:34 PM
45	N037249-002A-MSD2	MSD	5	09/10/2019	05:03:21 PM
46	N037174-001B	SAMP	2500	09/10/2019	05:07:08 PM
47	MB-75187	MBLK	1	09/10/2019	05:10:22 PM
48	LCS2-75187	LCS	1	09/10/2019	05:13:32 PM
49	N037176-001D	SAMP	5	09/10/2019	05:17:29 PM
50	N037176-002D	SAMP	5	09/10/2019	05:22:19 PM
51	N037176-003D	SAMP	5	09/10/2019	05:27:10 PM
52	N037176-004D	SAMP	5	09/10/2019	05:32:02 PM
14	CCV3	CCV	1	09/10/2019	05:36:53 PM
1	CCB3	CCB	1	09/10/2019	05:40:40 PM
53	N037181-001E	SAMP	5	09/10/2019	05:44:00 PM
54	N037225-001E	SAMP	5	09/10/2019	05:48:50 PM
55	N037176-001D	SAMP	25	09/10/2019	05:52:35 PM
56	N037176-001D-PS	PS	5	09/10/2019	05:57:20 PM
57	N037176-001D-MS2	MS	5	09/10/2019	06:02:12 PM
58	N037176-001D-MSD2	MSD	5	09/10/2019	06:07:04 PM
59	N037176-001D	SAMP	250	09/10/2019	06:11:58 PM
60	N037176-001D	SAMP	1250	09/10/2019	06:15:08 PM
61	N037176-001D-PS	PS	250	09/10/2019	06:18:21 PM
62	N037176-001D-MS2	MS	250	09/10/2019	06:21:32 PM
14	CCV4	CCV	1	09/10/2019	06:24:44 PM
1	CCB4	CCB	1	09/10/2019	06:28:32 PM
18	ICSA2	ICSA	1	09/10/2019	06:31:41 PM
19	ICSAB2	ICSAB	1	09/10/2019	06:34:54 PM
63	N037176-001D-MSD2	MSD	250	09/10/2019	06:38:43 PM
64	N037176-002D	SAMP	250	09/10/2019	06:41:54 PM
65	N037176-003D	SAMP	250	09/10/2019	06:45:05 PM
66	N037176-004D	SAMP	250	09/10/2019	06:48:17 PM
67	N037181-001E	SAMP	250	09/10/2019	06:51:30 PM
68	N037225-001E	SAMP	25	09/10/2019	06:54:42 PM
71	MB-75296	MBLK	1	09/10/2019	06:57:54 PM
72	LCS2-75296	LCS	1	09/10/2019	07:01:07 PM
73	N037314-001B	SAMP	5	09/10/2019	07:05:03 PM
74	N037314-002B	SAMP	5	09/10/2019	07:08:47 PM
14	CCV5	CCV	1	09/10/2019	07:13:33 PM
1	CCB5	CCB	1	09/10/2019	07:17:22 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
75	N037314-001B	SAMP	25	09/10/2019	07:20:34 PM
76	N037314-001B	SAMP	125	09/10/2019	07:23:46 PM
77	N037314-001B-PS	PS	25	09/10/2019	07:27:49 PM
78	N037314-001B-MS2	MS	25	09/10/2019	07:31:32 PM
79	N037314-001B-MSD2	MSD	25	09/10/2019	07:35:15 PM
80	N037314-002B	SAMP	50	09/10/2019	07:38:59 PM
14	CCV6	CCV	1	09/10/2019	07:42:12 PM
1	CCB6	CCB	1	09/10/2019	07:46:00 PM
18	ICSA3	ICSA	1	09/10/2019	07:49:13 PM
19	ICSAB3	ICSAB	1	09/10/2019	07:52:27 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/6/2019 9:10:37 A**
Prep End Date: **9/6/2019 1:00:00 P**
Prep Batch **75296** Prep Code: **200.7_PR**

Reviewed/ Date: NS 9/29/2019
Initials/ Date: for
Technician: **Diane Jetajobe**

Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-75296	Aqueous		25	☐	25	1.000		
LCS2-75296	Aqueous	<2	25	☐	25	1.000		
MB-75296	Aqueous		25	☐	25	1.000		
N037313-001C	Water	<2	25	☐	25	1.000		
N037313-001C-MS	Water	<2	25	☐	25	1.000		
N037313-001C-MS	Water	<2	25	☐	25	1.000		
N037313-002E	Water	<2	25	☐	25	1.000		
N037314-001B	Groundwater	<2	25	☐	25	1.000		
N037314-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037314-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037314-002B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11305	NITRIC ACID
11331	HYDROCHLORIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190820A	ICP Solution A	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution B	LCS,MS,MSD	0.5
MWST-190820A	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190909B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	09/09/2019	04:41:18 PM	Mg	279.077	1126	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Mg	279.077	1935	0.1000	mg/L	
Standard2	09/09/2019	04:50:03 PM	Mg	279.077	19627	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Mg	279.077	39696	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Mg	279.077	93184	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Mg	279.077	138558	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Mg	279.077	178688	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Mg	279.077	353747	20.000	mg/L	0.9998
Calcium								
CalBlk	09/09/2019	04:41:18 PM	Ca	227.546	108	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Ca	227.546	97	0.2000	mg/L	
Standard2	09/09/2019	04:50:03 PM	Ca	227.546	472	1.000	mg/L	
Standard3	09/09/2019	04:53:57 PM	Ca	227.546	967	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Ca	227.546	2463	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Ca	227.546	3651	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Ca	227.546	4823	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Ca	227.546	9711	20.000	mg/L	1.0000
Iron								
CalBlk	09/09/2019	04:41:18 PM	Fe	273.953	-4	0.00	mg/L	
Standard1	09/09/2019	04:45:40 PM	Fe	273.953	878	0.0200	mg/L	
Standard2	09/09/2019	04:50:03 PM	Fe	273.953	3433	0.050	mg/L	
Standard3	09/09/2019	04:53:57 PM	Fe	273.953	77194	2.000	mg/L	
Standard4	09/09/2019	04:57:54 PM	Fe	273.953	191558	5.000	mg/L	
Standard5	09/09/2019	05:02:51 PM	Fe	273.953	284880	7.500	mg/L	
Standard6	09/09/2019	05:07:48 PM	Fe	273.953	370595	10.000	mg/L	
Standard7	09/09/2019	05:12:46 PM	Fe	273.953	733877	20.000	mg/L	0.9999

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190910A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	09/10/2019	02:42:24 PM	Na	589.62	2660	0.00	mg/L	
Standard1	09/10/2019	02:45:35 PM	Na	589.62	1746	0.1000	mg/L	
Standard2	09/10/2019	02:48:47 PM	Na	589.62	10605	1.000	mg/L	
Standard3	09/10/2019	02:52:29 PM	Na	589.62	51603	5.000	mg/L	
Standard4	09/10/2019	02:56:13 PM	Na	589.62	101633	10.000	mg/L	
Standard5	09/10/2019	03:00:00 PM	Na	589.62	201155	20.000	mg/L	
Standard6	09/10/2019	03:03:57 PM	Na	589.62	400768	40.000	mg/L	1.0000

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507496**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10162.493	500	10000	0	102	90	110				
Iron	10145.634	20	10000	0	101	90	110				
Magnesium	10203.024	100	10000	0	102	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ZZZZZZ** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	200.563	500	200.0	0	100	80	120				
Magnesium	111.267	100	100.0	0	111	80	120				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ZZZZZZ** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.180	20	20.00	0	101	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10377.853	500	10000	0	104	90	110				
Iron	10629.151	20	10000	0	106	90	110				
Magnesium	10829.675	100	10000	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV2** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10119.964	500	10000	0	101	90	110				
Iron	10156.018	20	10000	0	102	90	110				
Magnesium	10245.245	100	10000	0	102	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507538**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10311.710	500	10000	0	103	90	110				
Iron	10333.730	20	10000	0	103	90	110				
Magnesium	10445.457	100	10000	0	104	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10043.565	500	10000	0	100	90	110				
Iron	10183.943	20	10000	0	102	90	110				
Magnesium	10437.250	100	10000	0	104	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10187.907	500	10000	0	102	90	110				
Iron	10484.217	20	10000	0	105	90	110				
Magnesium	10749.284	100	10000	0	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV6** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10122.319	500	10000	0	101	90	110				
Iron	10194.776	20	10000	0	102	90	110				
Magnesium	10315.138	100	10000	0	103	90	110				

Sample ID **CCV7** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10317.932	500	10000	0	103	90	110				
Iron	10370.201	20	10000	0	104	90	110				
Magnesium	10405.444	100	10000	0	104	90	110				

Sample ID **CCV8** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10310.881	500	10000	0	103	90	110				
Iron	10349.223	20	10000	0	103	90	110				
Magnesium	10342.963	100	10000	0	103	90	110				

Sample ID **CCV9** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **CCV** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507605**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10376.430	500	10000	0	104	90	110				
Iron	10490.518	20	10000	0	105	90	110				
Magnesium	10438.540	100	10000	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10159.959	500	10000	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	116.420	500	100.0	0	116	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9978.991	500	10000	0	99.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10046.872	500	10000	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10296.792	500	10000	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10063.906	500	10000	0	101	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10107.538	500	10000	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCV**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9963.792	500	10000	0	99.6	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **ICB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/9/2019**	SeqNo: **3507497**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-0.716976	500									
Iron	-0.546229	20									
Magnesium	-9.867346	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/9/2019**	SeqNo: **3507515**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-34.933021	500									
Iron	-0.50566	20									
Magnesium	-15.505681	100									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/9/2019**	SeqNo: **3507527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-43.339411	500									
Iron	-1.019549	20									
Magnesium	-15.576958	100									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/9/2019**	SeqNo: **3507539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-12.745822	500									
Iron	-1.082524	20									
Magnesium	-13.821832	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/9/2019**	SeqNo: **3507550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-49.680838	500									
Iron	-0.122665	20									
Magnesium	-15.395271	100									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-34.697084	500									
Iron	6.357	20									
Magnesium	4.005	100									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-4.475184	500									
Iron	4.294	20									
Magnesium	0.900	100									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-8.685429	500									
Iron	8.310	20									
Magnesium	2.713	100									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB8**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-14.730945	500									
Iron	7.814	20									
Magnesium	4.999	100									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **CCB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-51.38614	500									
Iron	-2.288973	20									
Magnesium	-19.806914	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19.084	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-9.971838	500									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-21.41342	500									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	170.941	500									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	123.181	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	101.754	500									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **CCB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	62.701	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSA** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	432172.882	50	500000	0	86.4	80	120				
Calcium	451248.823	500	500000	0	90.2	80	120				
Iron	176608.945	20	200000	0	88.3	80	120				
Magnesium	422453.611	100	500000	0	84.5	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSAB** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537522.587	50	500000	0	108	80	120				
Calcium	540411.013	500	500000	0	108	80	120				
Iron	177524.526	20	200000	0	88.8	80	120				
Magnesium	489947.416	100	500000	0	98.0	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSA** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	438080.196	50	500000	0	87.6	80	120				
Calcium	452586.666	500	500000	0	90.5	80	120				
Iron	179658.561	20	200000	0	89.8	80	120				
Magnesium	431237.860	100	500000	0	86.2	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSAB** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507541**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548650.224	50	500000	0	110	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSAB** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/9/2019** SeqNo: **3507541**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	543441.252	500	500000	0	109	80	120				
Iron	185348.223	20	200000	0	92.7	80	120				
Magnesium	519646.112	100	500000	0	104	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSA** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	439389.151	50	500000	0	87.9	80	120				
Calcium	463999.151	500	500000	0	92.8	80	120				
Iron	177701.597	20	200000	0	88.9	80	120				
Magnesium	423680.292	100	500000	0	84.7	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSAB** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532531.801	50	500000	0	107	80	120				
Calcium	552296.183	500	500000	0	110	80	120				
Iron	183598.987	20	200000	0	91.8	80	120				
Magnesium	512710.436	100	500000	0	103	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **136385**
Client ID: **ICSA** Batch ID: **R136385** TestNo: **EPA 200.7** Analysis Date: **9/10/2019** SeqNo: **3507593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	469455.949	50	500000	0	93.9	80	120				
Calcium	474962.568	500	500000	0	95.0	80	120				
Iron	203968.861	20	200000	0	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **ICSA**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	446658.290	100	500000	0	89.3	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **ICSAB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	519299.378	50	500000	0	104	80	120				
Calcium	511111.484	500	500000	0	102	80	120				
Iron	171943.188	20	200000	0	86.0	80	120				
Magnesium	473905.331	100	500000	0	94.8	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **ICSA**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	473868.575	50	500000	0	94.8	80	120				
Calcium	478274.388	500	500000	0	95.7	80	120				
Iron	205745.822	20	200000	0	103	80	120				
Magnesium	451472.669	100	500000	0	90.3	80	120				

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **ICSAB**	Batch ID: **R136385**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	526926.600	50	500000	0	105	80	120				
Calcium	516800.291	500	500000	0	103	80	120				
Iron	175059.002	20	200000	0	87.5	80	120				
Magnesium	484974.023	100	500000	0	97.0	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSA**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-21.061627	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSAB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9845.698	500	10000	0	98.5	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSA**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	67.322	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSAB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9770.807	500	10000	0	97.7	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSA**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	5.368	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ICSAB**	Batch ID: **R136398**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9764.033	500	10000	0	97.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0061	100.61	65-125	PASS
Standard2	ICAL	1	1.055	105.47	65-125	PASS
Standard3	ICAL	1	1	99.67	65-125	PASS
Standard4	ICAL	1	0.98	98.43	65-125	PASS
Standard5	ICAL	1	0.99	98.73	65-125	PASS
Standard6	ICAL	1	0.98	97.76	65-125	PASS
Standard7	ICAL	1	0.97	96.52	65-125	PASS
ICV	ICV	1	0.98	98.019	65-125	PASS
ICB	ICB	1	0.99	99.21	65-125	PASS
LLICV	CCV1	1	1.0095	100.95	65-125	PASS
LLICV	CCV1	1	0.99	99.38	65-125	PASS
ICSA1	ICSA	1	1.22	121.63	65-125	PASS
ICSAB1	ICSAB	1	0.84	83.9	65-125	PASS
CCV1	CCV	1	0.92	91.61	65-125	PASS
CCV1	CCV	1	0.96	95.87	65-125	PASS
CCB1	CCB	1	1.024	102.38	65-125	PASS
CCB1	CCB	1	1	99.98	65-125	PASS
CCV2	CCV	1	0.99	98.54	65-125	PASS
CCB2	CCB	1	1.0023	100.23	65-125	PASS
CCV3	CCV	1	0.98	98.17	65-125	PASS
CCB3	CCB	1	1	99.99	65-125	PASS
ICSA2	ICSA	1	1.23	122.96	65-125	PASS
ICSAB2	ICSAB	1	0.85	84.59	65-125	PASS
CCV4	CCV	1	1	99.55	65-125	PASS
CCB4	CCB	1	1.012	101.25	65-125	PASS
CCV5	CCV	1	0.96	95.84	65-125	PASS
CCB5	CCB	1	0.99	98.84	65-125	PASS
ICSA3	ICSA	1	1.23	123.06	65-125	PASS
ICSAB3	ICSAB	1	0.85	85.24	65-125	PASS
MB-75296	MBLK	1	1.014	101.4	65-125	PASS
LCS1-75296	LCS	1	0.95	94.83	65-125	PASS
N037313-001C	SAMP	1	0.92	92.43	65-125	PASS
N037313-001C	SAMP	5	0.96	95.89	65-125	PASS
N037313-001C-PS	PS	1	0.93	93.041	65-125	PASS
N037313-001C-MS1	MS	1	0.93	93.34	65-125	PASS
N037313-001C-MSD1	MSD	1	0.95	95.01	65-125	PASS
CCV6	CCV	1	1.032	103.25	65-125	PASS
CCB6	CCB	1	1.019	101.93	65-125	PASS
CCB6	CCB	1	1.017	101.7	65-125	PASS
N037313-002E	SAMP	1	0.94	93.78	65-125	PASS

INTERNAL STANDARD: 190909B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N037314-001B	SAMP	1	1	100	65-125	PASS
N037314-002B	SAMP	1	0.95	95.084	65-125	PASS
CCV7	CCV	1	1.022	102.17	65-125	PASS
CCB7	CCB	1	1.041	104.14	65-125	PASS
CCV8	CCV	1	1.031	103.07	65-125	PASS
CCB8	CCB	1	1.043	104.32	65-125	PASS
ICSA4	ICSA	1	1.3	129.92	65-125	NR!
ICSA4	ICSA	1	1.21	120.88	65-125	PASS
ICSAB4	ICSAB	1	1.071	107.1	65-125	PASS
ICSAB4	ICSAB	1	0.94	94.18	65-125	PASS
N037314-001B	SAMP	1	1.005	100.5	65-125	PASS
CCV9	CCV	1	1.02	101.96	65-125	PASS
CCB9	CCB	1	1	99.59	65-125	PASS
ICSA5	ICSA	1	1.19	119.17	65-125	PASS
ICSAB5	ICSAB	1	0.92	92.082	65-125	PASS

INTERNAL STANDARD: 190910A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	0.99	98.63	65-125	PASS
Standard2	ICAL	1	0.99	99.36	65-125	PASS
Standard3	ICAL	1	1	99.92	65-125	PASS
Standard4	ICAL	1	0.98	98.15	65-125	PASS
Standard5	ICAL	1	0.98	98.49	65-125	PASS
Standard6	ICAL	1	0.97	97.24	65-125	PASS
ICV	ICV	1	0.98	98.27	65-125	PASS
ICB	ICB	1	1	99.98	65-125	PASS
LLICV	CCV	1	0.99	98.91	65-125	PASS
LLICV	CCV	1	0.98	98.19	65-125	PASS
ICSA1	ICSA	1	1.008	100.8	65-125	PASS
ICSAB1	ICSAB	1	0.98	98.5	65-125	PASS
CCV1	CCV	1	0.98	98.45	65-125	PASS
CCB1	CCB	1	1	99.63	65-125	PASS
CCV2	CCV	1	1.016	101.63	65-125	PASS
CCB2	CCB	1	1.043	104.31	65-125	PASS
CCV3	CCV	1	1.065	106.5	65-125	PASS
CCB3	CCB	1	1.085	108.54	65-125	PASS
CCV4	CCV	1	1.032	103.23	65-125	PASS
CCB4	CCB	1	1.051	105.11	65-125	PASS
ICSA2	ICSA	1	1.047	104.7	65-125	PASS
ICSAB2	ICSAB	1	1.021	102.14	65-125	PASS
MB-75296	MBLK	1	1.029	102.93	65-125	PASS
LCS2-75296	LCS	1	1.14	114.04	65-125	PASS
N037314-001B	SAMP	5	1.036	103.55	65-125	PASS
N037314-002B	SAMP	5	1.0081	100.81	65-125	PASS
CCV5	CCV	1	1.025	102.5	65-125	PASS
CCB5	CCB	1	1.039	103.91	65-125	PASS
N037314-001B	SAMP	25	1.026	102.6	65-125	PASS
N037314-001B	SAMP	125	1.02	102.05	65-125	PASS
N037314-001B-PS	PS	25	1.033	103.3	65-125	PASS
N037314-001B-MS2	MS	25	1.027	102.73	65-125	PASS
N037314-001B-MSD2	MSD	25	1.029	102.86	65-125	PASS
N037314-002B	SAMP	50	1.017	101.66	65-125	PASS
CCV6	CCV	1	1.02	102.01	65-125	PASS
CCB6	CCB	1	1.014	101.44	65-125	PASS
ICSA3	ICSA	1	1.026	102.57	65-125	PASS
ICSAB3	ICSAB	1	1.0097	100.97	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N037314
Test Method: EPA 200.7
Analysis Date: 09 / 09 - 10 / 2019

Matrix: Groundwater
Batch No.: 75296

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Mg failed. However, PS passed criteria.
Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037313-001C DT 5x	Calcium	Ca	µg/L	205881.6	PASS	206385.1	0.24%	10
N037313-001C DT 5x	Iron	Fe	µg/L	0	NA	0		10
N037313-001C DT 5x	Magnesium	Mg	µg/L	29894.33	FAIL	26787.43	11.60%	10
N037314-001B DT 125x	Sodium	Na	µg/L	302742.1	PASS	296337.4	2.16%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N037313-001C-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136385**
Client ID: **ZZZZZZ**	Batch ID: **75296**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3507569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	209948.277	500	10000	206400	35.6	80	120				S
Iron	72.730	20	100.0	0	72.7	80	120				S
Magnesium	35379.253	100	10000	26790	85.9	80	120				

Sample ID **N037314-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **136398**
Client ID: **ZZZZZZ**	Batch ID: **75296**	TestNo: **EPA 200.7**		Analysis Date: **9/10/2019**	SeqNo: **3508844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	303397.004	12000	20000	296300	35.3	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

Method Detection Limit

Analytical Method: EPA 6010B / 200.7
Digestion Method: EPA 200.7
Date of Analysis: 4/26/2018,4/27/18, 4/28/18
Instrument Name: ICP2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: mg/L

Analyte	1	2	3	4	5	6	7	SD	Ave	AMT SPIKED	MDL	PQL
Potassium	0.52047	0.51468	0.50982	0.46507	0.46016	0.45873	0.49093	0.02710	0.48855	0.5000	0.08509	0.5
Sodium	0.55314	0.5464	0.5354	0.4861	0.49466	0.48423	0.49053	0.03061	0.51292	0.5000	0.09611	0.5
Strontium	0.0543	0.05418	0.05429	0.05295	0.05353	0.05251	0.05341	0.00070	0.05360	0.0250	0.00220	0.05

MBLK

Analyte	1	2	3	4	5	6	7	SD	Ave	MDL
Potassium	0.046	0.02365	0.01213	-0.00541	-0.0022	-0.00535	0.03047	0.02002	0.01418	0.0771
Sodium	0.04731	0.03661	0.02294	-0.0006	-0.00135	-0.00646	-0.00911	0.02270	0.01276	0.0841
Strontium	0.00006	-0.0006	-0.0002	0.00003	-0.00002	0.00001	0.00035	0.00029	-0.00005	0.0009

Note: MDL spike is used since its value is greater than the MDL blank.

LOD & PQL VERIFICATION

Analytical Method: EPA 6010B / 200.7
Date of Analysis: 4/30/2018
Instrument Name: ICP2
Analyst: MI

Matrix: Water
Units: mg/L

Compound	MDL	LOD		PQL		
		Spike	Recovered	Spike	Recovered	% Recovery
Potassium	0.08509	0.250	0.304	0.500	0.544	108.9
Sodium	0.09611	0.250	0.274	0.500	0.521	104.1
Strontium	0.00220	0.025	0.027	0.050	0.054	108.0

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75309
ASSET #: N037314

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/9/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 9/11/2019

2nd Level Reviewer NS 9/11/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA ~~6020~~ 200.8
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037314-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 81.451 * 5 *(25 / 25)

Manganese , ug/L = 407.255

Reporting results in two significant figures,

Manganese , ug/L = 410

NS 9/29/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	6.82	15	PASS	0.12	41.67	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	1.53	15	PASS	0.54	5.72	15	PASS
Std3-5/50 ppb	ICAL	1	4.98	1.61	15	PASS	5.0071	1.78	15	PASS
Std4-10/100 ppb	ICAL	1	10.21	0.96	15	PASS	10.28	2.0088	15	PASS
Std5-20/200 ppb	ICAL	1	19.98	0.22	15	PASS	19.84	1.058	15	PASS
Std6-40/400 ppb	ICAL	1	40.16	1.42	15	PASS	39.74	1.41	15	PASS
Std7-100/1000 ppb	ICAL	1	100.83	0.95	15	PASS	100.43	1.12	15	PASS
Std8-200/2000 ppb	ICAL	1	199.55	0.48	15	PASS	199.84	0.078	15	PASS
ICV	ICV	1	10.31	1.78	15	PASS	103.94	1.35	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.047	7.26	15	PASS
LLICV	CCV1	1	1.079	2.85	20	PASS	0.47	11.67	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.38	1.19	15	PASS	18.9	2.27	15	PASS
LLICV	CCV1	1	1.038	5.32	20	PASS	0.57	13.56	20	PASS
CCV1	CCV	1	19.95	2.098	15	PASS	20.26	3.29	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0044	933.58	15	<PQL
CCV2	CCV	1	20.37	0.99	15	PASS	19.95	0.99	15	PASS
CCB2	CCB	1	0.0074	62.69	15	<PQL	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.37	0.41	15	PASS	19.95	1.19	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.45	1.43	15	PASS	19.85	2.48	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.021	78.55	15	<PQL
CCV5	CCV	1	20.27	0.63	15	PASS	20.017	0.62	15	PASS
CCB5	CCB	1	0.0046	329.15	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.5	1.56	15	PASS	17.64	2.11	15	PASS
CCV6	CCV	1	20.2	0.1	15	PASS	20.18	0.28	15	PASS
CCB6	CCB	1	0.0001	14461.26	15	<PQL	0.0065	342.75	15	<PQL
CCV7	CCV	1	20.45	2.76	15	PASS	20.033	2.37	15	PASS
CCB7	CCB	1	0.0084	150.22	15	<PQL	<0.000	N/A	15	<PQL
MB-75309	MBLK	1	0.016	44.063	15	<PQL	<0.000	N/A	15	<PQL
LCS-75309	LCS	1	10.28	0.56	15	PASS	101.93	0.53	15	PASS
N037355-001A	SAMP	1	1.84	8.72	15	PASS	142.39	2.066	15	PASS
N037355-001A	SAMP	5	0.37	10.85	15	PASS	29.53	0.87	15	PASS
N037355-001A	SAMP	25	0.068	23.76	15	<PQL	5.97	2.82	15	PASS
N037355-001A-PS	PS	1	11.37	2.76	15	PASS	235.74	0.8	15	PASS
N037355-001A-PS	PS	5	2.45	3.65	15	PASS	49.74	3.0098	15	PASS
N037355-001A-MS	MS	1	11.3	1.35	15	PASS	229.88	0.43	15	PASS
CCV8	CCV	1	20.5	1.37	15	PASS	20.2	0.62	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.0034	460.058	15	<PQL

PERCENT RSD SUMMARY: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	21.017	0.72	15	PASS	18.065	2.64	15	PASS
N037355-001A-MS	MS	5	2.48	1.68	15	PASS	49.78	1.86	15	PASS
N037355-001A-MSD	MSD	1	11.39	1.53	15	PASS	234.069	0.67	15	PASS
N037355-001A-MSD	MSD	5	2.47	1.7	15	PASS	49.49	1.055	15	PASS
N037313-001C	SAMP	1	450.56	6.74	15	PASS	<0.000	N/A	15	<PQL
N037313-001C	SAMP	5	89.44	0.95	15	PASS	<0.000	N/A	15	<PQL
N037313-002E	SAMP	1	0.076	26.033	15	<PQL	<0.000	N/A	15	<PQL
N037313-002E	SAMP	5	0.01	326.043	15	<PQL	<0.000	N/A	15	<PQL
N037314-001B	SAMP	1	0.5	14.74	15	PASS	393.33	1.3	15	PASS
N037314-001B	SAMP	5	0.085	9.096	15	PASS	81.45	1.11	15	PASS
N037314-002B	SAMP	1	512.59	0.71	15	PASS	<0.000	N/A	15	<PQL
CCV9	CCV	1	20.84	0.23	15	PASS	20.2	0.89	15	PASS
CCB9	CCB	1	0.0098	116.13	15	<PQL	<0.000	N/A	15	<PQL
N037314-002B	SAMP	5	89.37	1.39	15	PASS	<0.000	N/A	15	<PQL
N037250-003C	SAMP	1	<0.000	N/A	15	<PQL	46.52	2.02	15	PASS
N037250-003C	SAMP	5	0.0016	394.79	15	<PQL	9.62	1.52	15	PASS
CCV10	CCV	1	19.98	0.73	15	PASS	20.056	0.68	15	PASS
CCB10	CCB	1	0.025	58.81	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	20.31	1.092	15	PASS	18.2	1.081	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909001.D	RINSE	RINSE	1	09/09/19 2:22 PM
A0909002.D	Cal Blank	IBLK	1	09/09/19 2:27 PM
A0909003.D	Std1-0.1/1 ppb	ICAL	1	09/09/19 2:32 PM
A0909004.D	Std2-0.5/5 ppb	ICAL	1	09/09/19 2:37 PM
A0909005.D	Std3-5/50 ppb	ICAL	1	09/09/19 2:42 PM
A0909006.D	Std4-10/100 ppb	ICAL	1	09/09/19 2:46 PM
A0909007.D	Std5-20/200 ppb	ICAL	1	09/09/19 2:52 PM
A0909008.D	Std6-40/400 ppb	ICAL	1	09/09/19 2:57 PM
A0909009.D	Std7-100/1000 ppb	ICAL	1	09/09/19 3:02 PM
A0909010.D	Std8-200/2000 ppb	ICAL	1	09/09/19 3:07 PM
A0909011.D	ICV	ICV	1	09/09/19 3:24 PM
A0909012.D	ICB	ICB	1	09/09/19 3:29 PM
A0909013.D	LLICV	CCV1	1	09/09/19 3:34 PM
A0909014.D	ICSA1	ICSA	1	09/09/19 3:39 PM
A0909015.D	ICSAB1	ICSAB	1	09/09/19 3:43 PM
A0909016.D	LLICV	CCV1	1	09/09/19 3:50 PM
A0909017.D	MB-75129	MBLK	1	09/09/19 3:55 PM
A0909018.D	LCS-75129	LCS	1	09/09/19 4:00 PM
A0909019.D	N037118-001B	SAMP	1	09/09/19 4:05 PM
A0909020.D	N037118-001B	SAMP	5	09/09/19 4:10 PM
A0909021.D	N037118-001B-PS	PS	1	09/09/19 4:15 PM
A0909022.D	N037118-001B-MS	MS	1	09/09/19 4:20 PM
A0909023.D	N037118-001B-MSD	MSD	1	09/09/19 4:25 PM
A0909024.D	N037118-002B	SAMP	1	09/09/19 4:30 PM
A0909025.D	N037118-003B	SAMP	1	09/09/19 4:35 PM
A0909026.D	N037118-004B	SAMP	1	09/09/19 4:41 PM
A0909027.D	CCV1	CCV	1	09/09/19 4:46 PM
A0909028.D	CCB1	CCB	1	09/09/19 4:51 PM
A0909029.D	N037118-005B	SAMP	1	09/09/19 4:56 PM
A0909030.D	N037118-006B	SAMP	1	09/09/19 5:01 PM
A0909031.D	N037118-007B	SAMP	1	09/09/19 5:06 PM
A0909032.D	N037118-008B	SAMP	1	09/09/19 5:12 PM
A0909033.D	N037118-009B	SAMP	1	09/09/19 5:17 PM
A0909034.D	N037118-010B	SAMP	1	09/09/19 5:23 PM
A0909035.D	N037118-011B	SAMP	1	09/09/19 5:28 PM
A0909036.D	N037118-012B	SAMP	1	09/09/19 5:33 PM
A0909037.D	N037118-013B	SAMP	1	09/09/19 5:38 PM
A0909038.D	N037118-003B	SAMP	1	09/09/19 5:43 PM
A0909039.D	CCV2	CCV	1	09/09/19 5:48 PM
A0909040.D	CCB2	CCB	1	09/09/19 5:54 PM
A0909041.D	N037118-004B	SAMP	1	09/09/19 5:59 PM
A0909042.D	N037118-007B	SAMP	1	09/09/19 6:03 PM

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909043.D	N037118-008B	SAMP	1	09/09/19 6:09 PM
A0909044.D	N037118-010B	SAMP	1	09/09/19 6:14 PM
A0909045.D	N037118-011B	SAMP	1	09/09/19 6:19 PM
A0909046.D	N037118-012B	SAMP	1	09/09/19 6:24 PM
A0909047.D	N037118-013B	SAMP	1	09/09/19 6:30 PM
A0909048.D	N037118-004B	SAMP	1	09/09/19 6:35 PM
A0909049.D	N037118-007B	SAMP	1	09/09/19 6:40 PM
A0909050.D	N037118-010B	SAMP	1	09/09/19 6:45 PM
A0909051.D	CCV3	CCV	1	09/09/19 6:50 PM
A0909052.D	CCB3	CCB	1	09/09/19 6:56 PM
A0909053.D	N037067-002E	SAMP	1	09/09/19 7:00 PM
A0909054.D	N037107-006E	SAMP	1	09/09/19 7:05 PM
A0909055.D	N037107-008E	SAMP	1	09/09/19 7:11 PM
A0909056.D	N037117-005E	SAMP	1	09/09/19 7:17 PM
A0909057.D	N037118-012B	SAMP	1	09/09/19 7:22 PM
A0909058.D	N037118-013B	SAMP	1	09/09/19 7:27 PM
A0909059.D	N037118-004B	SAMP	1	09/09/19 7:32 PM
A0909060.D	N037118-007B	SAMP	1	09/09/19 7:37 PM
A0909061.D	N037118-010B	SAMP	1	09/09/19 7:43 PM
A0909062.D	N037118-013B	SAMP	1	09/09/19 7:48 PM
A0909063.D	CCV4	CCV	1	09/09/19 7:53 PM
A0909064.D	CCB4	CCB	1	09/09/19 7:59 PM
A0909065.D	N037118-004B	SAMP	1	09/09/19 8:04 PM
A0909066.D	N037118-007B	SAMP	1	09/09/19 8:10 PM
A0909067.D	N037118-010B	SAMP	1	09/09/19 8:15 PM
A0909068.D	N037118-013B	SAMP	1	09/09/19 8:21 PM
A0909069.D	N037067-002E	SAMP	1	09/09/19 8:26 PM
A0909070.D	N037107-006E	SAMP	1	09/09/19 8:31 PM
A0909071.D	N037117-005E	SAMP	1	09/09/19 8:36 PM
A0909072.D	N037067-002E	SAMP	1	09/09/19 8:41 PM
A0909073.D	N037107-006E	SAMP	1	09/09/19 8:46 PM
A0909074.D	N037117-005E	SAMP	1	09/09/19 8:51 PM
A0909075.D	CCV5	CCV	1	09/09/19 8:56 PM
A0909076.D	CCB5	CCB	1	09/09/19 9:02 PM
A0909077.D	ICSA2	ICSA	1	09/09/19 9:07 PM
A0909078.D	ICSAB2	ICSAB	1	09/09/19 9:11 PM
A0909079.D	MB-75130	MBLK	1	09/09/19 9:16 PM
A0909080.D	LCS-75130	LCS	1	09/09/19 9:21 PM
A0909081.D	N037117-001D	SAMP	1	09/09/19 9:26 PM
A0909082.D	N037117-001D	SAMP	5	09/09/19 9:31 PM
A0909083.D	N037117-001D-PS	PS	1	09/09/19 9:36 PM
A0909084.D	N037117-001D-MS	MS	1	09/09/19 9:41 PM

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909085.D	N037117-001D-MSD	MSD	1	09/09/19 9:46 PM
A0909086.D	N037117-002D	SAMP	1	09/09/19 9:51 PM
A0909087.D	N037117-003D	SAMP	1	09/09/19 9:56 PM
A0909088.D	N037117-004D	SAMP	1	09/09/19 10:01 PM
A0909089.D	CCV6	CCV	1	09/09/19 10:07 PM
A0909090.D	CCB6	CCB	1	09/09/19 10:12 PM
A0909091.D	N037117-005D	SAMP	1	09/09/19 10:16 PM
A0909092.D	N037117-008D	SAMP	1	09/09/19 10:21 PM
A0909093.D	N037144-001D	SAMP	1	09/09/19 10:26 PM
A0909094.D	N037144-002D	SAMP	1	09/09/19 10:31 PM
A0909095.D	N037144-003D	SAMP	1	09/09/19 10:36 PM
A0909096.D	N037144-004D	SAMP	1	09/09/19 10:41 PM
A0909097.D	N037147-001D	SAMP	1	09/09/19 10:46 PM
A0909098.D	N037147-002D	SAMP	1	09/09/19 10:51 PM
A0909099.D	N037117-003D	SAMP	25	09/09/19 10:57 PM
A0909100.D	N037117-004D	SAMP	25	09/09/19 11:02 PM
A0909101.D	CCV7	CCV	1	09/09/19 11:07 PM
A0909102.D	CCB7	CCB	1	09/09/19 11:12 PM
A0909103.D	N037117-008D	SAMP	25	09/09/19 11:17 PM
A0909104.D	N037147-001E	SAMP	25	09/09/19 11:22 PM
A0909105.D	MB-75309	MBLK	1	09/09/19 11:26 PM
A0909106.D	LCS-75309	LCS	1	09/09/19 11:32 PM
A0909107.D	N037355-001A	SAMP	1	09/09/19 11:36 PM
A0909108.D	N037355-001A	SAMP	5	09/09/19 11:41 PM
A0909109.D	N037355-001A	SAMP	25	09/09/19 11:46 PM
A0909110.D	N037355-001A-PS	PS	1	09/09/19 11:51 PM
A0909111.D	N037355-001A-PS	PS	5	09/09/19 11:56 PM
A0909112.D	N037355-001A-MS	MS	1	09/10/19 12:02 AM
A0909113.D	CCV8	CCV	1	09/10/19 12:07 AM
A0909114.D	CCB8	CCB	1	09/10/19 12:12 AM
A0909115.D	ICSA3	ICSA	1	09/10/19 12:17 AM
A0909116.D	ICSAB3	ICSAB	1	09/10/19 12:22 AM
A0909117.D	N037355-001A-MS	MS	5	09/10/19 12:26 AM
A0909118.D	N037355-001A-MSD	MSD	1	09/10/19 12:32 AM
A0909119.D	N037355-001A-MSD	MSD	5	09/10/19 12:37 AM
A0909120.D	N037313-001C	SAMP	1	09/10/19 12:41 AM
A0909121.D	N037313-001C	SAMP	5	09/10/19 12:47 AM
A0909122.D	N037313-002E	SAMP	1	09/10/19 12:52 AM
A0909123.D	N037313-002E	SAMP	5	09/10/19 12:57 AM
A0909124.D	N037314-001B	SAMP	1	09/10/19 1:02 AM
A0909125.D	N037314-001B	SAMP	5	09/10/19 1:07 AM
A0909126.D	N037314-002B	SAMP	1	09/10/19 1:12 AM

INJECTION LOG: 190909A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0909127.D	CCV9	CCV	1	09/10/19 1:17 AM
A0909128.D	CCB9	CCB	1	09/10/19 1:23 AM
A0909129.D	N037314-002B	SAMP	5	09/10/19 1:28 AM
A0909130.D	N037250-003C	SAMP	1	09/10/19 1:33 AM
A0909131.D	N037250-003C	SAMP	5	09/10/19 1:38 AM
A0909132.D	N037211-004A	SAMP	1	09/10/19 1:43 AM
A0909133.D	RINSE	RINSE	1	09/10/19 1:48 AM
A0909134.D	N037211-005A	SAMP	1	09/10/19 1:53 AM
A0909135.D	RINSE	RINSE	1	09/10/19 1:59 AM
A0909136.D	N037211-006A	SAMP	1	09/10/19 2:03 AM
A0909137.D	RINSE	RINSE	1	09/10/19 2:08 AM
A0909138.D	N037211-007A	SAMP	1	09/10/19 2:14 AM
A0909139.D	CCV10	CCV	1	09/10/19 2:19 AM
A0909140.D	CCB10	CCB	1	09/10/19 2:24 AM
A0909141.D	ICSA4	ICSA	1	09/10/19 2:29 AM
A0909142.D	ICSAB4	ICSAB	1	09/10/19 2:34 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/9/2019 8:57:02 A**
Prep End Date: **9/9/2019 1:00:00 P**
Prep Batch **75309** Prep Code: **200.8_PR**

Reviewed/ Date: NS 9/29/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**94.6**	**02-34**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75309	Aqueous		25	☐	25	1.000		
MB-75309	Aqueous		25	☐	25	1.000		
N037250-003C	Aqueous	<2	25	☐	25	1.000		
N037313-001C	Water	<2	25	☐	25	1.000		
N037313-002E	Water	<2	25	☐	25	1.000		
N037314-001B	Groundwater	<2	25	☐	25	1.000		
N037314-002B	Groundwater	<2	25	☐	25	1.000		
N037355-001A	Water	<2	25	☐	25	1.000		
N037355-001A-MS	Water	<2	25	☐	25	1.000		
N037355-001A-MS	Water	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 9 Sep 2019 09:59:44 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	172763.00	0.00	
24 Mg	271065.00	0.00	
25 Mg	35109.60	0.00	
26 Mg	40850.60	0.00	
59 Co	227406.00	0.00	
115 In	282047.00	0.00	
206 Pb	94224.70	0.00	
207 Pb	82793.50	0.00	
208 Pb	202983.00	0.00	

RSD (%)

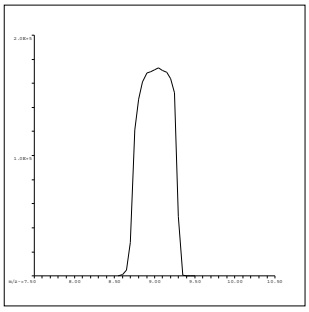
Element	Actual	Required	Flag
9 Be	0.41	5.00	
24 Mg	0.63	5.00	
25 Mg	1.37	5.00	
26 Mg	1.30	5.00	
59 Co	0.45	5.00	
115 In	0.76	5.00	
206 Pb	0.93	5.00	
207 Pb	1.37	5.00	
208 Pb	0.59	5.00	

Ion Ratio

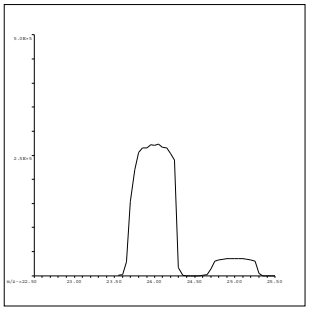
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

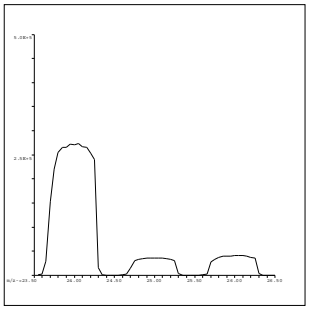
Element	Actual	Required	Flag



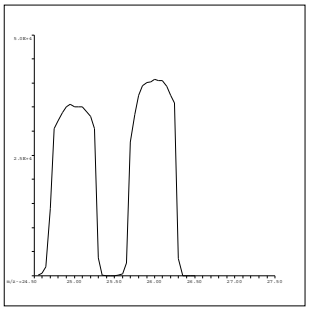
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



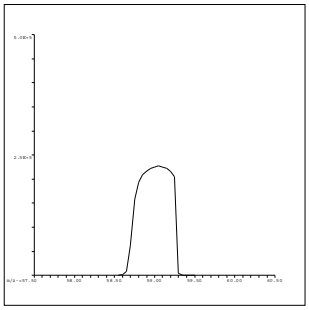
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



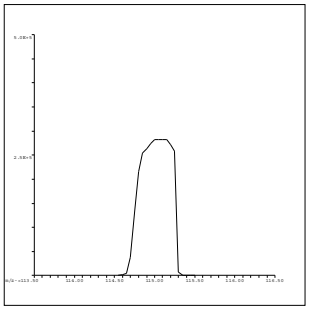
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



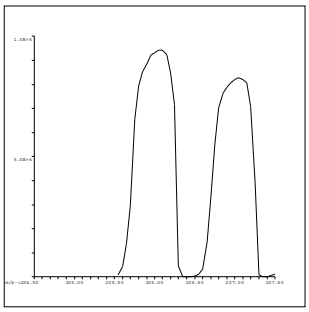
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



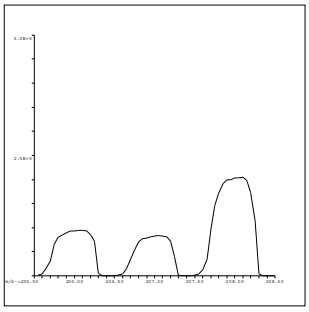
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



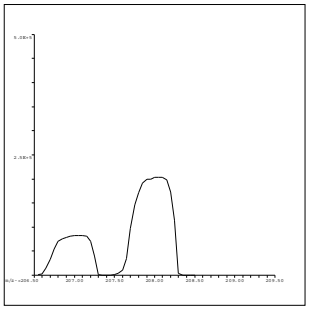
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190909A

Instrument ID: ICPMS-02

Analyte	Data File	A0909002.D	A0909003.D	A0909004.D	A0909005.D	A0909006.D	A0909007.D	A0909008.D	A0909009.D	A0909010.D	
	Acq. Date-Time	09/09/2019 02:27 PM	09/09/2019 02:32 PM	09/09/2019 02:37 PM	09/09/2019 02:42 PM	09/09/2019 02:46 PM	09/09/2019 02:52 PM	09/09/2019 02:57 PM	09/09/2019 03:02 PM	09/09/2019 03:07 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	52954	52282.2	51094.9	50879.1	49497.9	50704.9	50476.4	49263.9	48557.5	
55 Mn [2]	CPS	226.2	420.2	1119.2	8502.2	16766.7	32941.6	65440.9	161103.4	315791.5	1.0000
52 Cr [2]	CPS	296.5	653.3	1931.2	17124.5	33861.5	67588.3	134955.5	330301.6	644087.9	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508461**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	103.943	0.50	100.0	0	104	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ZZZZZZ**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.569	0.50	0.5000	0	114	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508477**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.260	0.50	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508489**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.954	0.50	20.00	0	99.8	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.950	0.50	20.00	0	99.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.845	0.50	20.00	0	99.2	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.017	0.50	20.00	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.180	0.50	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.033	0.50	20.00	0	100	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.202	0.50	20.00	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCV9**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.196	0.50	20.00	0	101	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.056	0.50	20.00	0	100	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.313	1.0	10.00	0	103	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ZZZZZZ**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.038	1.0	1.000	0	104	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.947	1.0	20.00	0	99.7	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.374	1.0	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.372	1.0	20.00	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.447	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.266	1.0	20.00	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.203	1.0	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.450	1.0	20.00	0	102	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.501	1.0	20.00	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.840	1.0	20.00	0	104	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCV**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.979	1.0	20.00	0	99.9	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508462**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508478**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508502**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508514**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCB10**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **CCB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.900	0.50	20.00	0	94.5	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.635	0.50	20.00	0	88.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.065	0.50	20.00	0	90.3	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.199	0.50	20.00	0	91.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.375	1.0	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/9/2019**	SeqNo: **3508294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.502	1.0	20.00	0	103	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.017	1.0	20.00	0	105	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSA**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **136393**
Client ID: **ICSAB**	Batch ID: **R136393**	TestNo: **EPA 200.8**		Analysis Date: **9/10/2019**	SeqNo: **3508355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.307	1.0	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	52954	52954	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	52282.2	52954	98.73	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	51094.9	52954	96.49	PASS	70-125
Std3-5/50 ppb	ICAL	1	50879.1	52954	96.082	PASS	70-125
Std4-10/100 ppb	ICAL	1	49497.9	52954	93.47	PASS	70-125
Std5-20/200 ppb	ICAL	1	50704.9	52954	95.75	PASS	70-125
Std6-40/400 ppb	ICAL	1	50476.4	52954	95.32	PASS	70-125
Std7-100/1000 ppb	ICAL	1	49263.9	52954	93.031	PASS	70-125
Std8-200/2000 ppb	ICAL	1	48557.5	52954	91.7	PASS	70-125
ICV	ICV	1	46500.4	52954	87.81	PASS	70-125
ICB	ICB	1	47895.6	52954	90.45	PASS	70-125
LLICV	CCV1	1	50048.7	52954	94.51	PASS	70-125
ICSA1	ICSA	1	56166.6	52954	106.07	PASS	70-125
ICSAB1	ICSAB	1	61018.7	52954	115.23	PASS	70-125
LLICV	CCV1	1	54412.3	52954	102.75	PASS	70-125
CCV1	CCV	1	55843.6	52954	105.46	PASS	70-125
CCB1	CCB	1	54407.6	52954	102.75	PASS	70-125
CCV2	CCV	1	52322.2	52954	98.81	PASS	70-125
CCB2	CCB	1	51048.3	52954	96.4	PASS	70-125
CCV3	CCV	1	53118.2	52954	100.31	PASS	70-125
CCB3	CCB	1	51458.5	52954	97.18	PASS	70-125
CCV4	CCV	1	52861.8	52954	99.83	PASS	70-125
CCB4	CCB	1	52824	52954	99.75	PASS	70-125
CCV5	CCV	1	50555.7	52954	95.47	PASS	70-125
CCB5	CCB	1	50454.2	52954	95.28	PASS	70-125
ICSA2	ICSA	1	50125.5	52954	94.66	PASS	70-125
ICSAB2	ICSAB	1	51949.8	52954	98.1	PASS	70-125
CCV6	CCV	1	54314.1	52954	102.57	PASS	70-125
CCB6	CCB	1	53529.4	52954	101.09	PASS	70-125
CCV7	CCV	1	50399.6	52954	95.18	PASS	70-125
CCB7	CCB	1	49977.3	52954	94.38	PASS	70-125
MB-75309	MBLK	1	48601.9	52954	91.78	PASS	70-125
LCS-75309	LCS	1	49543.6	52954	93.56	PASS	70-125
N037355-001A	SAMP	1	44010.4	52954	83.11	PASS	70-125
N037355-001A	SAMP	5	45401.9	52954	85.74	PASS	70-125
N037355-001A	SAMP	25	45565.4	52954	86.047	PASS	70-125
N037355-001A-PS	PS	1	43816.6	52954	82.74	PASS	70-125
N037355-001A-PS	PS	5	45368.3	52954	85.67	PASS	70-125
N037355-001A-MS	MS	1	45712.8	52954	86.33	PASS	70-125
CCV8	CCV	1	46931.8	52954	88.63	PASS	70-125
CCB8	CCB	1	44925	52954	84.84	PASS	70-125

INTERNAL STANDARD: 190909A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
ICSA3	ICSA	1	45505.6	52954	85.93	PASS	70-125
ICSAB3	ICSAB	1	46169.6	52954	87.19	PASS	70-125
N037355-001A-MS	MS	5	42944.4	52954	81.098	PASS	70-125
N037355-001A-MSD	MSD	1	42772.8	52954	80.77	PASS	70-125
N037355-001A-MSD	MSD	5	42668.1	52954	80.58	PASS	70-125
N037313-001C	SAMP	1	41174	52954	77.75	PASS	70-125
N037313-001C	SAMP	5	45704.9	52954	86.31	PASS	70-125
N037313-002E	SAMP	1	43397.6	52954	81.95	PASS	70-125
N037313-002E	SAMP	5	47517.8	52954	89.73	PASS	70-125
N037314-001B	SAMP	1	44970.7	52954	84.92	PASS	70-125
N037314-001B	SAMP	5	46702.2	52954	88.19	PASS	70-125
N037314-002B	SAMP	1	44531.7	52954	84.095	PASS	70-125
CCV9	CCV	1	50374	52954	95.13	PASS	70-125
CCB9	CCB	1	47947.9	52954	90.55	PASS	70-125
N037314-002B	SAMP	5	44635.2	52954	84.29	PASS	70-125
N037250-003C	SAMP	1	41185.3	52954	77.78	PASS	70-125
N037250-003C	SAMP	5	43589.1	52954	82.32	PASS	70-125
CCV10	CCV	1	51575.4	52954	97.4	PASS	70-125
CCB10	CCB	1	49398.9	52954	93.29	PASS	70-125
ICSA4	ICSA	1	48769.1	52954	92.097	PASS	70-125
ICSAB4	ICSAB	1	48738	52954	92.038	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037314
Test Method: EPA 200.8
Analysis Date: 9/9/2019

Matrix: Groundwater
Batch No.: 75309

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037355-001A DT 25x	Manganese	Mn	µg/L	149.1663	PASS	147.6437	1.03%	10
N037355-001A DT 5x	Chromium	Cr	µg/L	1.87155	NA	1.842161	1.60%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N037355-001A-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **136393**
Client ID: **ZZZZZZ** Batch ID: **75309** TestNo: **EPA 200.8** Analysis Date: **9/9/2019** SeqNo: **3508561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	248.684	2.5	100.0	147.6	101	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	N037355-001A-PS	SampType:	PS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	136393
Client ID:	ZZZZZZ	Batch ID:	75309	TestNo:	EPA 200.8			Analysis Date:	9/9/2019	SeqNo:	3508326

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.373	1.0	10.00	1.842	95.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136400
ASSET #: N037314

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 9/11/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X					
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?	X					
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X					
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X					
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HH Date: –

2nd Level Reviewer NS 9/29/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037314-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.6929 * 1$$

$$Cr^{+6}, \mu g/L = 0.6929$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 0.69}$$

ANALYSIS RUN LOG

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

9/12/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190911A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/11/19 9:33 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/11/19 9:44 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/11/19 9:54 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/11/19 10:03 AM	Reported
13	MB-R136400	MBLK	1	Hexavalent Chromium	09/11/19 10:13 AM	Reported
14	LCS-R136400	LCS	1	Hexavalent Chromium	09/11/19 10:22 AM	Reported
15	N037403-001AMS	MS	1	Hexavalent Chromium	09/11/19 10:33 AM	Not Reported
16	N037403-002AMS	MS	1	Hexavalent Chromium	09/11/19 10:45 AM	Not Reported
17	N037405-001AMS	MS	1	Hexavalent Chromium	09/11/19 10:54 AM	Not Reported
18	N037403-001AMS	MS	5	Hexavalent Chromium	09/11/19 11:04 AM	Reported
19	N037403-002AMS	MS	5	Hexavalent Chromium	09/11/19 11:13 AM	Reported
20	N037405-001AMS	MS	5	Hexavalent Chromium	09/11/19 11:22 AM	Reported
21	N037403-001A	SAMP	5	Hexavalent Chromium	09/11/19 11:32 AM	Reported
22	N037403-001AMSD	MSD	5	Hexavalent Chromium	09/11/19 11:41 AM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/11/19 11:51 AM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/11/19 12:00 PM	Reported
25	N037403-002A	SAMP	5	Hexavalent Chromium	09/11/19 12:10 PM	Reported
26	N037405-001A	SAMP	5	Hexavalent Chromium	09/11/19 12:19 PM	Reported
27	N037405-001ADUP	DUP	5	Hexavalent Chromium	09/11/19 12:29 PM	Reported
28	N037313-001B	SAMP	50	Hexavalent Chromium	09/11/19 12:38 PM	Not Reported
29	N037313-001BMS	MS	50	Hexavalent Chromium	09/11/19 12:48 PM	Not Reported
30	N037313-002C	SAMP	1	Hexavalent Chromium	09/11/19 12:57 PM	Reported
31	N037313-002CMS	MS	1	Hexavalent Chromium	09/11/19 1:07 PM	Reported
32	N037314-001A	SAMP	1	Hexavalent Chromium	09/11/19 1:16 PM	Reported
33	N037314-001AMS	MS	1	Hexavalent Chromium	09/11/19 1:25 PM	Reported
34	N037314-~~001~~A -002A	SAMP	50	Hexavalent Chromium	09/11/19 1:35 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/11/19 1:44 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/11/19 1:54 PM	Reported
37	N037314-002AMS	MS	50	Hexavalent Chromium	09/11/19 2:03 PM	Reported
38	N037313-001B	SAMP	50	Hexavalent Chromium	09/11/19 2:26 PM	Reported
39	N037313-001BMS	MS	50	Hexavalent Chromium	09/11/19 2:36 PM	Reported
40	N037313-002BMS	MS	1	Hexavalent Chromium	09/11/19 2:46 PM	Not Reported
41	N037296-001A	SAMP	1	Hexavalent Chromium	09/11/19 2:55 PM	Reported
42	N037296-002A	SAMP	1	Hexavalent Chromium	09/11/19 3:05 PM	Reported

INJECTION LOG: 190911A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037297-001A	SAMP	1	Hexavalent Chromium	09/11/19 3:14 PM	Reported
44	N037297-002A	SAMP	1	Hexavalent Chromium	09/11/19 3:24 PM	Reported
45	N037298-001A	SAMP	1	Hexavalent Chromium	09/11/19 3:33 PM	Reported
46	N037298-002A	SAMP	1	Hexavalent Chromium	09/11/19 3:43 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	09/11/19 3:52 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	09/11/19 4:02 PM	Reported
49	N037315-001A	SAMP	1	Hexavalent Chromium	09/11/19 4:11 PM	Reported
50	N037315-002A	SAMP	1	Hexavalent Chromium	09/11/19 4:21 PM	Reported
51	N037315-003A	SAMP	1	Hexavalent Chromium	09/11/19 4:30 PM	Reported
52	N037315-004A	SAMP	1	Hexavalent Chromium	09/11/19 4:39 PM	Reported
53	N037315-005A	SAMP	1	Hexavalent Chromium	09/11/19 4:49 PM	Reported
54	N037315-007A	SAMP	1	Hexavalent Chromium	09/11/19 4:58 PM	Reported
55	CCV-5	CCV	1	Hexavalent Chromium	09/11/19 5:08 PM	Reported
56	CCB-5	CCB	1	Hexavalent Chromium	09/11/19 5:17 PM	Reported
57	BLANK	BLANK	1	Hexavalent Chromium	09/11/19 5:27 PM	Not Reported

HH 9/16/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190911A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**12/Sep/19 08:52:38**
No. of Injections:	**60**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT_BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/11/2019 09:33	Finished	BLANK
10	CCV-1 ~~CCV1~~,CCV,1,	2	1000	Unknown		09/11/2019 09:44	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/11/2019 09:54	Finished	PQL @ 0.2ppb
12	CCV-1 ~~CCB1~~,CCB,1,	4	1000	Unknown		09/11/2019 10:03	Finished	CCB R190701B
13	MB-H2O,MBLK,1,	5	1000	Unknown		09/11/2019 10:13	Finished	MB R190701B
14	LCS-H2O,LCS,1,	6	1000	Unknown		09/11/2019 10:22	Finished	LCS @5ppb, IWST-190702B
15	N037403-001AMS,MS	7	1000	Unknown		09/11/2019 10:33	Finished	MS (1ppb), IWST-190702B,10
16	N037403-002AMS,MS	8	1000	Unknown		09/11/2019 10:45	Finished	MS (1ppb), IWST-190702B,10
17	N037405-001AMS,MS	9	1000	Unknown		09/11/2019 10:54	Finished	MS (1ppb), IWST-190702B,10
18	N037403-001AMS,MS	10	1000	Unknown		09/11/2019 11:04	Finished	MS (1ppb), IWST-190702B,2>1
19	N037403-002AMS,MS	11	1000	Unknown		09/11/2019 11:13	Finished	MS (1ppb), IWST-190702B,2>1
20	N037405-001AMS,MS	12	1000	Unknown		09/11/2019 11:22	Finished	MS (1ppb), IWST-190702B,2>1
21	N037403-001A,SAMP	13	1000	Unknown		09/11/2019 11:32	Finished	SAMP,2>10mL
22	N037403-001AMSD,M	14	1000	Unknown		09/11/2019 11:41	Finished	MSD (1ppb), IWST-190702B,2
23	CCV-2,CCV1,1,	15	1000	Unknown		09/11/2019 11:51	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	16	1000	Unknown		09/11/2019 12:00	Finished	CCB R190701B
25	N037403-002A,SAMP	17	1000	Unknown		09/11/2019 12:10	Finished	SAMP,2>10mL
26	N037405-001A,SAMP	18	1000	Unknown		09/11/2019 12:19	Finished	SAMP,2>10mL
27	N037405-001ADUP,D	19	1000	Unknown		09/11/2019 12:29	Finished	DUP,2>10mL
28	N037313-001B,SAMP	20	1000	Unknown		09/11/2019 12:38	Finished	SAMP,0.2>10mL
29	N037313-001BMS,MS	21	1000	Unknown		09/11/2019 12:48	Finished	MS (5ppb), IWST-190702B,0.2
30	N037313-002C,SAMP	22	1000	Unknown		09/11/2019 12:57	Finished	SAMP,10mL
31	N037313-002CMS,MS	23	1000	Unknown		09/11/2019 13:07	Finished	MS (1ppb), IWST-190702B,10
32	N037314-001A,SAMP	24	1000	Unknown		09/11/2019 13:16	Finished	SAMP,10mL
33	N037314-001AMS,MS	25	1000	Unknown		09/11/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
N037314-002A 34	N037314-001A,SAMP	26	1000	Unknown		09/11/2019 13:35	Finished	SAMP,0.2>10mL
35	CCV-3,CCV,1,	27	1000	Unknown		09/11/2019 13:44	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	28	1000	Unknown		09/11/2019 13:54	Finished	CCB R190701B
N037314-002AMS 37	N037314-001AMS,MS	29	1000	Unknown		09/11/2019 14:03	Finished	MS (5ppb), IWST-190702B,0.2
38	N037313-001B,SAMP	1	1000	Unknown		09/11/2019 14:26	Finished	SAMP,0.2>10mL
39	N037313-001BMS,MS	2	1000	Unknown		09/11/2019 14:36	Finished	MS (5ppb), IWST-190702B,0.2
40	N037313-002AMS,MS	3	1000	Unknown		09/11/2019 14:46	Finished	MS (1ppb), IWST-190702B,10
41	N037296-001A,SAMP	4	1000	Unknown		09/11/2019 14:55	Finished	SAMP,10mL
42	N037296-002A,SAMP	5	1000	Unknown		09/11/2019 15:05	Finished	SAMP,10mL
43	N037297-001A,SAMP	6	1000	Unknown		09/11/2019 15:14	Finished	SAMP,10mL
44	N037297-002A,SAMP	7	1000	Unknown		09/11/2019 15:24	Finished	SAMP,10mL
45	N037298-001A,SAMP	8	1000	Unknown		09/11/2019 15:33	Finished	SAMP,10mL
46	N037298-002A,SAMP	9	1000	Unknown		09/11/2019 15:43	Finished	SAMP,10mL
47	CCV-4,CCV1,1,	10	1000	Unknown		09/11/2019 15:52	Finished	CCV @10ppb, IWST-190702A
48	CCB-4,CCB,1,	11	1000	Unknown		09/11/2019 16:02	Finished	CCB R190701B
49	N037315-001A,SAMP	12	1000	Unknown		09/11/2019 16:11	Finished	SAMP,10mL
50	N037315-002A,SAMP	13	1000	Unknown		09/11/2019 16:21	Finished	SAMP,10mL
51	N037315-003A,SAMP	14	1000	Unknown		09/11/2019 16:30	Finished	SAMP,10mL
52	N037315-004A,SAMP	15	1000	Unknown		09/11/2019 16:39	Finished	SAMP,10mL
53	N037315-005A,SAMP	16	1000	Unknown		09/11/2019 16:49	Finished	SAMP,10mL
54	N037315-007A,SAMP	17	1000	Unknown		09/11/2019 16:58	Finished	SAMP,10mL
55	CCV-5,CCV,1,	18	1000	Unknown		09/11/2019 17:08	Finished	CCV @5ppb, IWST-190702A
56	CCB-5,CCB,1,	19	1000	Unknown		09/11/2019 17:17	Finished	CCB R190701B
57	BLANK	20	1000	Unknown		09/11/2019 17:27	Finished	BLANK
58	SHUTDOWN	21	1000	Unknown		09/11/2019 17:36	Finished	
59	Eluent: R190909A	22	1000	Unknown		n.a.	Finished	Eluent
60	PCR: R190909B	23	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 9/5/19
Time Prepared: 6:01 pm
Prepared By: [illegible]

Slope: 99.3
pH 4: 4.00
7: 7.02
10: 10.01

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV 190329A
NH4OH + NH4SO4 eluent: R1909094
NH4OH + NH4SO4 buffer: R190816D, R190701B, R190830A
6N NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037313-001B	9.27	9.31	~250 mL	~250mL	+1 drop 6N NaOH	LAB FILTERED & PRESERVED
2)	-2C	9.39	—			—	
3)	N037314-1A	8.85	9.36			+7 drops	
4)	-2A	9.10	9.31			+4 drops	
5)	N037313-1D	7.59	—			—	UNFILTERED & UNPRESERVED SAMPLES
6)	-2F	7.36	—			—	
7)	N037315-1A	8.80	9.37			+10 drops	
8)	-2A	9.14	9.36			+4 drops	
9)	-3A	8.90	9.33			+7 drops	
10)	-4A	8.84	9.34			+7 drops	
11)	-5A	8.75	9.36			+9 drops	
12)	-7A	9.36	—			—	
13)							
14)							
15)							

Sample Preparation

Date Prepared: 9/9/19
Time Prepared: 9:17
Prepared By: [illegible]/HSG

Slope: 97.1
pH: 4: 3.99
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV 190329A
NH4OH + NH4SO4 eluent: R1909094
NH4OH + NH4SO4 buffer: R190719B, R190816D
6N NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037355-1B	9.12	9.36	~250mL	~250 mL	+3 drops	
2)	N037356-1A	9.29	9.41			+1 drop	
3)	-2A	9.28	9.44			+1 drop	
4)	N037357-2A	9.62	—			—	
5)	N037374-1A	9.24	9.33			+1 DROP	
6)	2A	9.16	9.31			+2 DROPS	
7)	N037376-1A	9.44	—			—	
8)	N037375-2A	9.20	9.41			+3 drops	
9)	N037377-2A	9.18	9.34			+3 drops	
10)	N037378-1A	9.21	9.41			+3 drops	
11)	-2A	9.16	9.37			+3 drops	
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/27/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0535	0.2527	1.2778	2.5458	3.9240	5.1959	0.9998

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **ICV**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3508743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **ZZZZZZ**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3508744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.202	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **CCV**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3508746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.920	0.20	5.000	0	98.4	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **ZZZZZZ**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3508747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.209	0.20	0.2000	0	104	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **ZZZZZZ**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3508759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.112	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **CCV**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3508771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.001	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **ZZZZZZ**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3509858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.019	0.20	10.00	0	100	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **CCV**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3509866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.992	0.20	5.000	0	99.8	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **ICB**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **8/27/2019**	SeqNo: **3508745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **CCB**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3508748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **CCB**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3508760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **CCB**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3508772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136400**
Client ID: **CCB**	Batch ID: **R136400**	TestNo: **EPA 218.6**		Analysis Date: **9/11/2019**	SeqNo: **3509859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5** SampType: **CCB** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136400**
Client ID: **CCB** Batch ID: **R136400** TestNo: **EPA 218.6** Analysis Date: **9/11/2019** SeqNo: **3509867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/11/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.706	
CCV-2	4.706	
CCV-3	4.706	
CCV-4	4.715	
CCV-5	4.706	
Average	4.708	
Actual RT Window	4.628 - 4.788	
Applied RT Window	4.508 - 4.908	
MB-R136400	N.A.	N.A.
LCS-R136400	4.706	PASS
N037403-001AMS	N.A.	N.A.
N037403-002AMS	N.A.	N.A.
N037405-001AMS	N.A.	N.A.
N037403-001AMS	4.665	PASS
N037403-002AMS	4.665	PASS
N037405-001AMS	4.665	PASS
N037403-001A	N.A.	N.A.
N037403-001AMSD	4.656	PASS
N037403-002A	N.A.	N.A.
N037405-001A	N.A.	N.A.
N037405-001ADUP	N.A.	N.A.
N037313-001B	4.706	PASS
N037313-001BMS	4.706	PASS
N037313-002C	4.598	PASS
N037313-002CMS	4.615	PASS
N037314-~~001A~~ 002A	4.698	PASS
N037314-001AMS	4.665	PASS
N037314-001A	4.715	PASS
N037314-002AMS	4.723	PASS
N037313-001B	4.706	PASS

NS 9/29/2019

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/11/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.706	
CCV-2	4.706	
CCV-3	4.706	
CCV-4	4.715	
CCV-5	4.706	
Average	4.708	
Actual RT Window	4.628 - 4.788	
Applied RT Window	4.508 - 4.908	
N037313-001BMS	4.706	PASS
N037313-002BMS	4.606	PASS
N037296-001A	4.690	PASS
N037296-002A	4.698	PASS
N037297-001A	4.698	PASS
N037297-002A	4.631	PASS
N037298-001A	4.690	PASS
N037298-002A	N.A.	N.A.
N037315-001A	N.A.	N.A.
N037315-002A	4.706	PASS
N037315-003A	4.690	PASS
N037315-004A	4.673	PASS
N037315-005A	4.690	PASS
N037315-007A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190827A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	ICV	ICV	1	Hexavalent Chromium	08/27/19 12:13 PM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/27/19 12:24 PM	Reported
11	ICB	ICB	1	Hexavalent Chromium	08/27/19 12:34 PM	Reported
12	MB-R136122	MBLK	1	Hexavalent Chromium	08/27/19 12:43 PM	Reported
13	LCS-R136122	LCS	1	Hexavalent Chromium	08/27/19 12:53 PM	Reported
14	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:16 PM	Not Reported
15	N036586-018A	SAMP	50	Hexavalent Chromium	08/27/19 1:28 PM	Reported
16	N036586-018ADUP	DUP	50	Hexavalent Chromium	08/27/19 1:37 PM	Reported
17	N036832-009A	SAMP	1	Hexavalent Chromium	08/27/19 1:46 PM	Not Reported
18	N036832-009AMS	MS	1	Hexavalent Chromium	08/27/19 1:56 PM	Not Reported
19	N036850-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:05 PM	Not Reported
20	N036850-001AMS	MS	1	Hexavalent Chromium	08/27/19 2:15 PM	Not Reported
21	N036851-001A	SAMP	1	Hexavalent Chromium	08/27/19 2:24 PM	Not Reported
22	CCV-1	CCV1	1	Hexavalent Chromium	08/27/19 2:34 PM	Reported
23	CCB-1	CCB	1	Hexavalent Chromium	08/27/19 2:43 PM	Reported
24	N036851-001A	SAMP	5	Hexavalent Chromium	08/27/19 3:07 PM	Reported
25	N036851-001AMS	MS	5	Hexavalent Chromium	08/27/19 3:18 PM	Reported
26	N036851-001AMSD	MSD	5	Hexavalent Chromium	08/27/19 3:28 PM	Reported
27	CCV-2	CCV	1	Hexavalent Chromium	08/27/19 3:46 PM	Reported
28	CCB-2	CCB	1	Hexavalent Chromium	08/27/19 3:57 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190827A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**27/Aug/19 17:00:25**
No. of Injections:	**31**	*Updated By:*	**ics 5000**

Injection Details

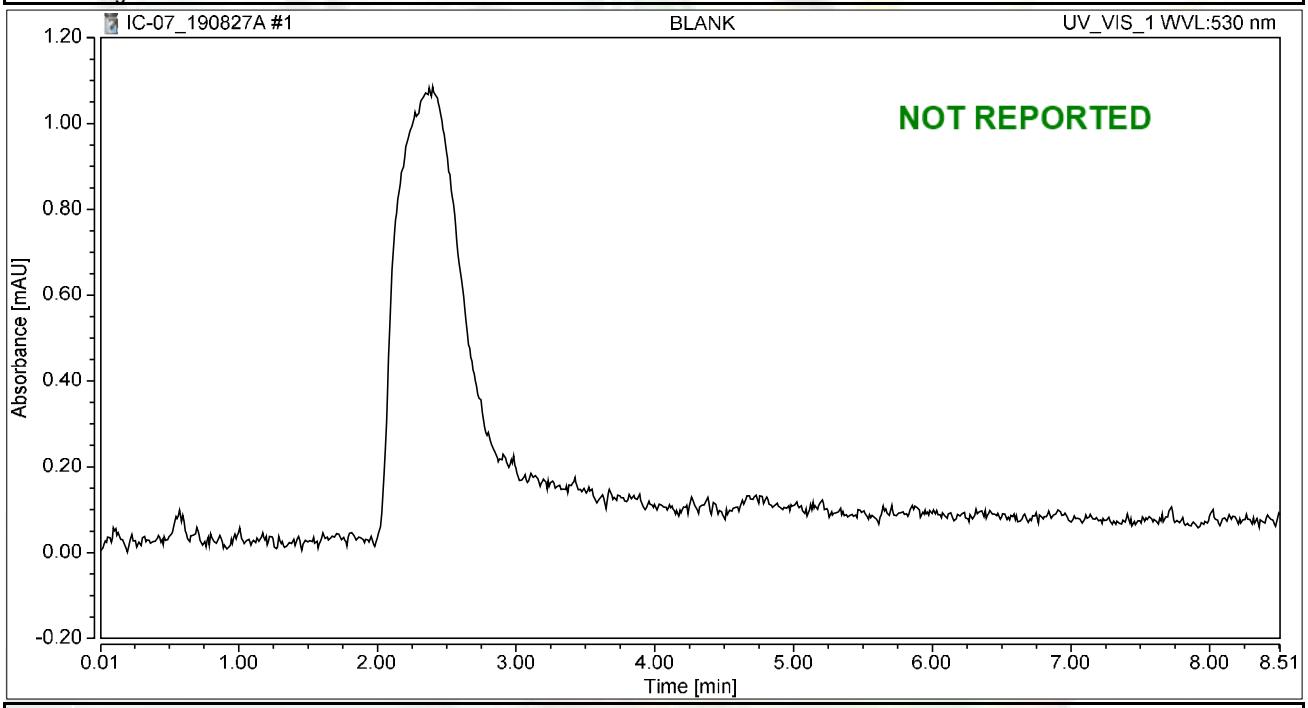
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	ICV,ICV,1,	9	1000	Unknown		08/27/2019 12:13	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	10	1000	Unknown		08/27/2019 12:24	Finished	PQL @ 0.2ppb
11	ICB,ICB,1,	11	1000	Unknown		08/27/2019 12:34	Finished	CCB R190617C
12	MB-H2O,MBLK,1,	12	1000	Unknown		08/27/2019 12:43	Finished	MB R190617C
13	LCS-H2O,LCS,1,	13	1000	Unknown		08/27/2019 12:53	Finished	LCS @5ppb, IWST-190702B
14	N036586-018A,SAMP	14	1000	Unknown		08/27/2019 13:16	Finished	MS (1ppb), IWST-190702B,10
15	N036586-018A,SAMP	15	1000	Unknown		08/27/2019 13:28	Finished	MS (1ppb), IWST-190702B,10
16	N036586-018ADUP,D	16	1000	Unknown		08/27/2019 13:37	Finished	MS (1ppb), IWST-190702B,2>1
17	N036832-009A,SAMP	17	1000	Unknown		08/27/2019 13:46	Finished	MS (1ppb), IWST-190702B,2>1
18	N036832-009AMS,MS	18	1000	Unknown		08/27/2019 13:56	Finished	SAMP,10mL
19	N036850-001A,SAMP	19	1000	Unknown		08/27/2019 14:05	Finished	SAMP,10mL
20	N036850-001AMS,MS	20	1000	Unknown		08/27/2019 14:15	Finished	SAMP,2>10mL
21	N036851-001A,SAMP	21	1000	Unknown		08/27/2019 14:24	Finished	SAMP,2>10mL
22	CCV-1,CCV1,1,	22	1000	Unknown		08/27/2019 14:34	Finished	CCV @10ppb, IWST-190702A
23	CCB-1,CCB,1,	23	1000	Unknown		08/27/2019 14:43	Finished	CCB R190617C
24	N036851-001A,SAMP	25	1000	Unknown		08/27/2019 15:07	Finished	DUP,2>10mL
25	N036851-001AMS,MS	26	1000	Unknown		08/27/2019 15:18	Finished	SAMP,10mL
26	N036851-001AMSD,M	27	1000	Unknown		08/27/2019 15:28	Finished	SAMP,10mL
27	CCV-2,CCV,1,	29	1000	Unknown		08/27/2019 15:46	Finished	CCV @5ppb, IWST-190702A
28	CCB-2,CCB,1,	30	1000	Unknown		08/27/2019 15:57	Finished	CCB R190617C
29	SHUTDOWN	31	1000	Unknown		08/27/2019 16:37	Finished	
30	Eluent: R190822A	32	1000	Unknown		n.a.	Finished	Eluent
31	PCR: R190819A	33	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

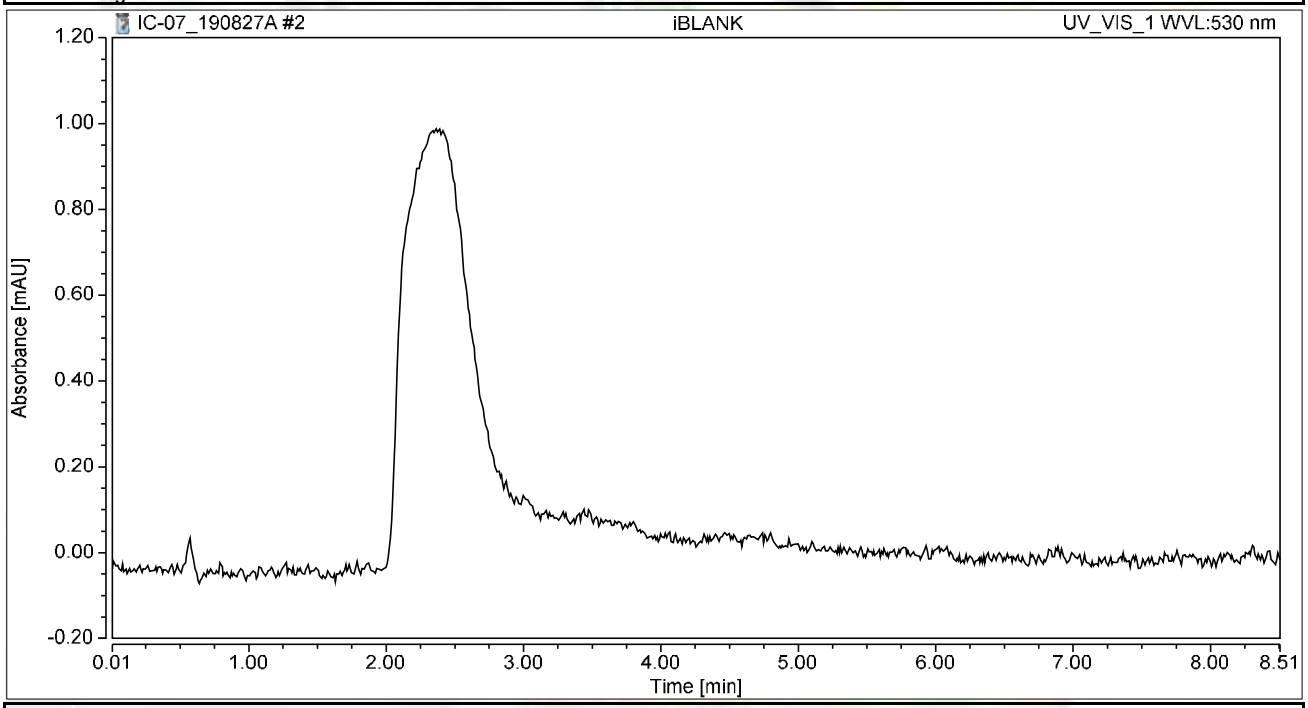
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

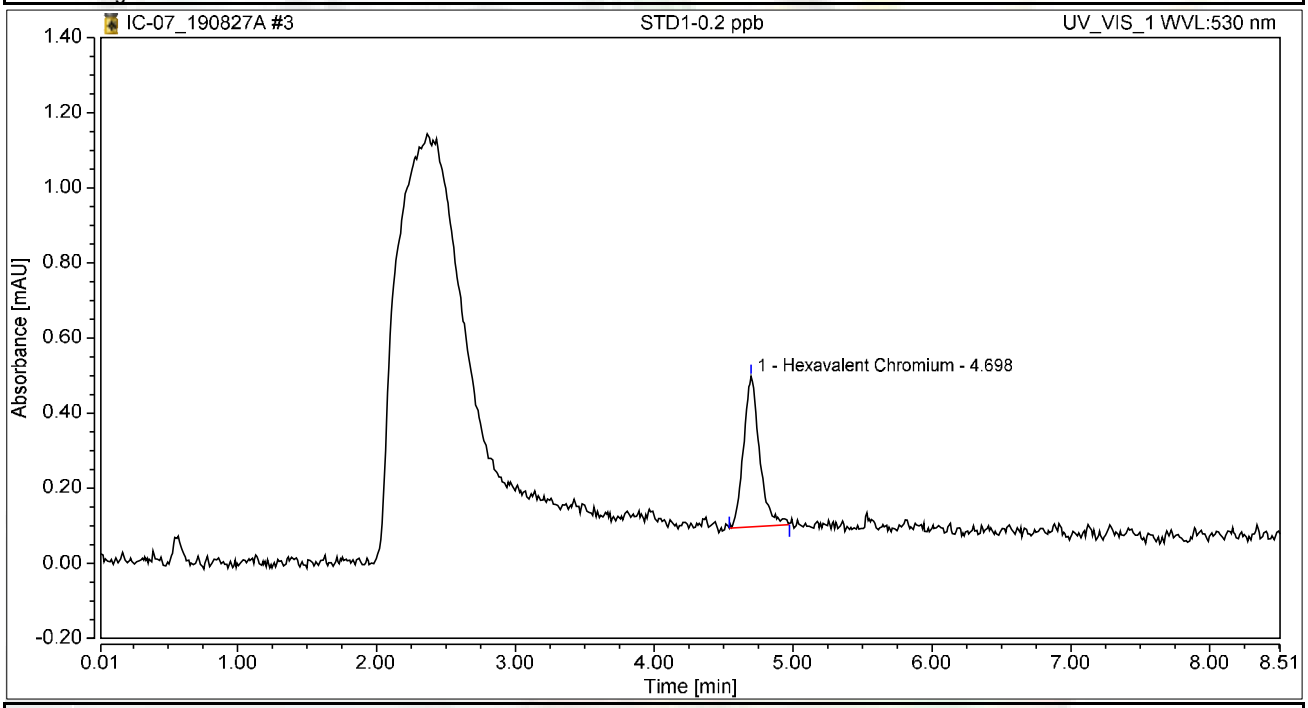
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

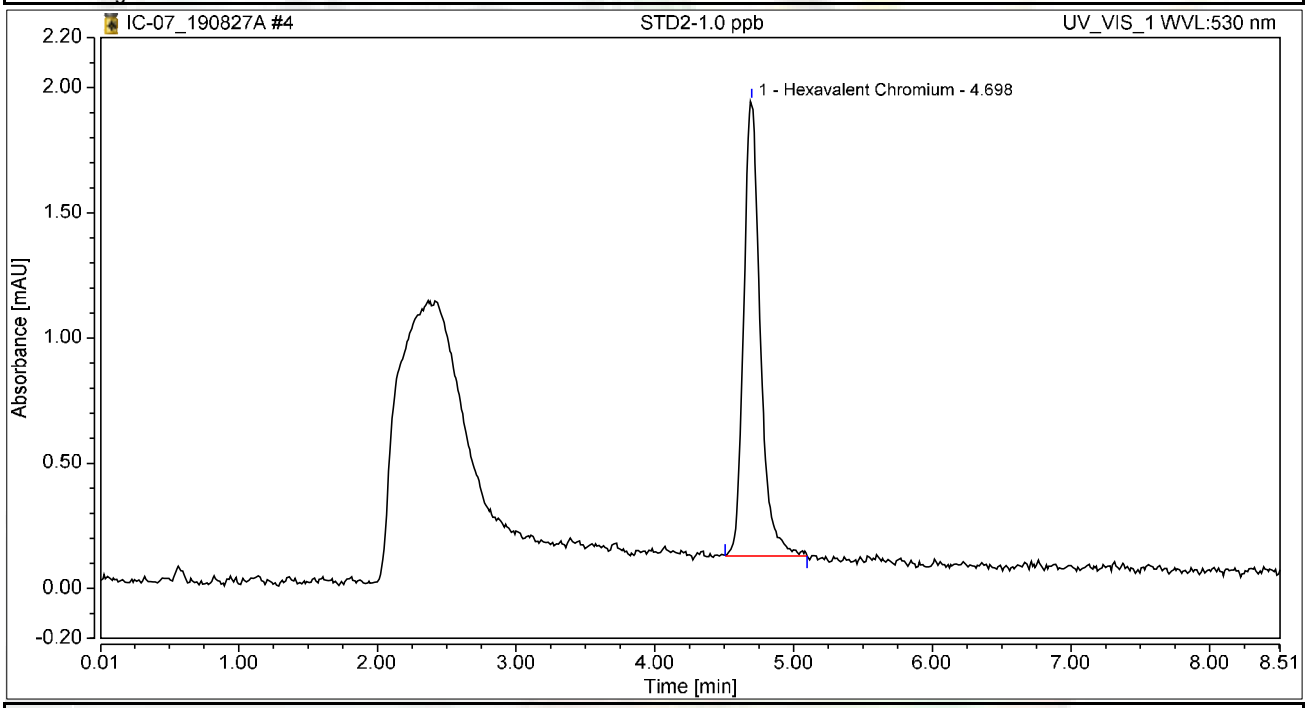
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.401	100.00	100.00	0.2063
Total:			**0.054**	**0.401**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

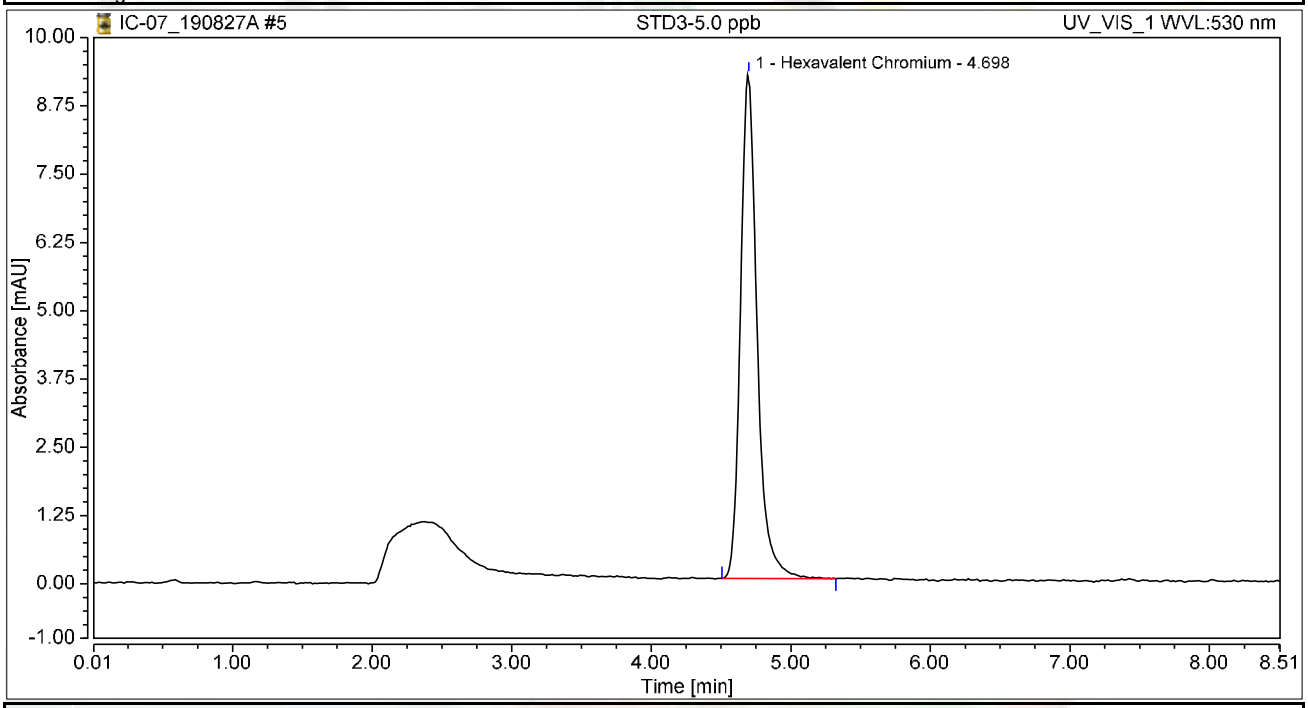
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.253	1.819	100.00	100.00	0.9737
Total:			**0.253**	**1.819**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

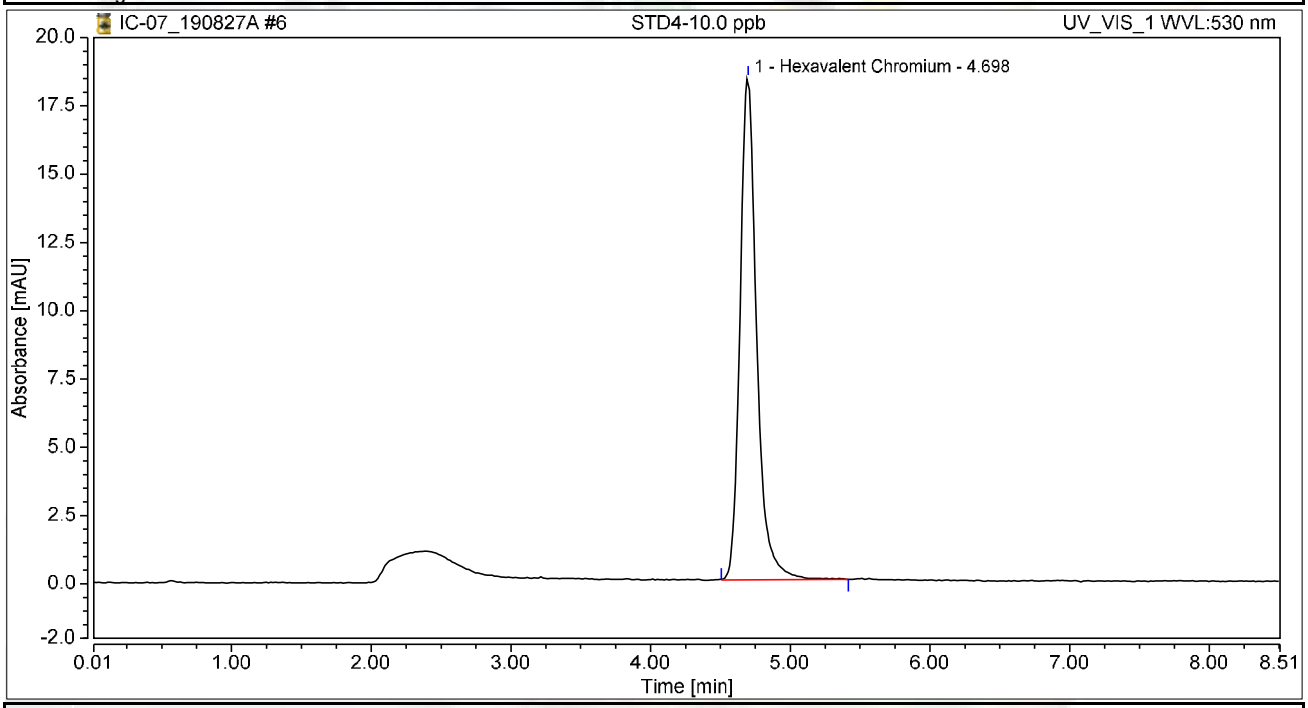
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.278	9.233	100.00	100.00	4.9242
Total:			**1.278**	**9.233**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

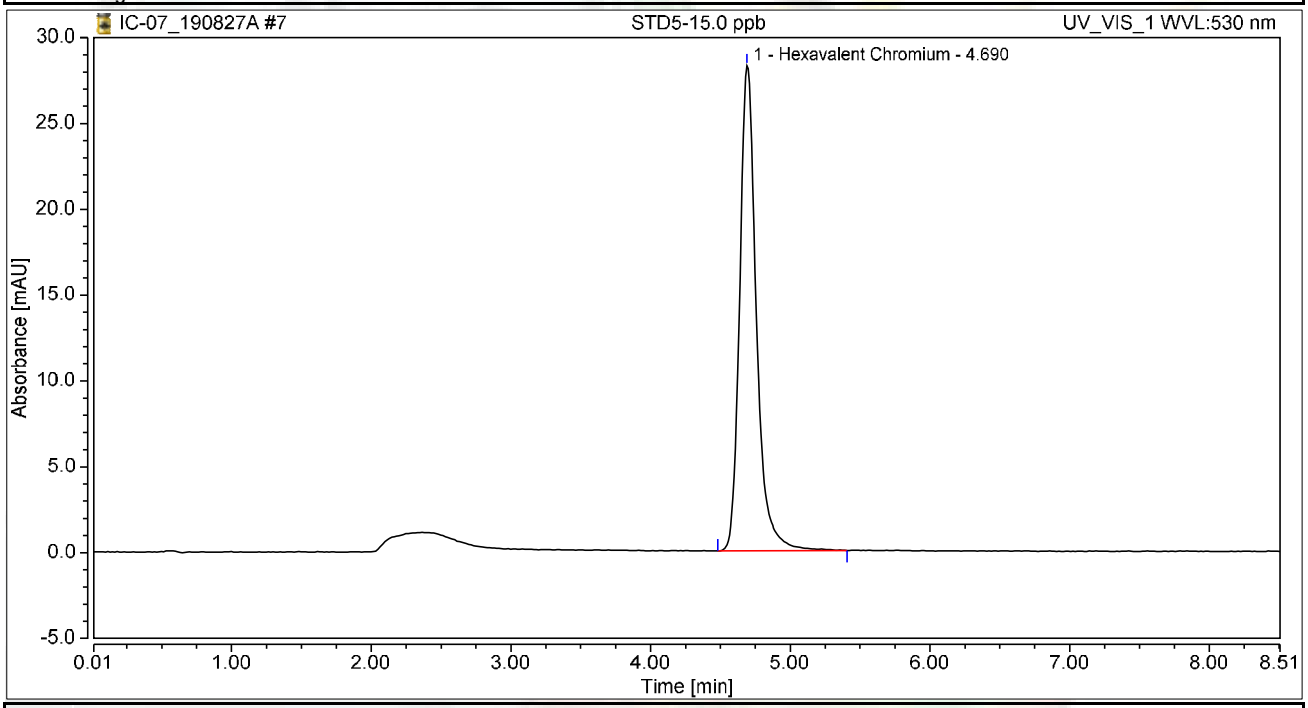
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.546	18.373	100.00	100.00	9.8106
Total:			**2.546**	**18.373**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

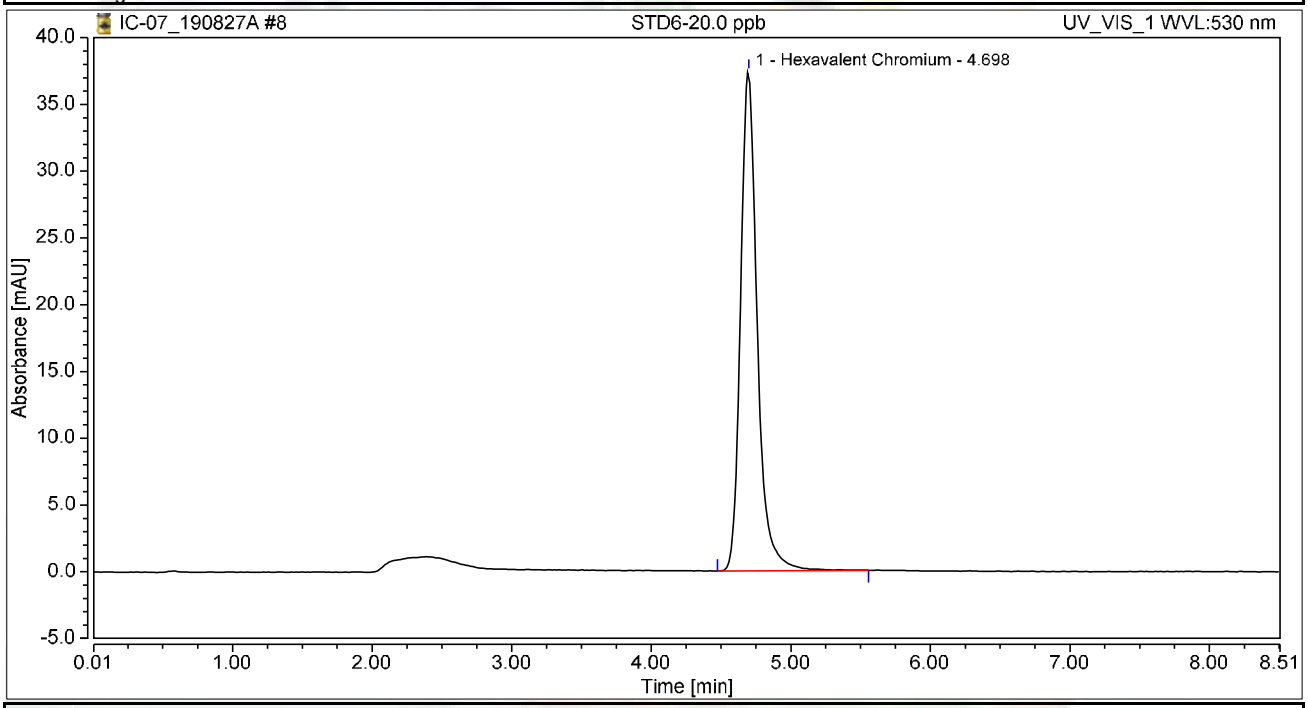
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.924	28.263	100.00	100.00	15.1217
Total:			**3.924**	**28.263**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



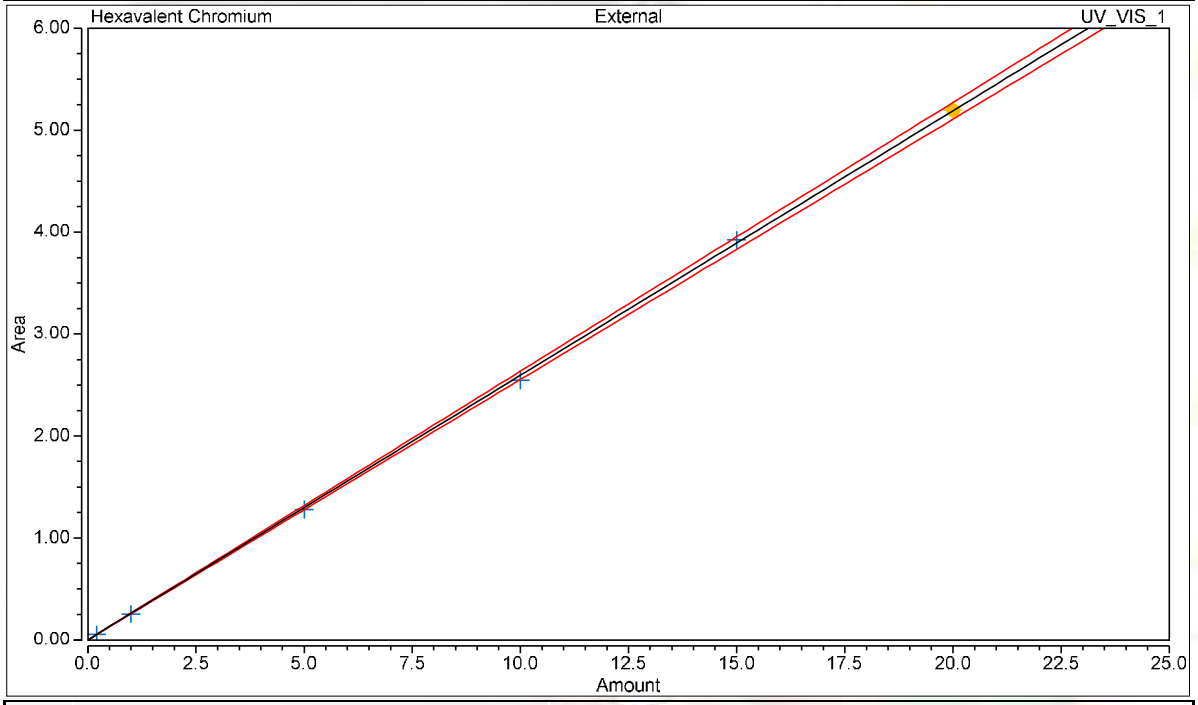
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.196	37.432	100.00	100.00	20.0236
Total:			**5.196**	**37.432**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99982

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

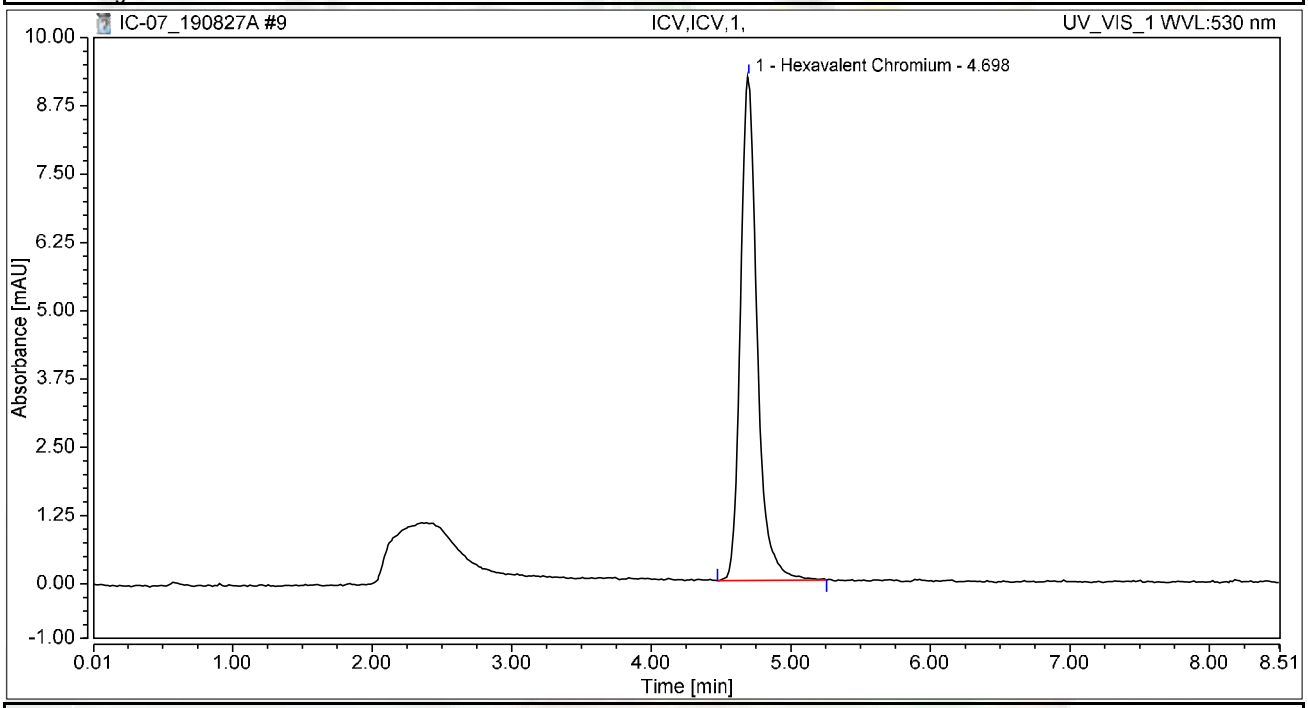
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
3	STD1-0.2 ppb	01	0.2000	0.0535	0.054	0.401
4	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.819
5	STD3-5.0 ppb	03	5.0000	1.2778	1.278	9.233
6	STD4-10.0 ppb	04	10.0000	2.5458	2.546	18.373
7	STD5-15.0 ppb	05	15.0000	3.9240	3.924	28.263
8	STD6-20.0 ppb	06	20.0000	5.1959	5.196	37.432

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

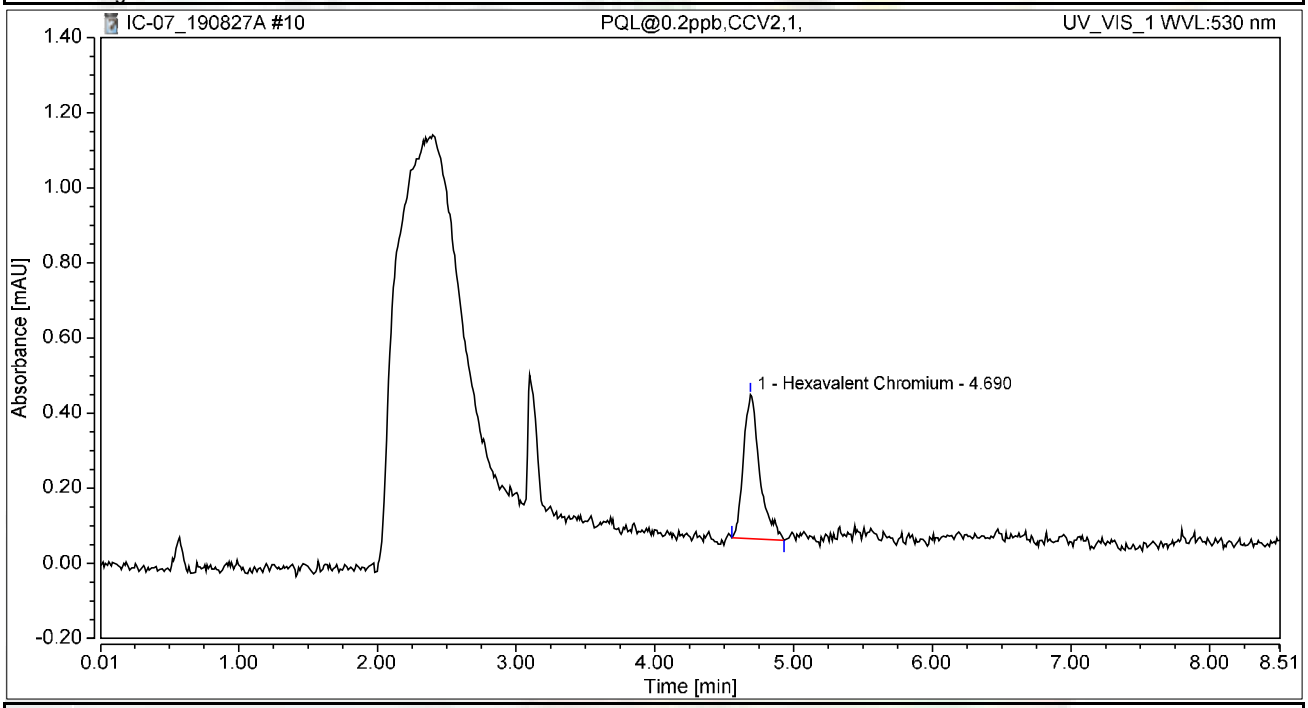
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.281	9.225	100.00	100.00	4.9381
Total:			**1.281**	**9.225**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

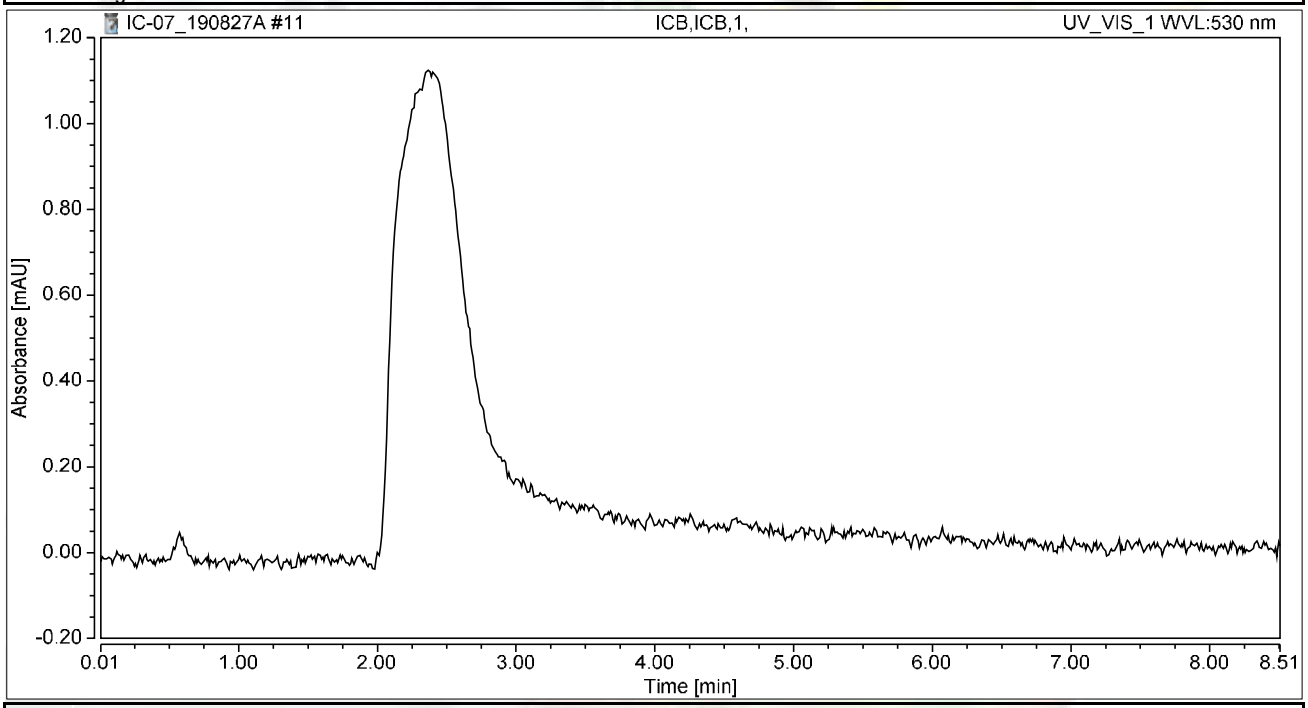
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.052	0.383	100.00	100.00	0.2022
Total:			**0.052**	**0.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Aug/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190911A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/27/19 9:51 AM	Not Reported
2	iBLANK	iBLANK	1	Hexavalent Chromium	08/27/19 10:02 AM	Reported
3	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:05 AM	Reported
4	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:16 AM	Reported
5	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:26 AM	Reported
6	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:35 AM	Reported
7	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:45 AM	Reported
8	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/27/19 11:54 AM	Reported
9	BLANK	BLANK	1	Hexavalent Chromium	09/11/19 9:33 AM	Not Reported
10	CCV-1	CCV	1	Hexavalent Chromium	09/11/19 9:44 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/11/19 9:54 AM	Reported
12	CCB-1	CCB	1	Hexavalent Chromium	09/11/19 10:03 AM	Reported
13	MB-R136400	MBLK	1	Hexavalent Chromium	09/11/19 10:13 AM	Reported
14	LCS-R136400	LCS	1	Hexavalent Chromium	09/11/19 10:22 AM	Reported
15	N037403-001AMS	MS	1	Hexavalent Chromium	09/11/19 10:33 AM	Not Reported
16	N037403-002AMS	MS	1	Hexavalent Chromium	09/11/19 10:45 AM	Not Reported
17	N037405-001AMS	MS	1	Hexavalent Chromium	09/11/19 10:54 AM	Not Reported
18	N037403-001AMS	MS	5	Hexavalent Chromium	09/11/19 11:04 AM	Reported
19	N037403-002AMS	MS	5	Hexavalent Chromium	09/11/19 11:13 AM	Reported
20	N037405-001AMS	MS	5	Hexavalent Chromium	09/11/19 11:22 AM	Reported
21	N037403-001A	SAMP	5	Hexavalent Chromium	09/11/19 11:32 AM	Reported
22	N037403-001AMSD	MSD	5	Hexavalent Chromium	09/11/19 11:41 AM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	09/11/19 11:51 AM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	09/11/19 12:00 PM	Reported
25	N037403-002A	SAMP	5	Hexavalent Chromium	09/11/19 12:10 PM	Reported
26	N037405-001A	SAMP	5	Hexavalent Chromium	09/11/19 12:19 PM	Reported
27	N037405-001ADUP	DUP	5	Hexavalent Chromium	09/11/19 12:29 PM	Reported
28	N037313-001B	SAMP	50	Hexavalent Chromium	09/11/19 12:38 PM	Not Reported
29	N037313-001BMS	MS	50	Hexavalent Chromium	09/11/19 12:48 PM	Not Reported
30	N037313-002C	SAMP	1	Hexavalent Chromium	09/11/19 12:57 PM	Reported
31	N037313-002CMS	MS	1	Hexavalent Chromium	09/11/19 1:07 PM	Reported
32	N037314-001A	SAMP	1	Hexavalent Chromium	09/11/19 1:16 PM	Reported
33	N037314-001AMS	MS	1	Hexavalent Chromium	09/11/19 1:25 PM	Reported
34	N037314-0~~01~~A -002A	SAMP	50	Hexavalent Chromium	09/11/19 1:35 PM	Reported
35	CCV-3	CCV	1	Hexavalent Chromium	09/11/19 1:44 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	09/11/19 1:54 PM	Reported
37	N037314-002AMS	MS	50	Hexavalent Chromium	09/11/19 2:03 PM	Reported
38	N037313-001B	SAMP	50	Hexavalent Chromium	09/11/19 2:26 PM	Reported
39	N037313-001BMS	MS	50	Hexavalent Chromium	09/11/19 2:36 PM	Reported
40	N037313-002BMS	MS	1	Hexavalent Chromium	09/11/19 2:46 PM	Not Reported
41	N037296-001A	SAMP	1	Hexavalent Chromium	09/11/19 2:55 PM	Reported
42	N037296-002A	SAMP	1	Hexavalent Chromium	09/11/19 3:05 PM	Reported

INJECTION LOG: 190911A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037297-001A	SAMP	1	Hexavalent Chromium	09/11/19 3:14 PM	Reported
44	N037297-002A	SAMP	1	Hexavalent Chromium	09/11/19 3:24 PM	Reported
45	N037298-001A	SAMP	1	Hexavalent Chromium	09/11/19 3:33 PM	Reported
46	N037298-002A	SAMP	1	Hexavalent Chromium	09/11/19 3:43 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	09/11/19 3:52 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	09/11/19 4:02 PM	Reported
49	N037315-001A	SAMP	1	Hexavalent Chromium	09/11/19 4:11 PM	Reported
50	N037315-002A	SAMP	1	Hexavalent Chromium	09/11/19 4:21 PM	Reported
51	N037315-003A	SAMP	1	Hexavalent Chromium	09/11/19 4:30 PM	Reported
52	N037315-004A	SAMP	1	Hexavalent Chromium	09/11/19 4:39 PM	Reported
53	N037315-005A	SAMP	1	Hexavalent Chromium	09/11/19 4:49 PM	Reported
54	N037315-007A	SAMP	1	Hexavalent Chromium	09/11/19 4:58 PM	Reported
55	CCV-5	CCV	1	Hexavalent Chromium	09/11/19 5:08 PM	Reported
56	CCB-5	CCB	1	Hexavalent Chromium	09/11/19 5:17 PM	Reported
57	BLANK	BLANK	1	Hexavalent Chromium	09/11/19 5:27 PM	Not Reported

9/16/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190911A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**12/Sep/19 08:52:38**
No. of Injections:	**60**	*Updated By:*	**ics 5000**

Injection Details

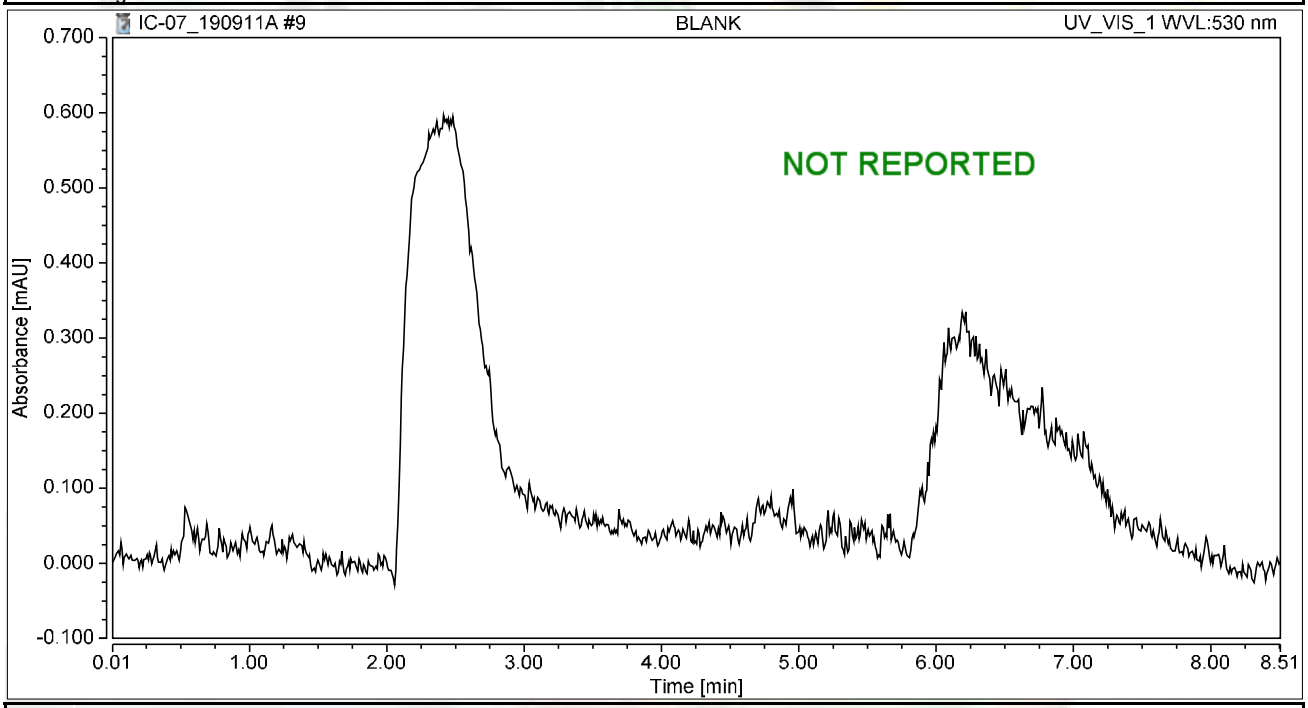
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/27/2019 09:51	Finished	BLANK
2	iBLANK	2	1000	Unknown		08/27/2019 10:02	Finished	INSTRUMENT BLANK
3	STD1-0.2 ppb	3	1000	Calibration Standard	01	08/27/2019 11:05	Finished	0.2 ppb, IWST-190702A
4	STD2-1.0 ppb	4	1000	Calibration Standard	02	08/27/2019 11:16	Finished	1.0 ppb, IWST-190702A
5	STD3-5.0 ppb	5	1000	Calibration Standard	03	08/27/2019 11:26	Finished	5.0 ppb, IWST-190702A
6	STD4-10.0 ppb	6	1000	Calibration Standard	04	08/27/2019 11:35	Finished	10 ppb, IWST-190702A
7	STD5-15.0 ppb	7	1000	Calibration Standard	05	08/27/2019 11:45	Finished	15 ppb, IWST-190702A
8	STD6-20.0 ppb	8	1000	Calibration Standard	06	08/27/2019 11:54	Finished	20 ppb, IWST-190702A
9	BLANK	1	1000	Unknown		09/11/2019 09:33	Finished	BLANK
10	CCV-1 ~~CCV1~~,CCV,1,	2	1000	Unknown		09/11/2019 09:44	Finished	CCV @5ppb, IWST-190702A
11	PQL@0.2ppb,CCV2,1	3	1000	Unknown		09/11/2019 09:54	Finished	PQL @ 0.2ppb
12	CCV-1 ~~CCB1~~,CCB,1,	4	1000	Unknown		09/11/2019 10:03	Finished	CCB R190701B
13	MB-H2O,MBLK,1,	5	1000	Unknown		09/11/2019 10:13	Finished	MB R190701B
14	LCS-H2O,LCS,1,	6	1000	Unknown		09/11/2019 10:22	Finished	LCS @5ppb, IWST-190702B
15	N037403-001AMS,MS	7	1000	Unknown		09/11/2019 10:33	Finished	MS (1ppb), IWST-190702B,10
16	N037403-002AMS,MS	8	1000	Unknown		09/11/2019 10:45	Finished	MS (1ppb), IWST-190702B,10
17	N037405-001AMS,MS	9	1000	Unknown		09/11/2019 10:54	Finished	MS (1ppb), IWST-190702B,10
18	N037403-001AMS,MS	10	1000	Unknown		09/11/2019 11:04	Finished	MS (1ppb), IWST-190702B,2>1
19	N037403-002AMS,MS	11	1000	Unknown		09/11/2019 11:13	Finished	MS (1ppb), IWST-190702B,2>1
20	N037405-001AMS,MS	12	1000	Unknown		09/11/2019 11:22	Finished	MS (1ppb), IWST-190702B,2>1
21	N037403-001A,SAMP	13	1000	Unknown		09/11/2019 11:32	Finished	SAMP,2>10mL
22	N037403-001AMSD,M	14	1000	Unknown		09/11/2019 11:41	Finished	MSD (1ppb), IWST-190702B,2
23	CCV-2,CCV1,1,	15	1000	Unknown		09/11/2019 11:51	Finished	CCV @10ppb, IWST-190702A
24	CCB-2,CCB,1,	16	1000	Unknown		09/11/2019 12:00	Finished	CCB R190701B
25	N037403-002A,SAMP	17	1000	Unknown		09/11/2019 12:10	Finished	SAMP,2>10mL
26	N037405-001A,SAMP	18	1000	Unknown		09/11/2019 12:19	Finished	SAMP,2>10mL
27	N037405-001ADUP,D	19	1000	Unknown		09/11/2019 12:29	Finished	DUP,2>10mL
28	N037313-001B,SAMP	20	1000	Unknown		09/11/2019 12:38	Finished	SAMP,0.2>10mL
29	N037313-001BMS,MS	21	1000	Unknown		09/11/2019 12:48	Finished	MS (5ppb), IWST-190702B,0.2
30	N037313-002C,SAMP	22	1000	Unknown		09/11/2019 12:57	Finished	SAMP,10mL
31	N037313-002CMS,MS	23	1000	Unknown		09/11/2019 13:07	Finished	MS (1ppb), IWST-190702B,10
32	N037314-001A,SAMP	24	1000	Unknown		09/11/2019 13:16	Finished	SAMP,10mL
33	N037314-001AMS,MS	25	1000	Unknown		09/11/2019 13:25	Finished	MS (1ppb), IWST-190702B,10
N037314-002A 34	N037314-001A,SAMP	26	1000	Unknown		09/11/2019 13:35	Finished	SAMP,0.2>10mL
35	CCV-3,CCV,1,	27	1000	Unknown		09/11/2019 13:44	Finished	CCV @5ppb, IWST-190702A
36	CCB-3,CCB,1,	28	1000	Unknown		09/11/2019 13:54	Finished	CCB R190701B
N037314-002AMS 37	N037314-001AMS,MS	29	1000	Unknown		09/11/2019 14:03	Finished	MS (5ppb), IWST-190702B,0.2
38	N037313-001B,SAMP	1	1000	Unknown		09/11/2019 14:26	Finished	SAMP,0.2>10mL
39	N037313-001BMS,MS	2	1000	Unknown		09/11/2019 14:36	Finished	MS (5ppb), IWST-190702B,0.2
40	N037313-002AMS,MS	3	1000	Unknown		09/11/2019 14:46	Finished	MS (1ppb), IWST-190702B,10
41	N037296-001A,SAMP	4	1000	Unknown		09/11/2019 14:55	Finished	SAMP,10mL
42	N037296-002A,SAMP	5	1000	Unknown		09/11/2019 15:05	Finished	SAMP,10mL
43	N037297-001A,SAMP	6	1000	Unknown		09/11/2019 15:14	Finished	SAMP,10mL
44	N037297-002A,SAMP	7	1000	Unknown		09/11/2019 15:24	Finished	SAMP,10mL
45	N037298-001A,SAMP	8	1000	Unknown		09/11/2019 15:33	Finished	SAMP,10mL
46	N037298-002A,SAMP	9	1000	Unknown		09/11/2019 15:43	Finished	SAMP,10mL
47	CCV-4,CCV1,1,	10	1000	Unknown		09/11/2019 15:52	Finished	CCV @10ppb, IWST-190702A
48	CCB-4,CCB,1,	11	1000	Unknown		09/11/2019 16:02	Finished	CCB R190701B
49	N037315-001A,SAMP	12	1000	Unknown		09/11/2019 16:11	Finished	SAMP,10mL
50	N037315-002A,SAMP	13	1000	Unknown		09/11/2019 16:21	Finished	SAMP,10mL
51	N037315-003A,SAMP	14	1000	Unknown		09/11/2019 16:30	Finished	SAMP,10mL
52	N037315-004A,SAMP	15	1000	Unknown		09/11/2019 16:39	Finished	SAMP,10mL
53	N037315-005A,SAMP	16	1000	Unknown		09/11/2019 16:49	Finished	SAMP,10mL
54	N037315-007A,SAMP	17	1000	Unknown		09/11/2019 16:58	Finished	SAMP,10mL
55	CCV-5,CCV,1,	18	1000	Unknown		09/11/2019 17:08	Finished	CCV @5ppb, IWST-190702A
56	CCB-5,CCB,1,	19	1000	Unknown		09/11/2019 17:17	Finished	CCB R190701B
57	BLANK	20	1000	Unknown		09/11/2019 17:27	Finished	BLANK
58	SHUTDOWN	21	1000	Unknown		09/11/2019 17:36	Finished	
59	Eluent: R190909A	22	1000	Unknown		n.a.	Finished	Eluent
60	PCR: R190909B	23	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 09:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

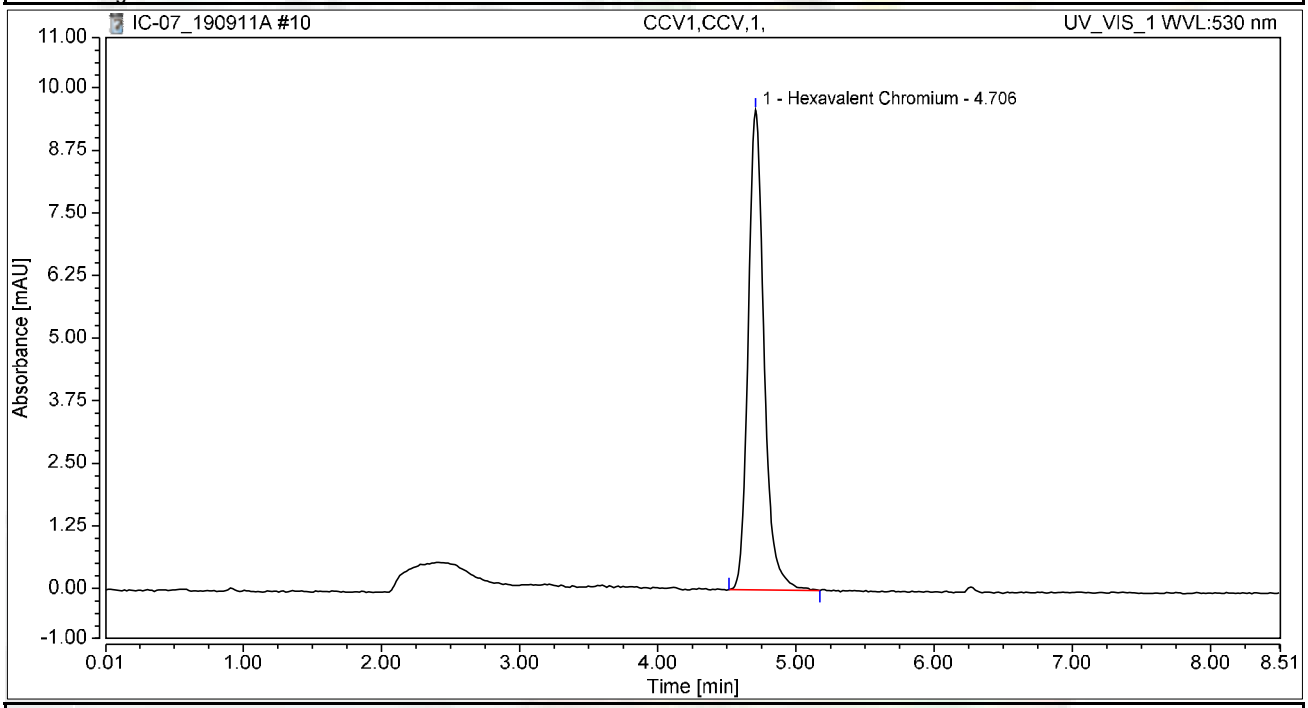
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 09:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

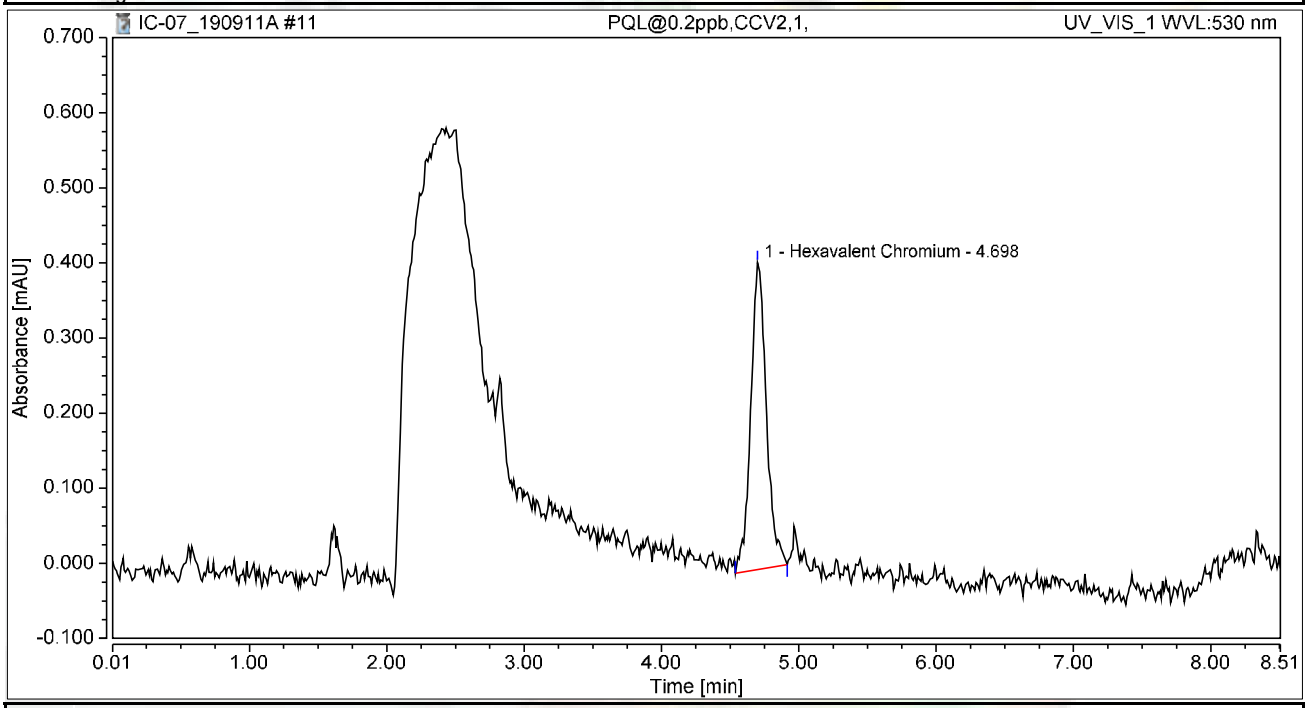
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.277	9.585	100.00	100.00	4.9203
Total:			**1.277**	**9.585**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 09:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

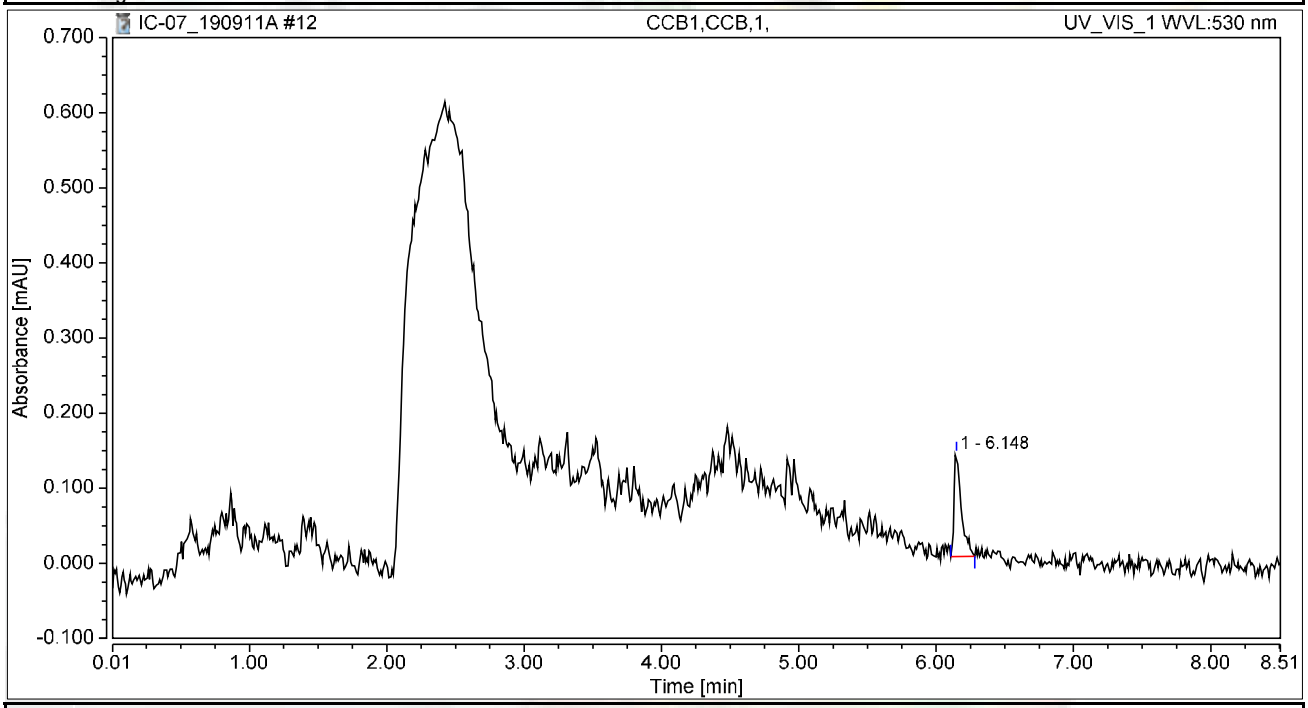
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.408	100.00	100.00	0.2086
Total:			**0.054**	**0.408**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

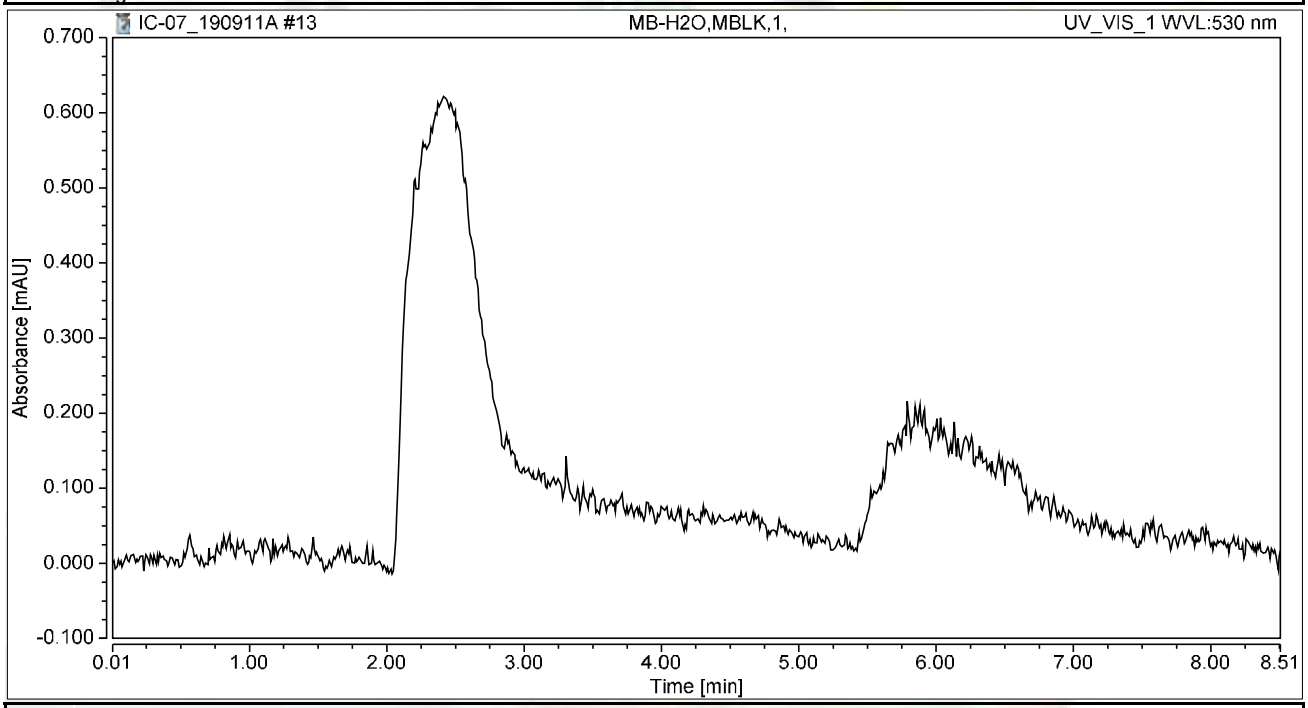
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.148	0.009	0.137	100.00	100.00	n.a.
Total:			**0.009**	**0.137**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

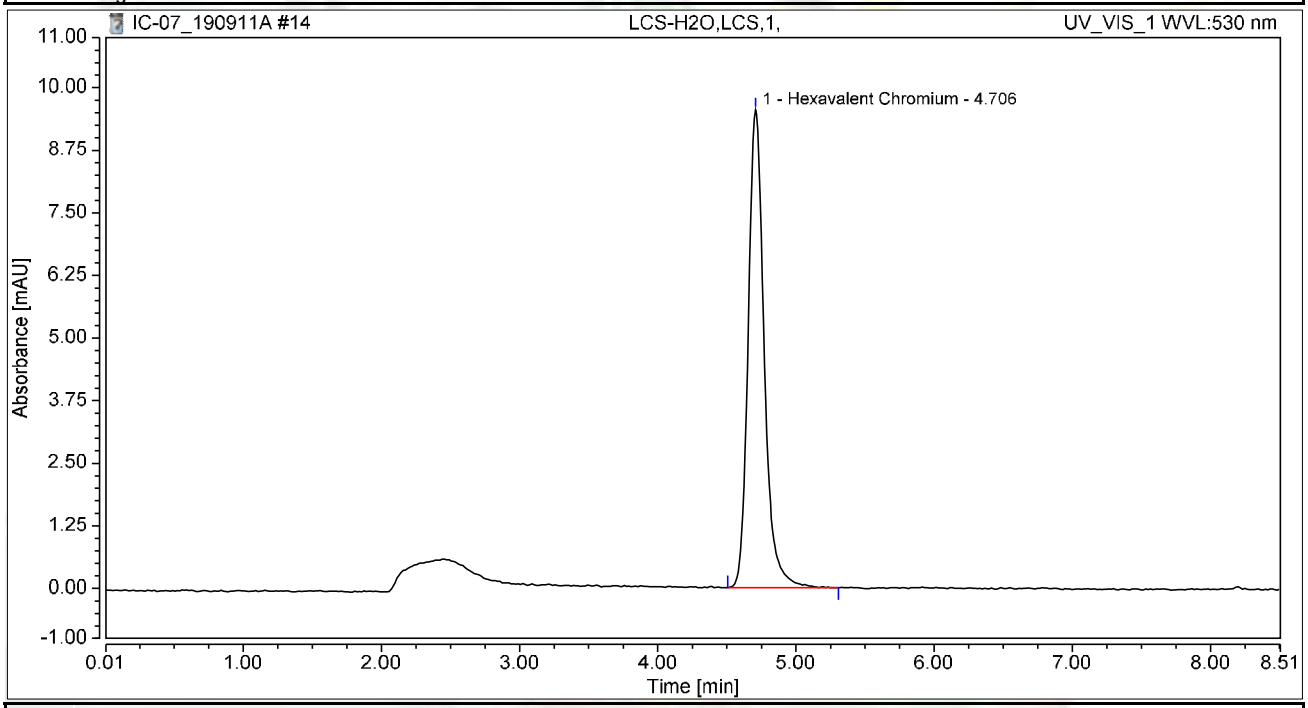
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

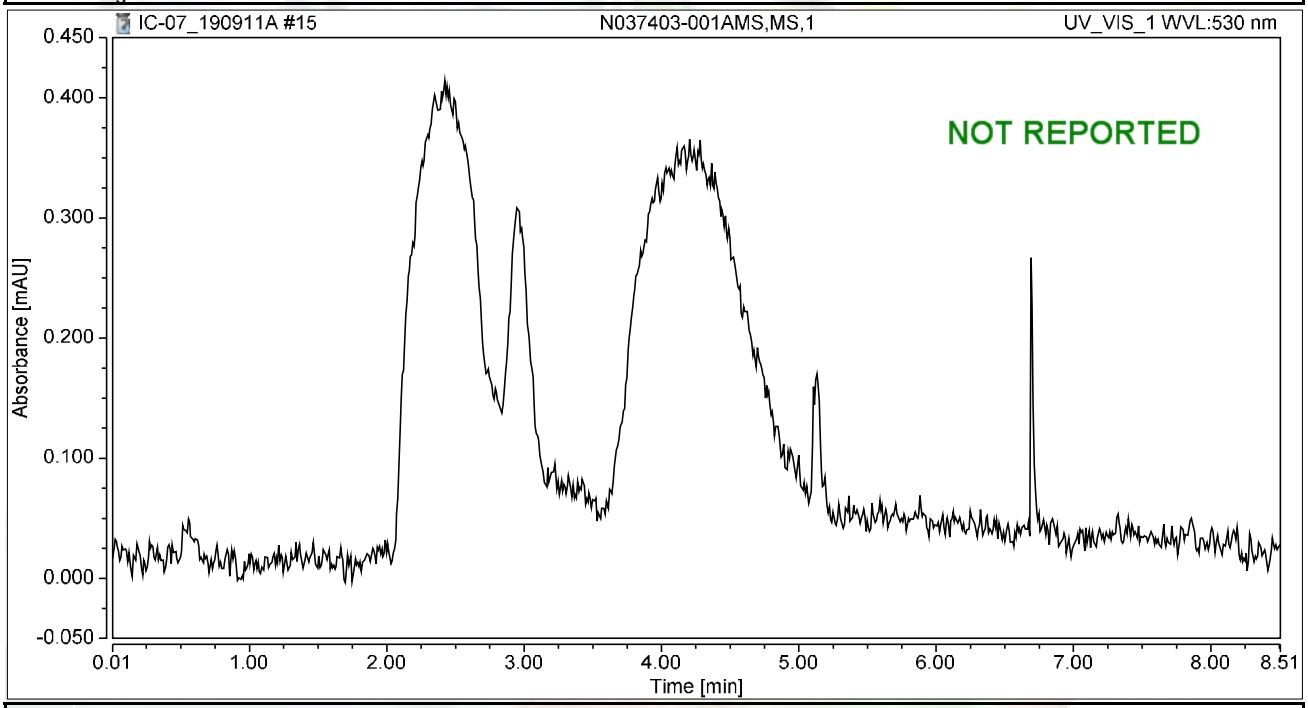
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.284	9.544	100.00	100.00	4.9475
Total:			**1.284**	**9.544**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037403-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 10:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

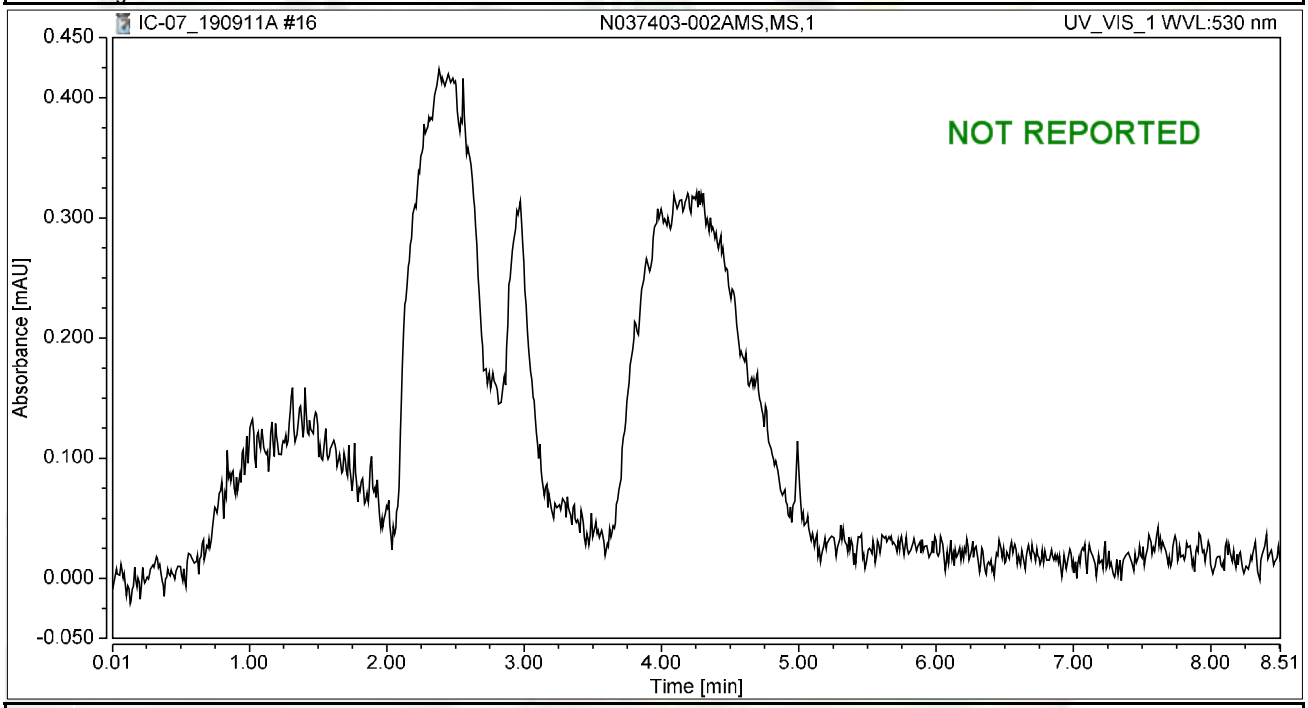
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037403-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 10:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

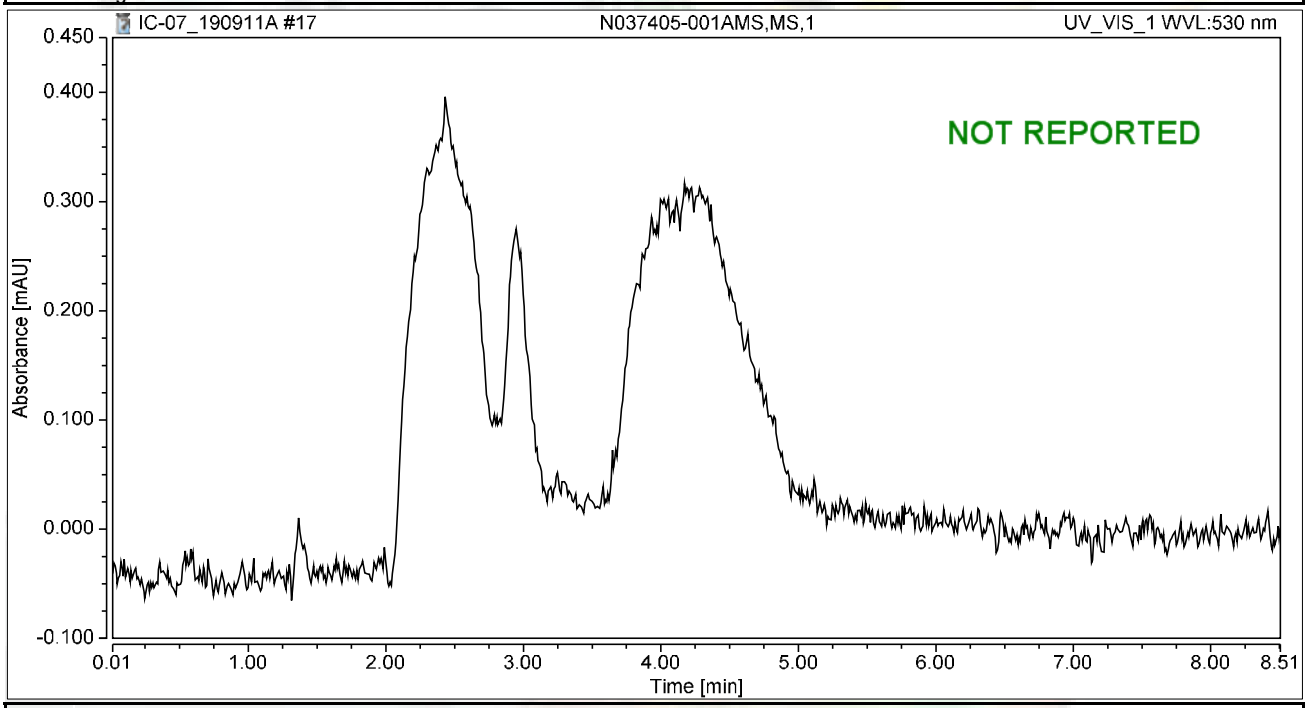
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037405-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 10:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

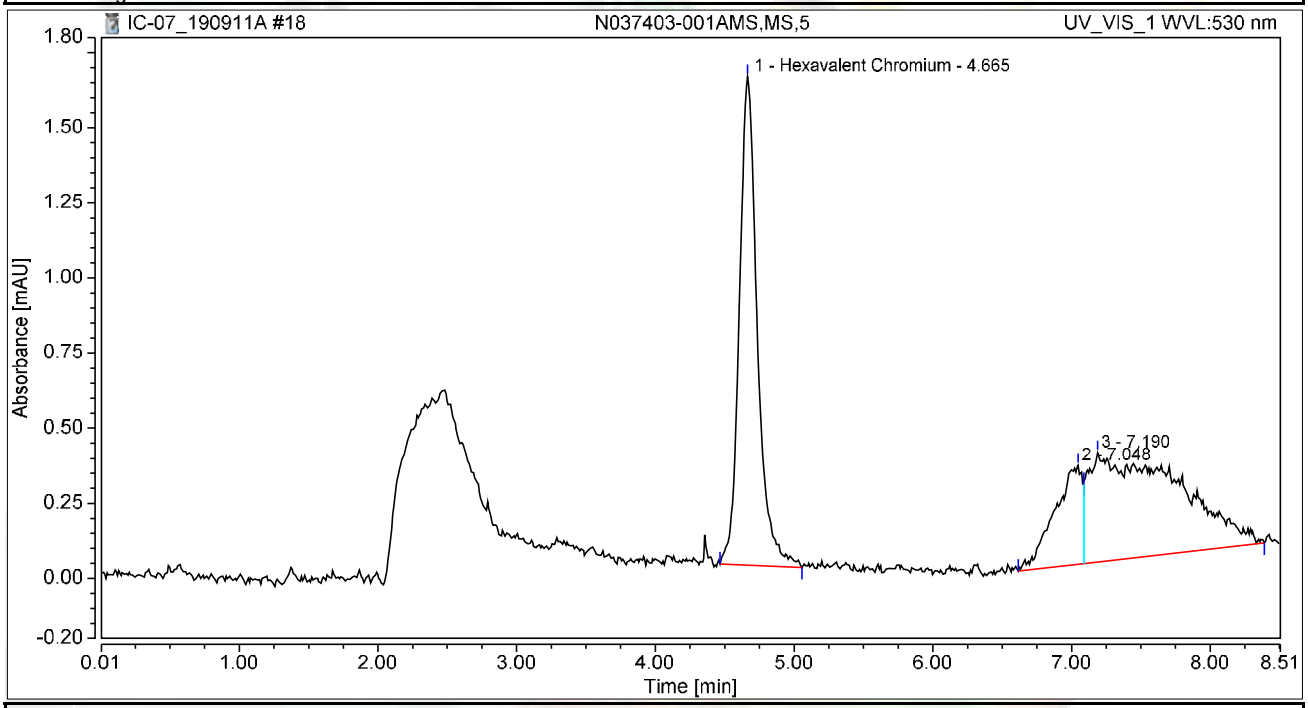
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037403-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 11:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

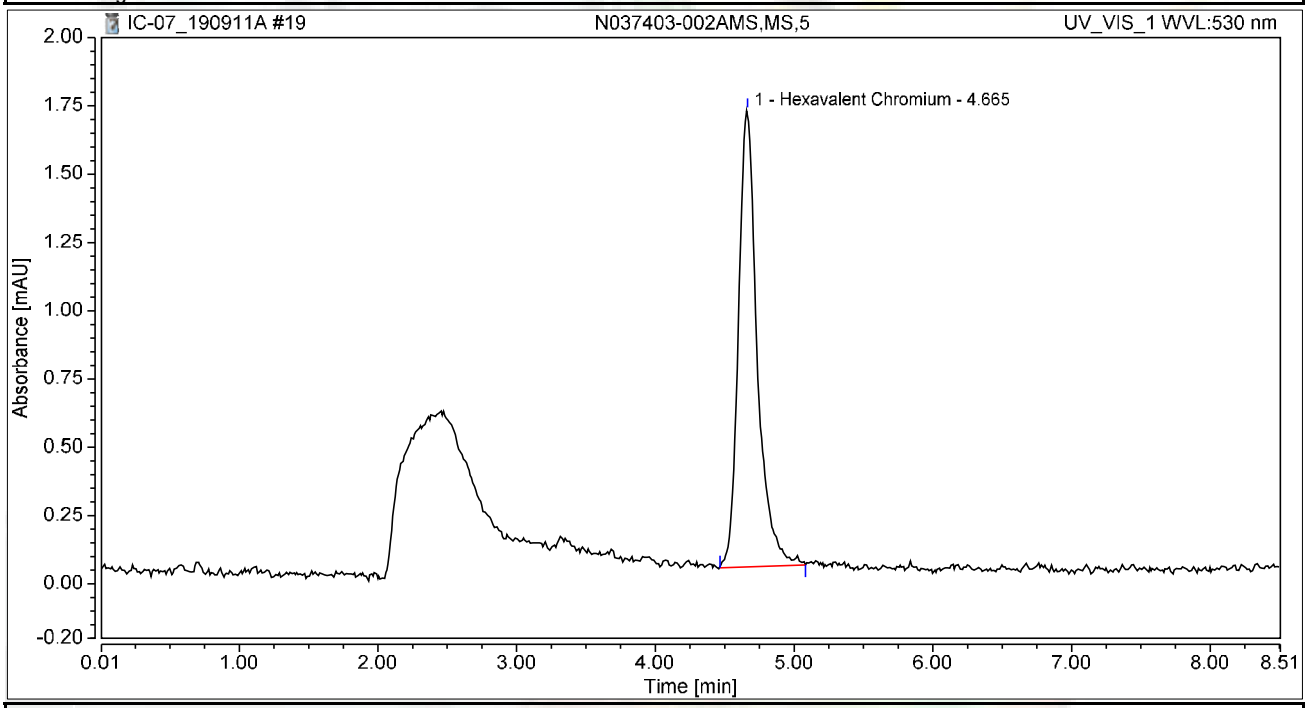
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.244	1.627	41.50	70.17	0.9394
2		7.048	0.076	0.328	12.96	14.16	n.a.
3		7.190	0.268	0.363	45.54	15.67	n.a.
Total:			**0.587**	**2.318**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037403-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 11:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

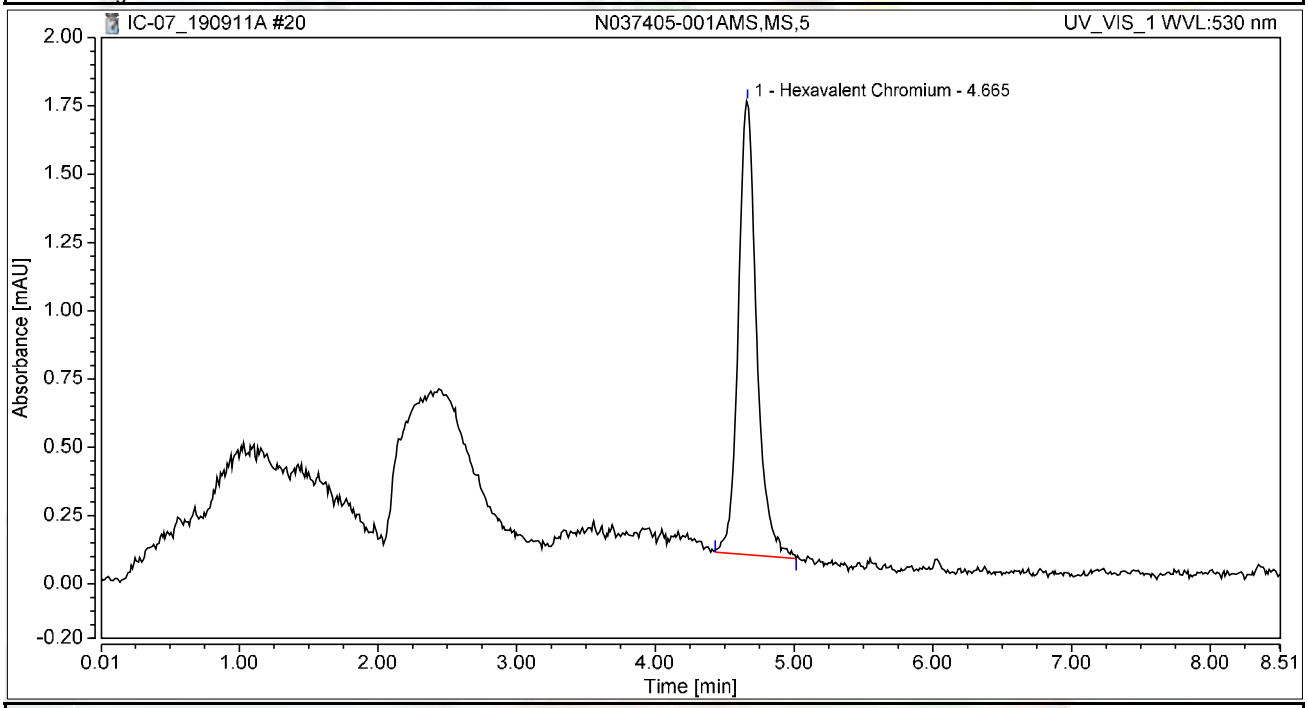
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.263	1.672	100.00	100.00	1.0131
Total:			**0.263**	**1.672**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037405-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 11:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

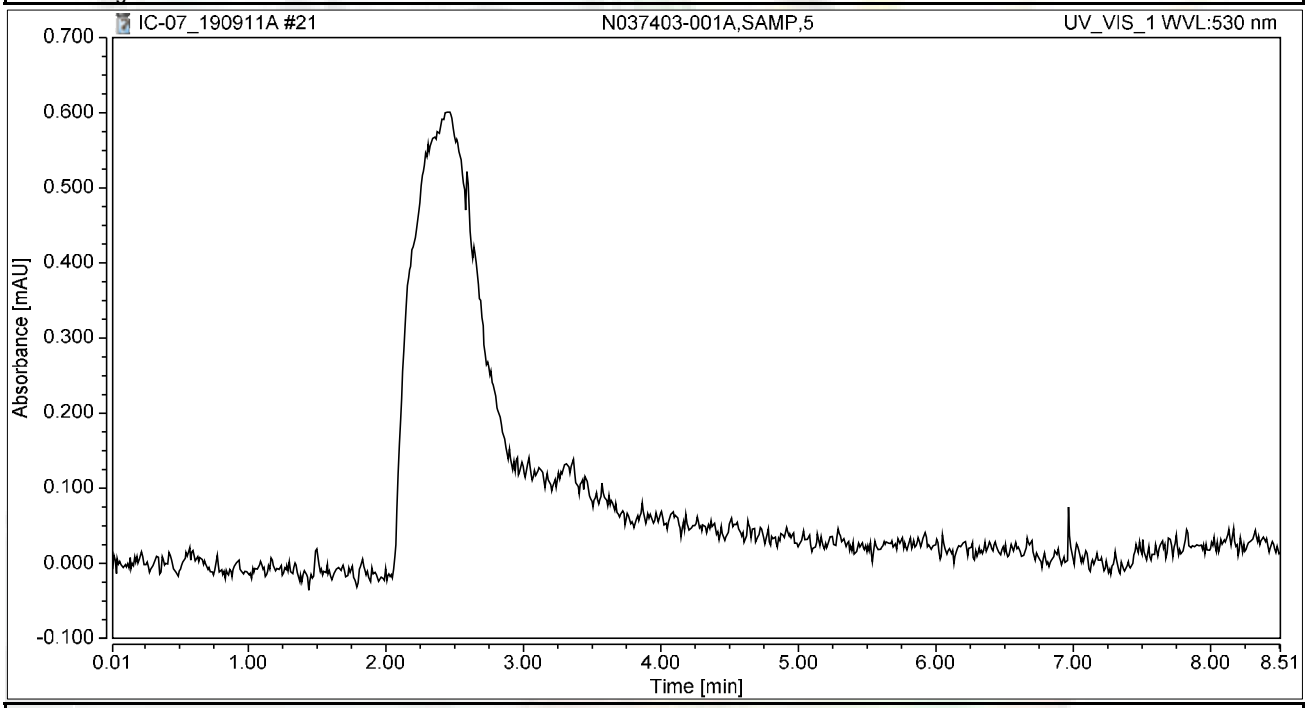
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.254	1.660	100.00	100.00	0.9801
Total:			**0.254**	**1.660**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037403-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 11:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

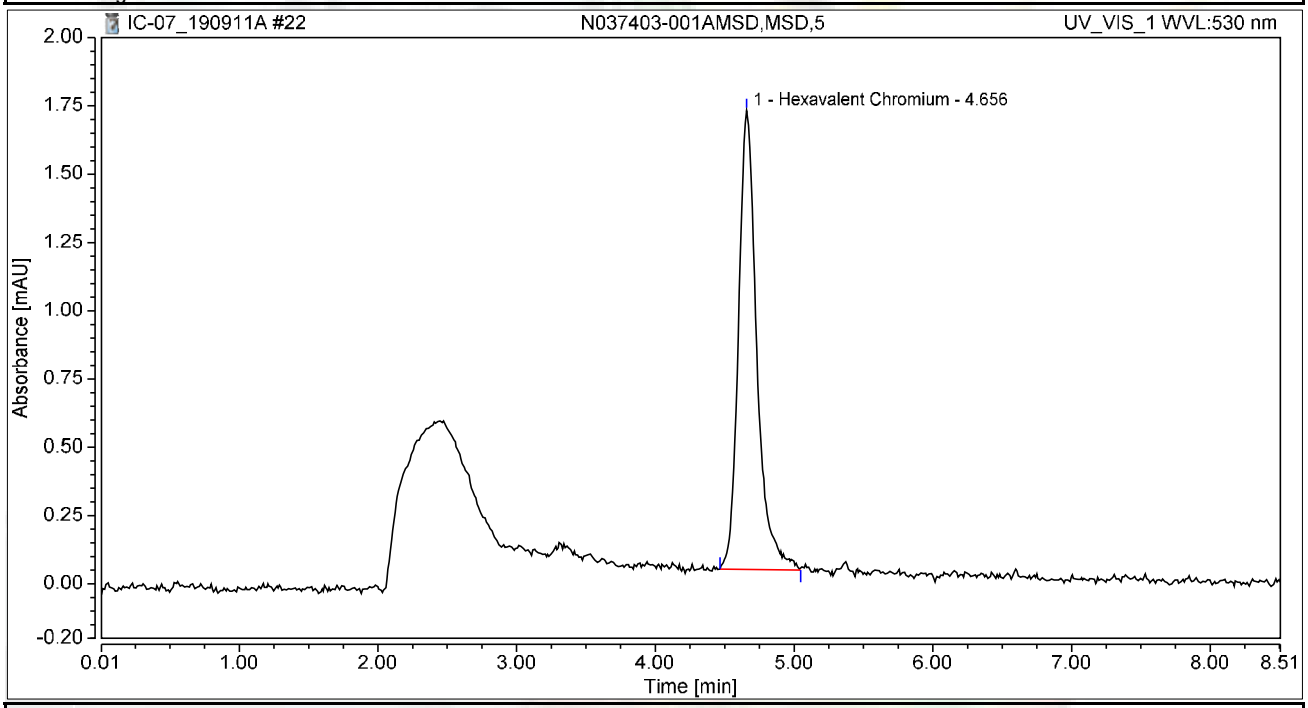
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037403-001AMSD,MSD,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 11:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

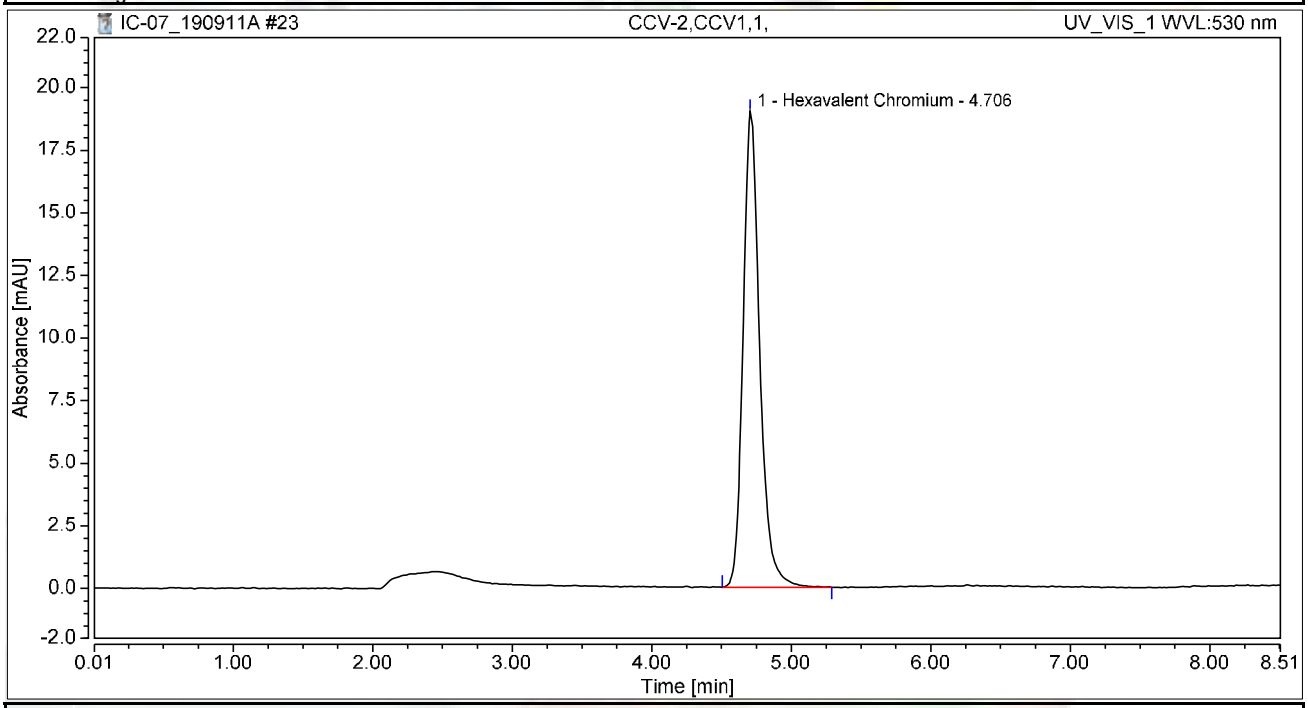
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.257	1.680	100.00	100.00	0.9922
Total:			**0.257**	**1.680**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 11:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

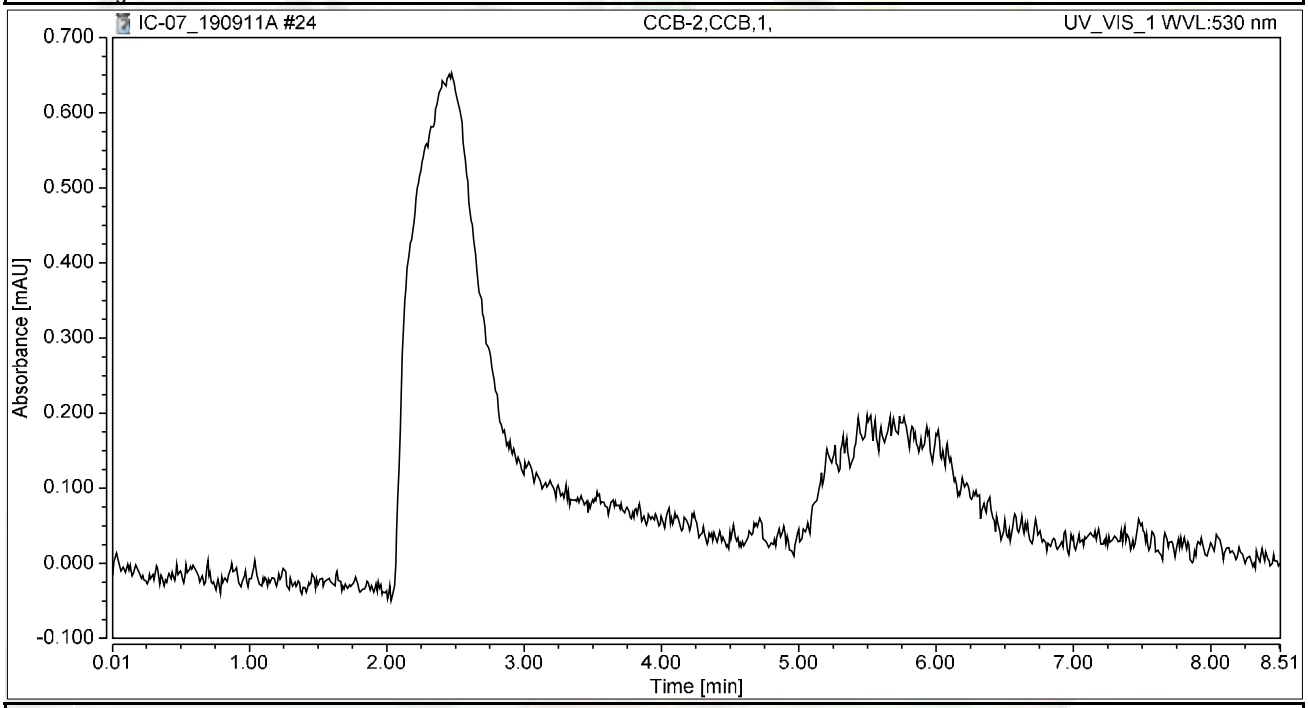
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.624	19.002	100.00	100.00	10.1120
Total:			**2.624**	**19.002**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

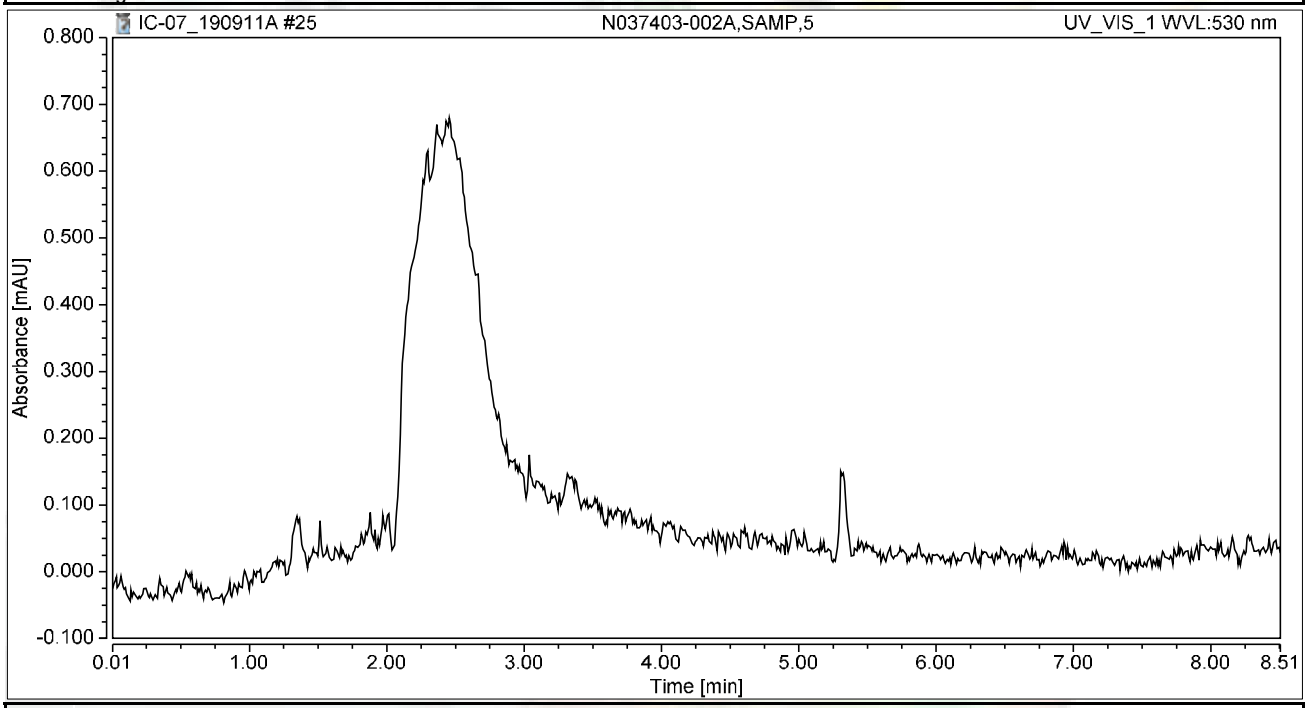
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037403-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

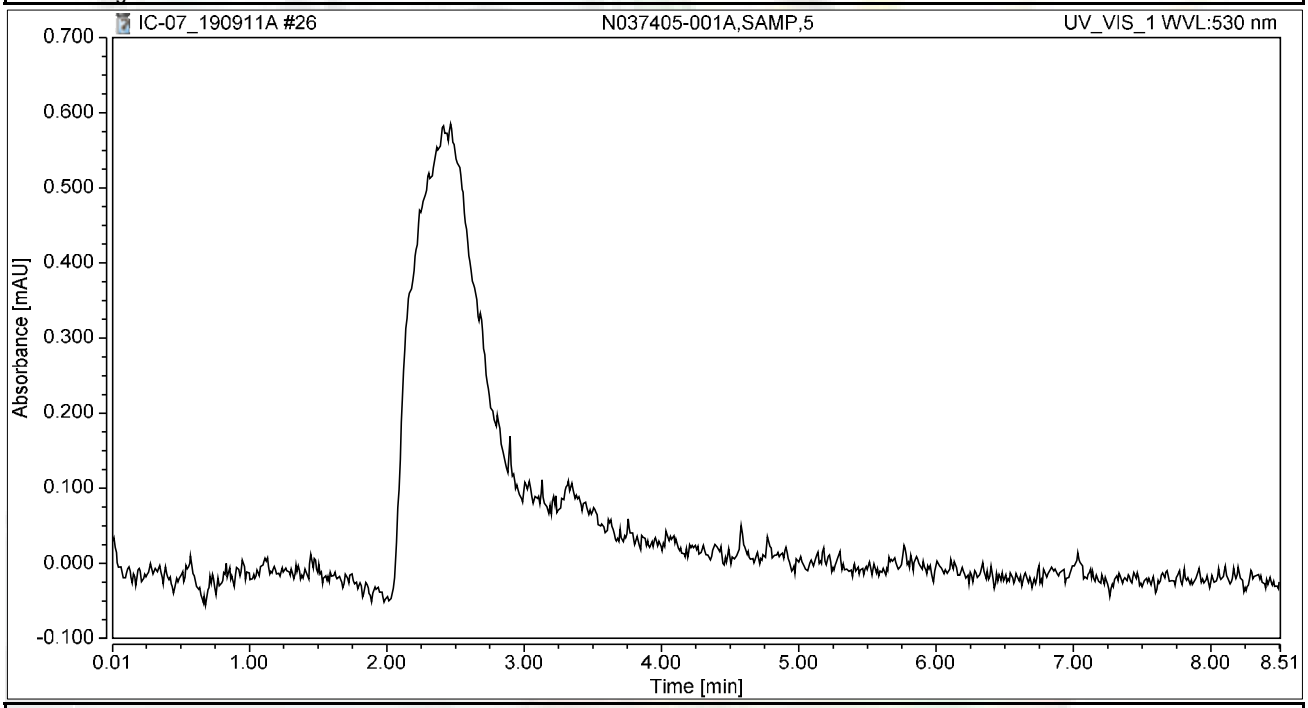
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037405-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

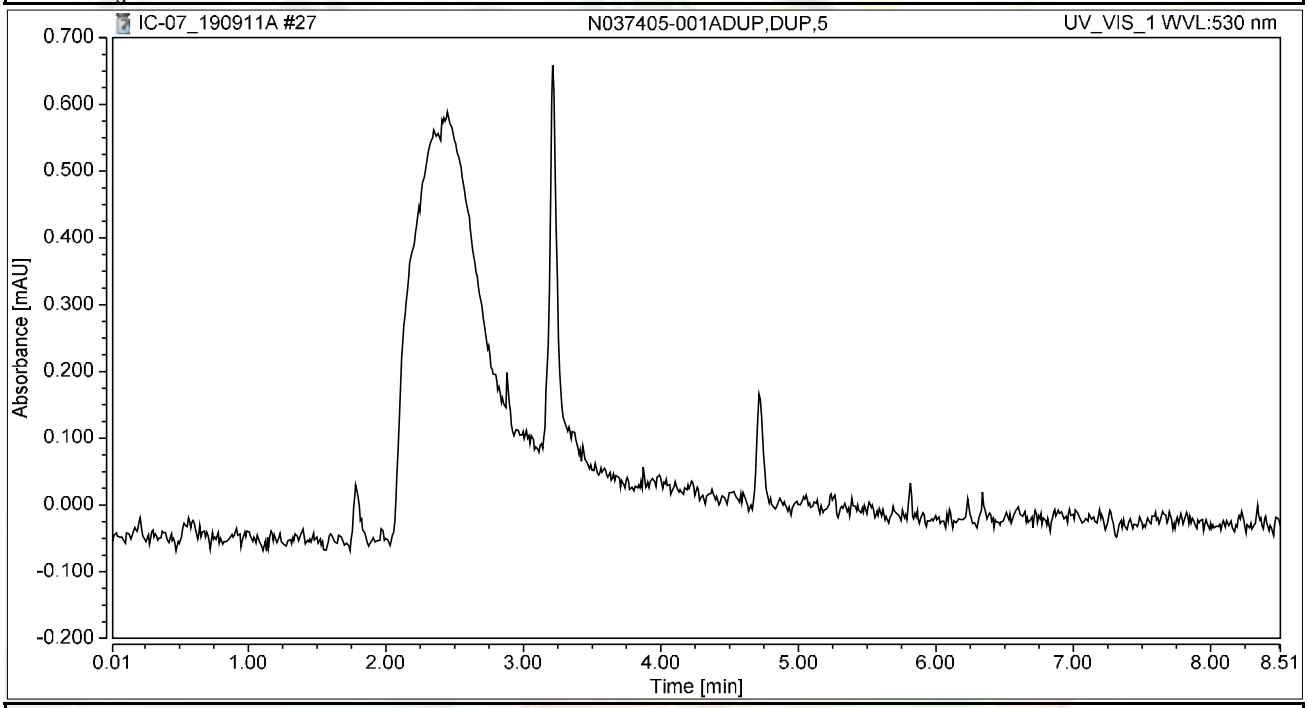
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037405-001ADUP,DUP,5**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

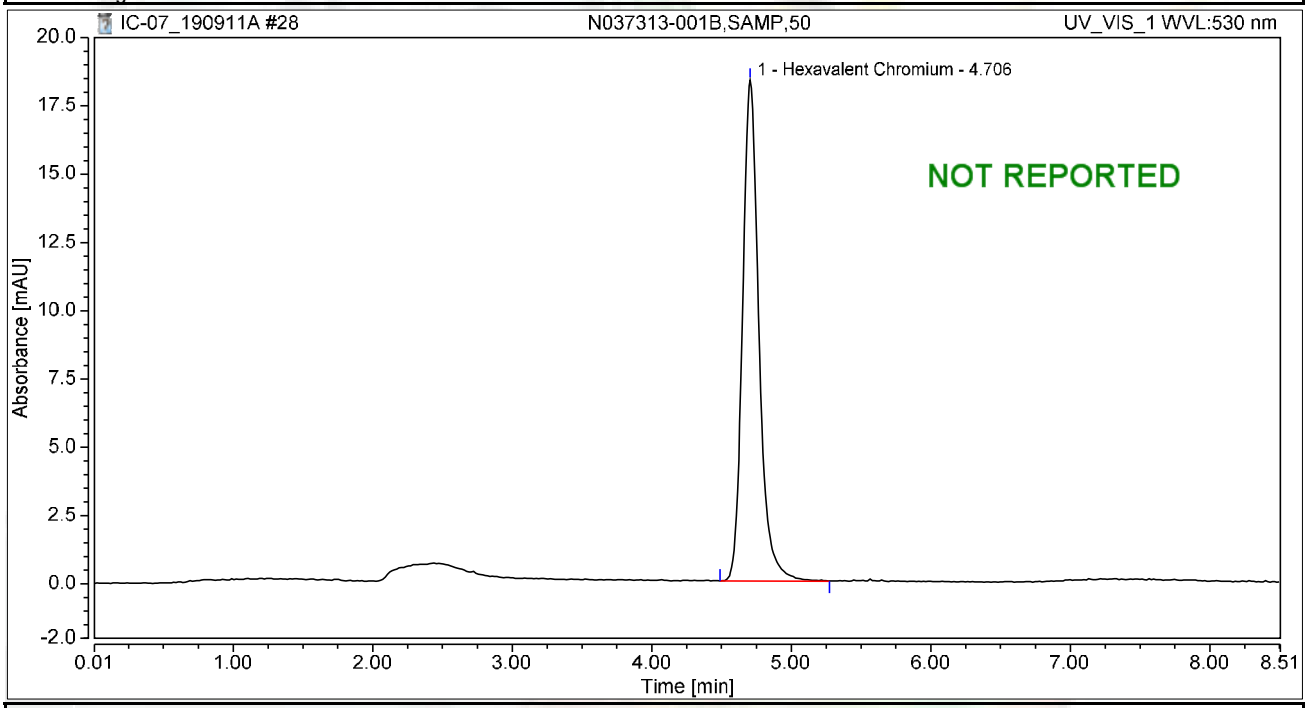
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037313-001B,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

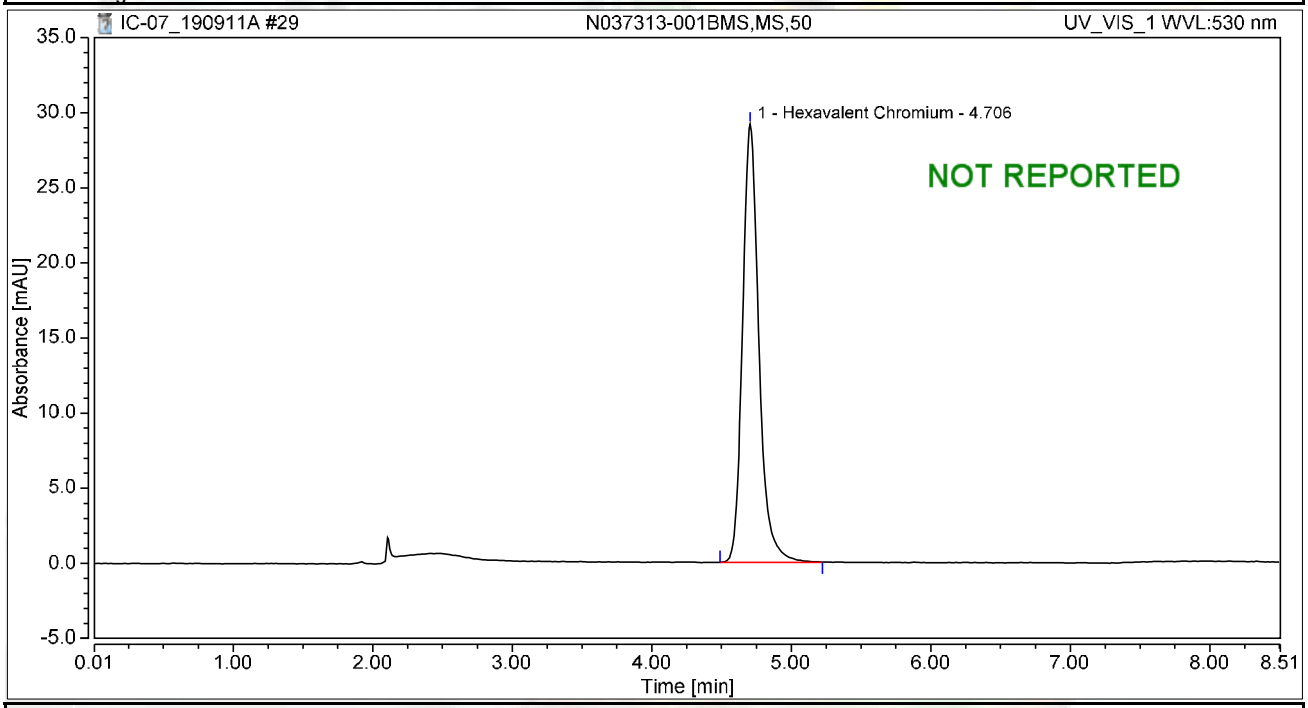
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.495	18.336	100.00	100.00	9.6165
Total:			**2.495**	**18.336**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037313-001BMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

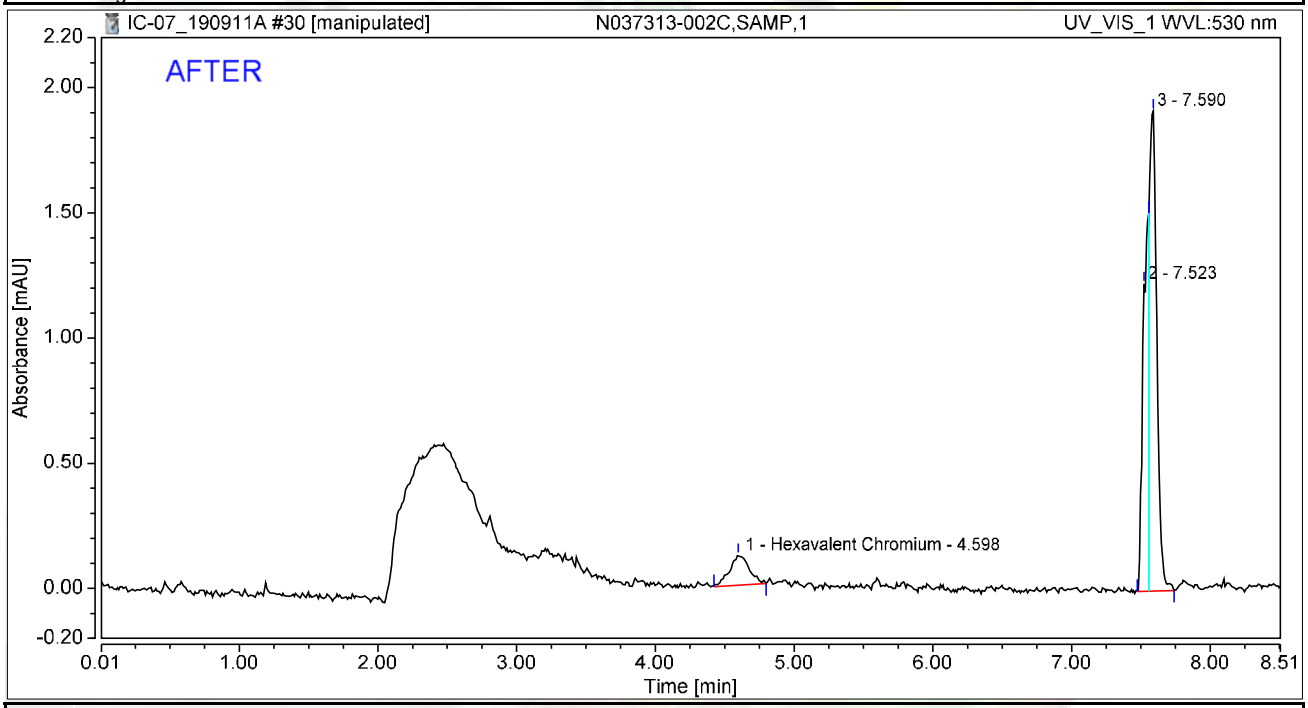
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	3.965	29.171	100.00	100.00	15.2806
Total:			**3.965**	**29.171**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037313-002C,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.598	0.020	0.119	9.62	3.65	0.0767
2		7.523	0.067	1.228	32.59	37.62	n.a.
3		7.590	0.119	1.917	57.79	58.73	n.a.
Total:			**0.207**	**3.265**	**100.00**	**100.00**	

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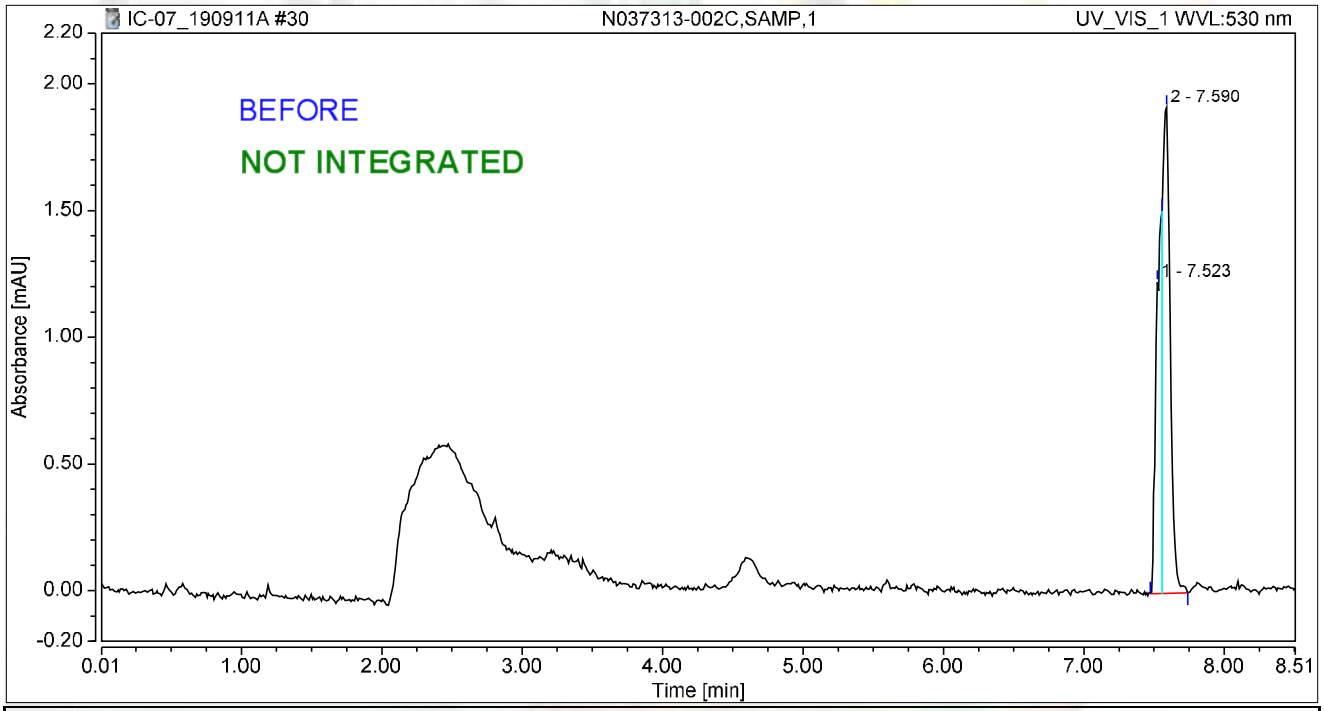
Chromatogram and Results

Injection Details

Injection Name:	**N037313-002C,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 12:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.523	0.067	1.228	36.06	39.05	n.a.
2		7.590	0.119	1.917	63.94	60.95	n.a.
Total:			**0.187**	**3.145**	**100.00**	**100.00**	

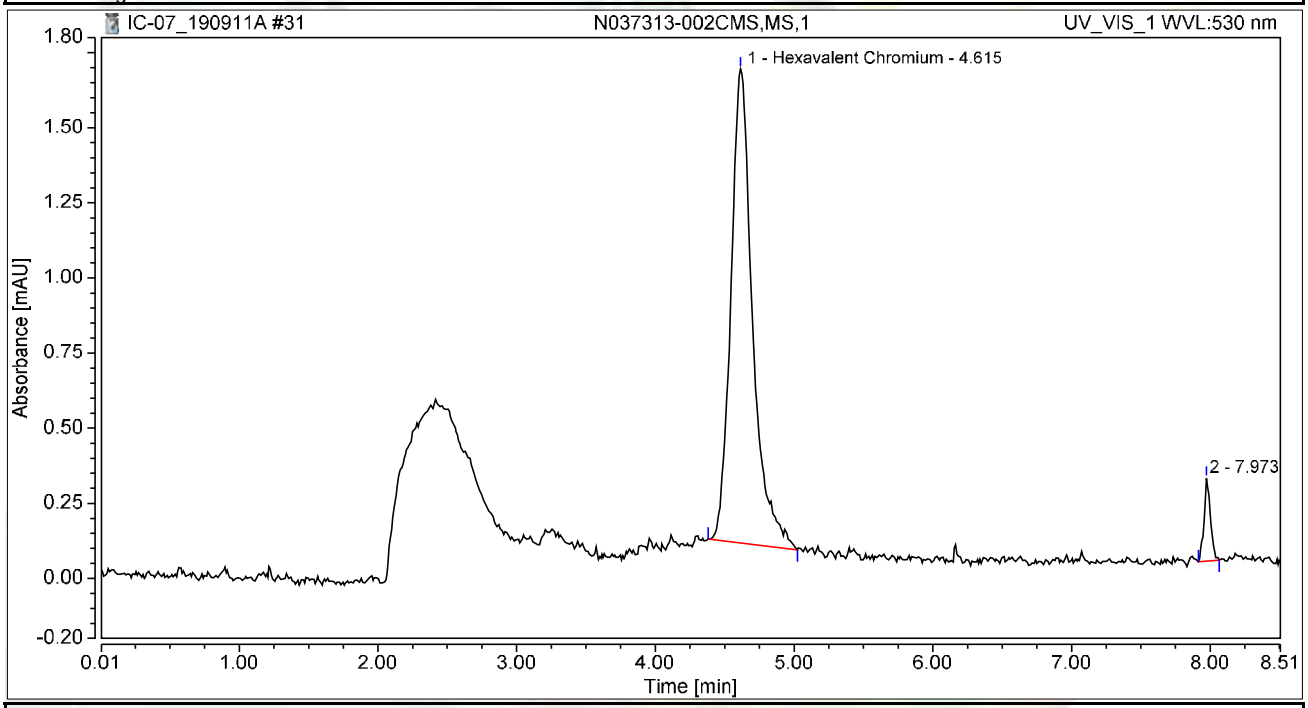
9/16/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037313-002CMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 13:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

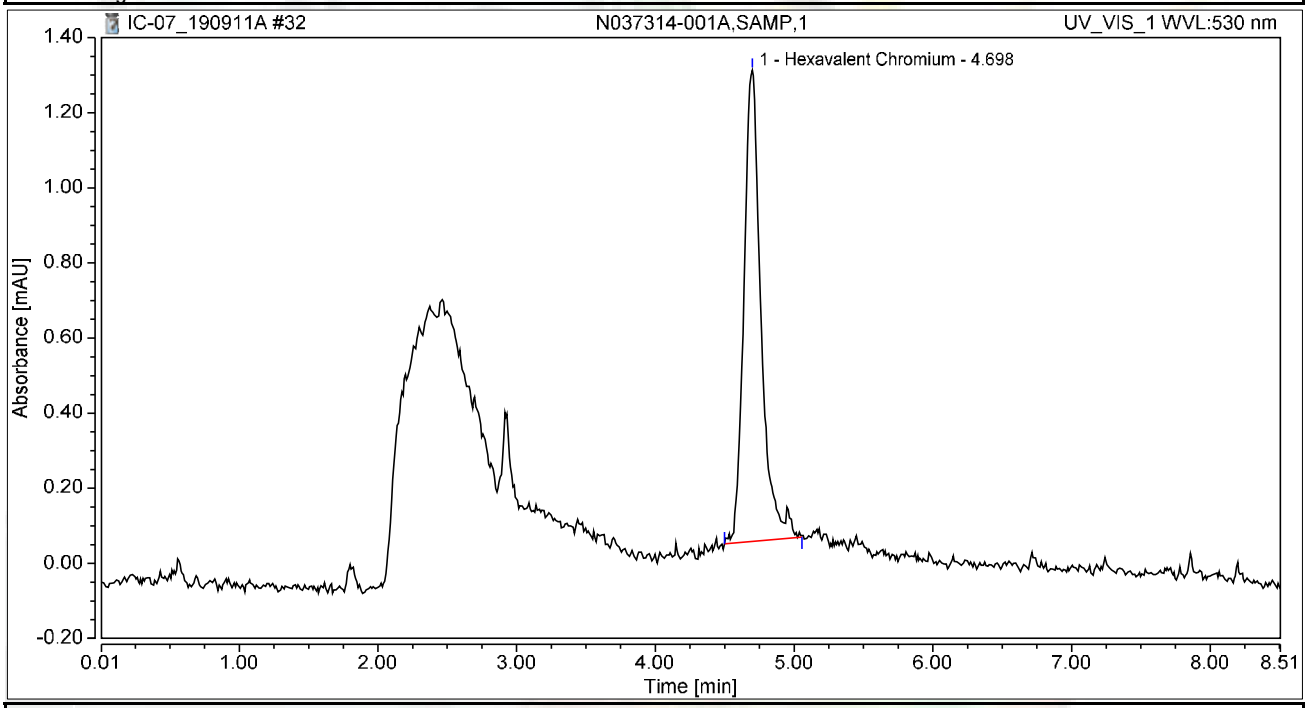
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.615	0.285	1.577	95.11	85.14	1.1001
2		7.973	0.015	0.275	4.89	14.86	n.a.
Total:			**0.300**	**1.853**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037314-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 13:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

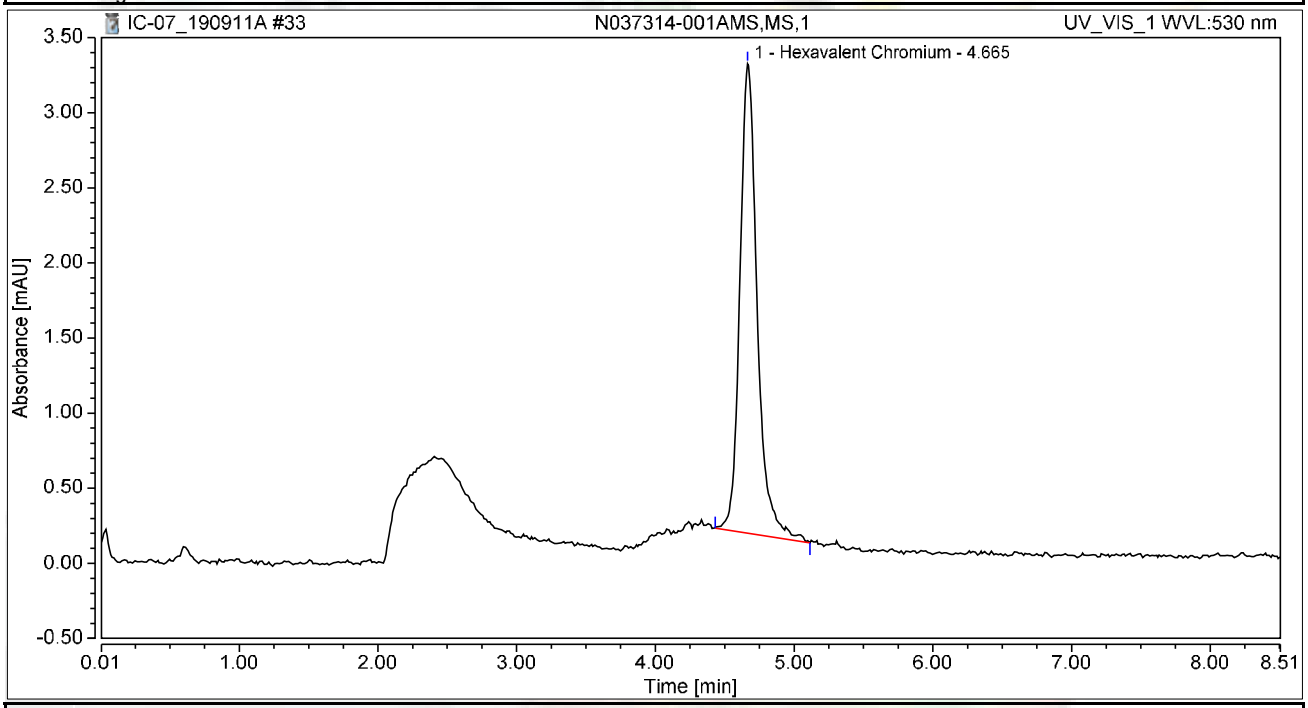
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.180	1.254	100.00	100.00	0.6929
Total:			**0.180**	**1.254**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037314-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 13:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

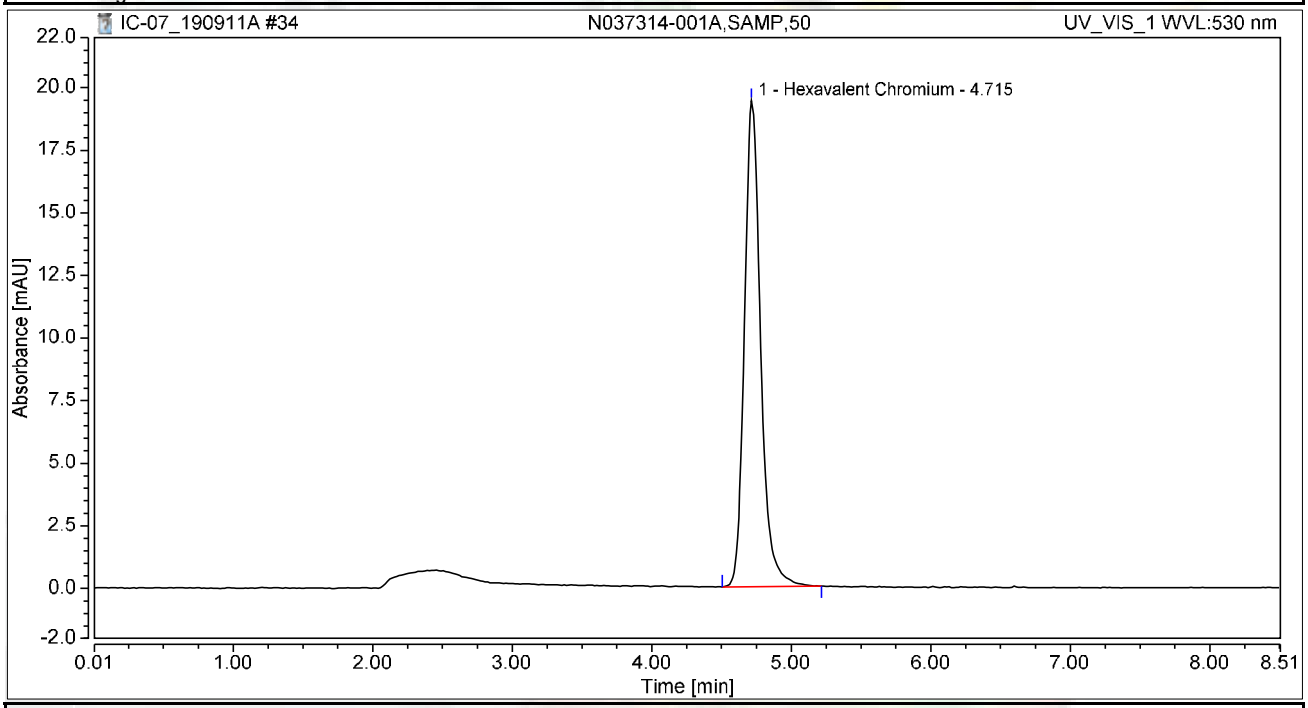
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.453	3.126	100.00	100.00	1.7463
Total:			**0.453**	**3.126**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details -002A

Injection Name:	**N037314-001A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 13:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.615	19.421	100.00	100.00	10.0788
Total:			**2.615**	**19.421**	**100.00**	**100.00**	

9/17/2019
for HG

My first report/Integration

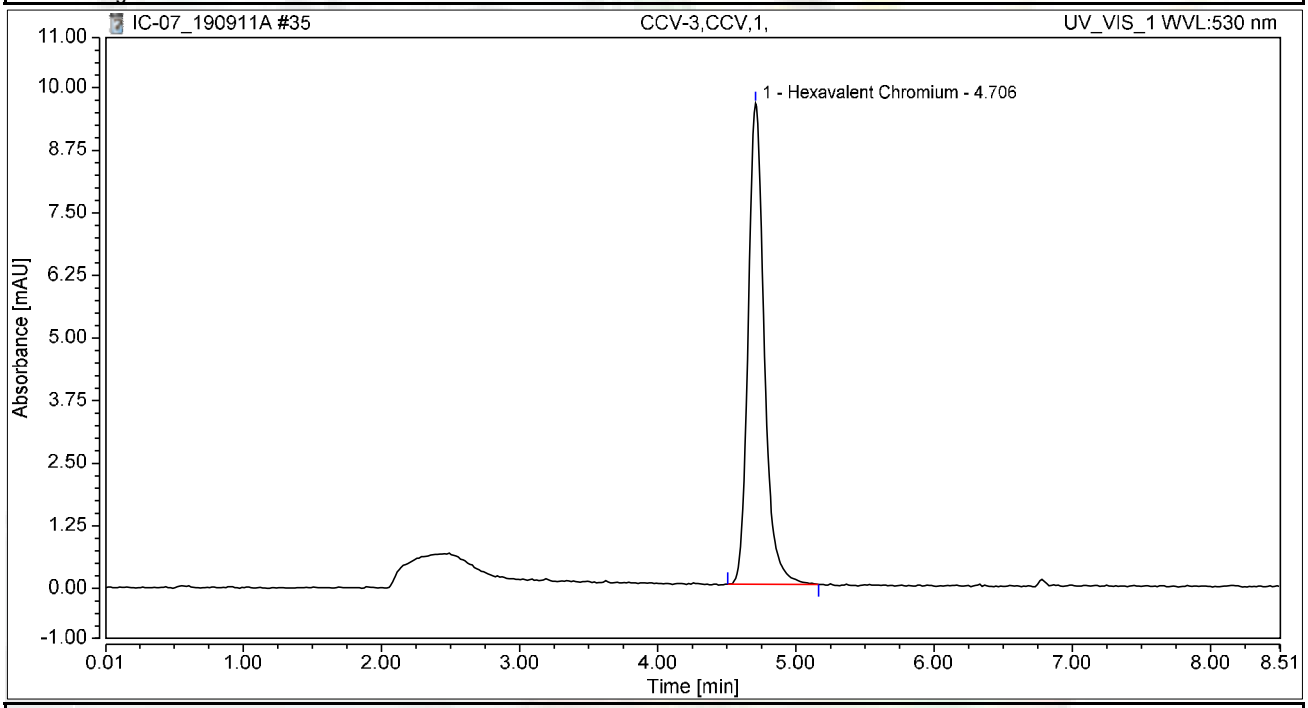
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 13:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

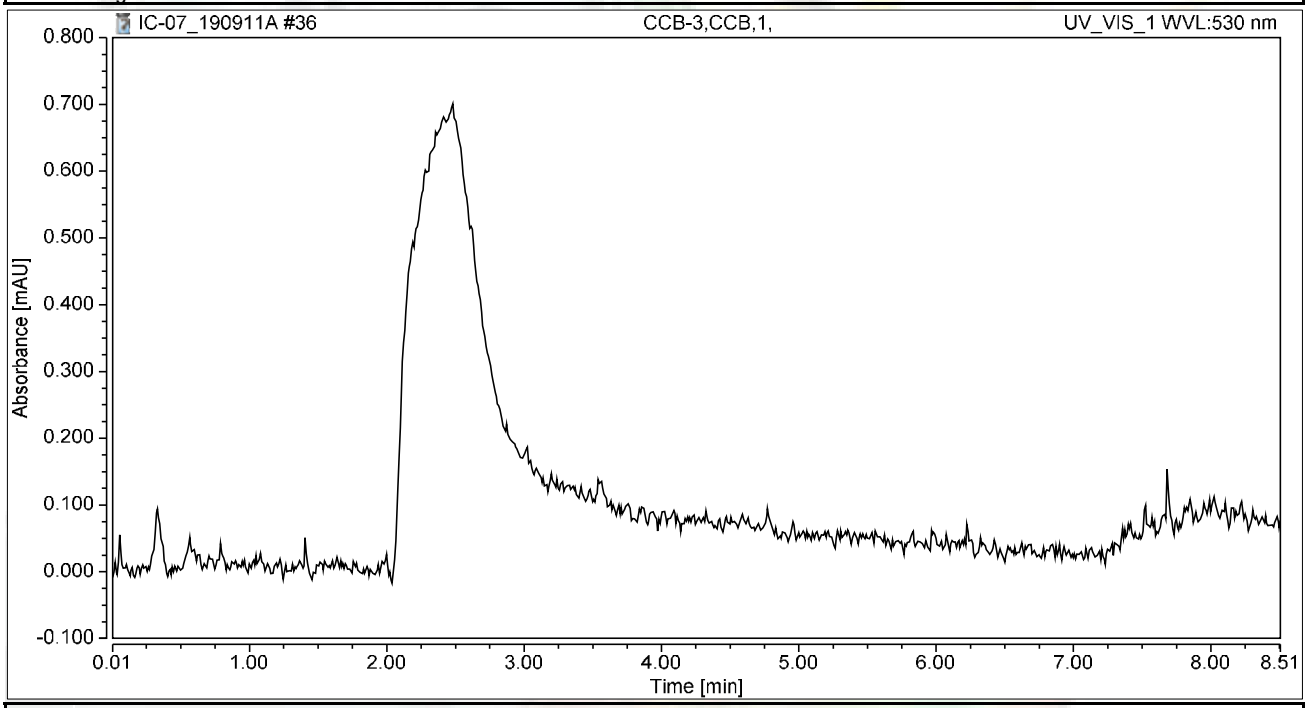
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.298	9.604	100.00	100.00	5.0007
Total:			**1.298**	**9.604**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 13:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

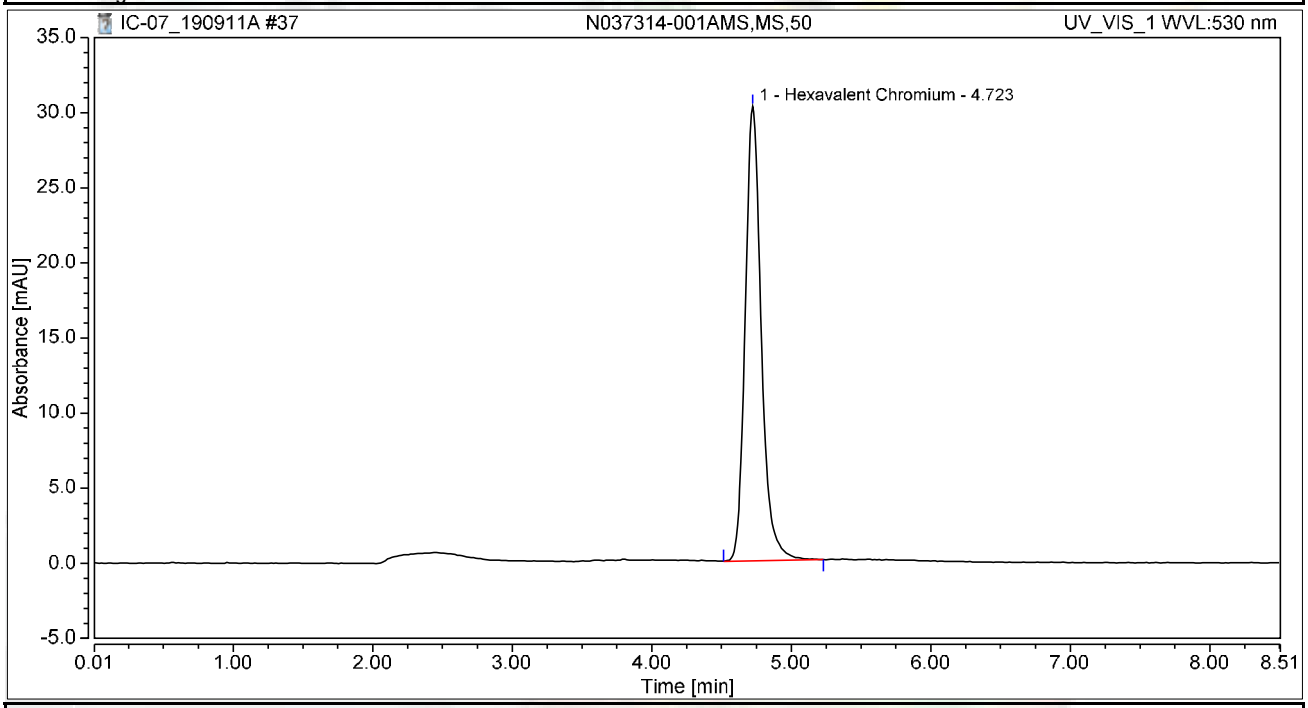
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details -002AMS

Injection Name:	**N037314-~~001~~AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 14:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	4.028	30.244	100.00	100.00	15.5222
Total:			**4.028**	**30.244**	**100.00**	**100.00**	

9/17/2019

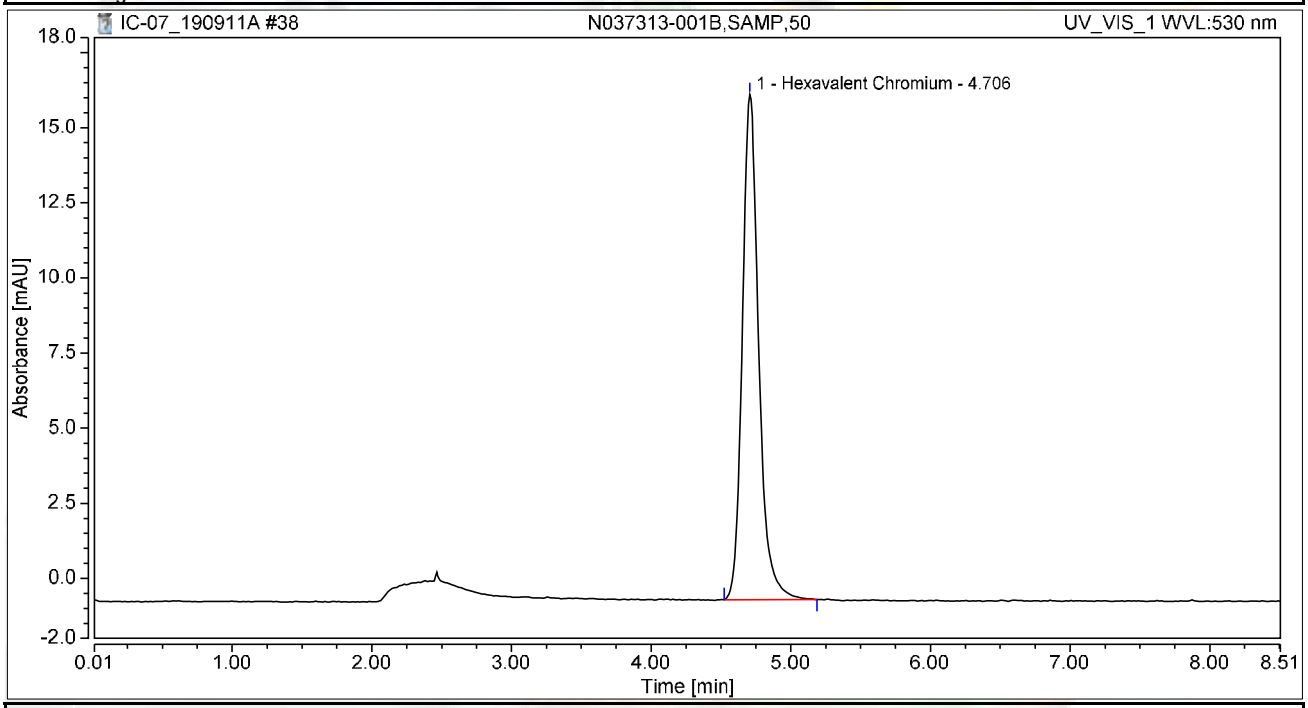
for HG

Chromatogram and Results

Injection Details

Injection Name:	**N037313-001B,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 14:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

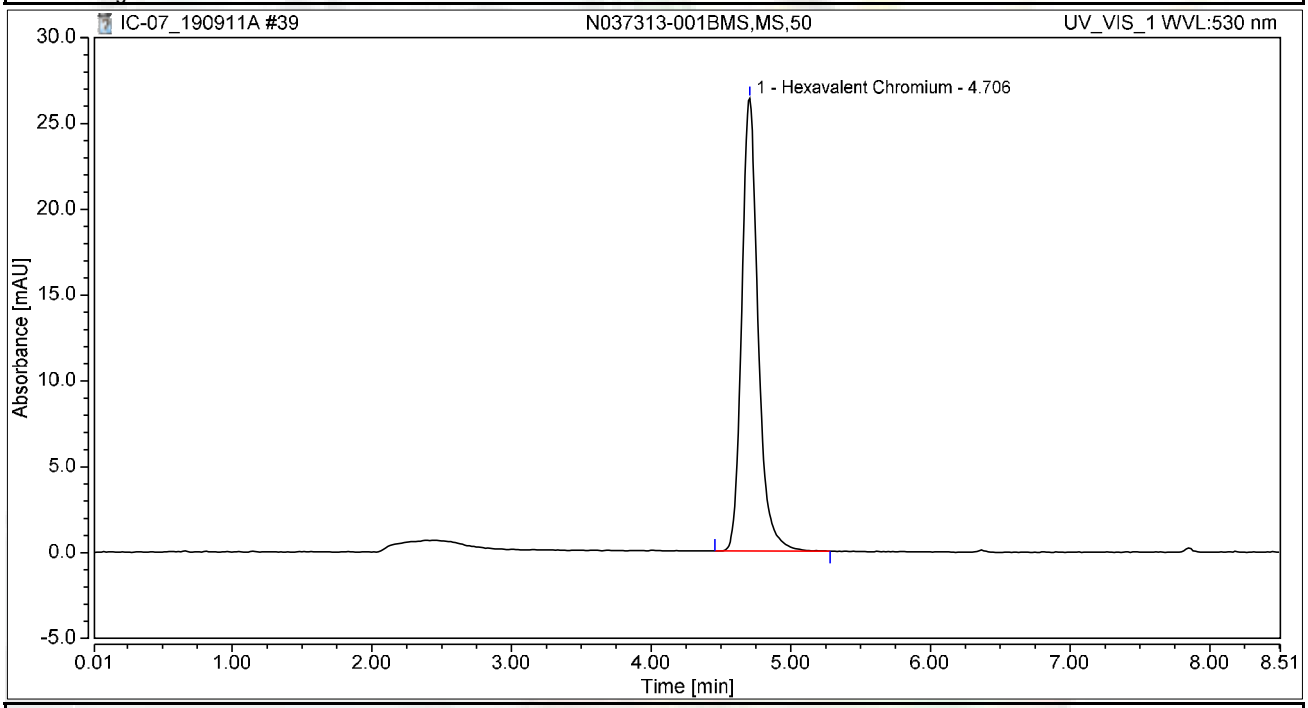
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.285	16.818	100.00	100.00	8.8069
Total:			**2.285**	**16.818**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037313-001BMS,MS,50**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 14:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

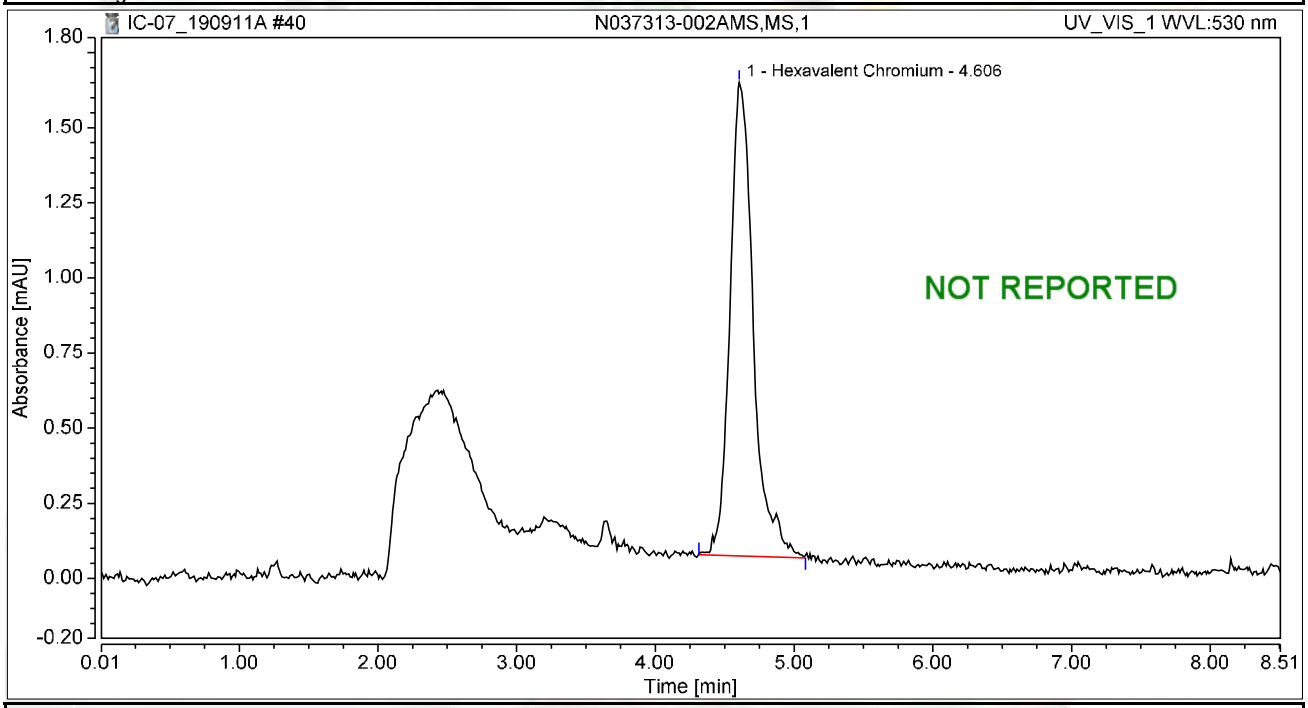
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	3.596	26.368	100.00	100.00	13.8592
Total:			**3.596**	**26.368**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037313-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

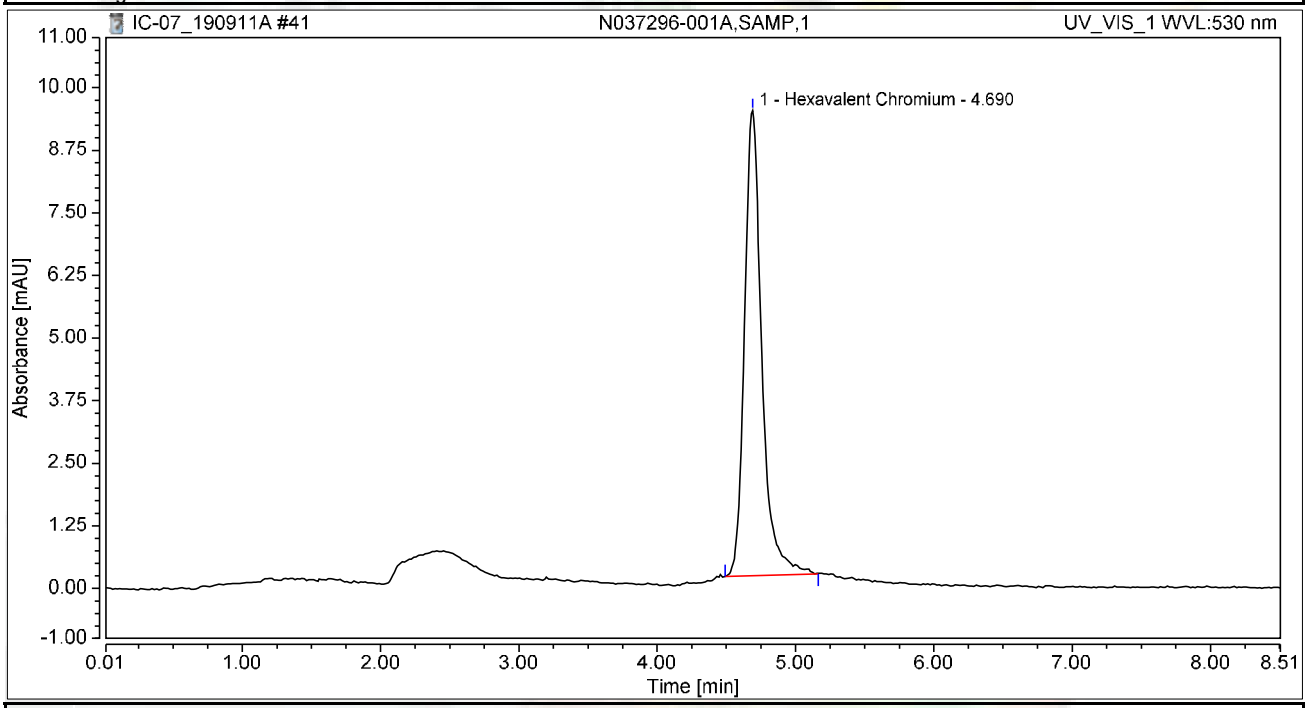
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	0.308	1.577	100.00	100.00	1.1880
Total:			**0.308**	**1.577**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037296-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 14:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

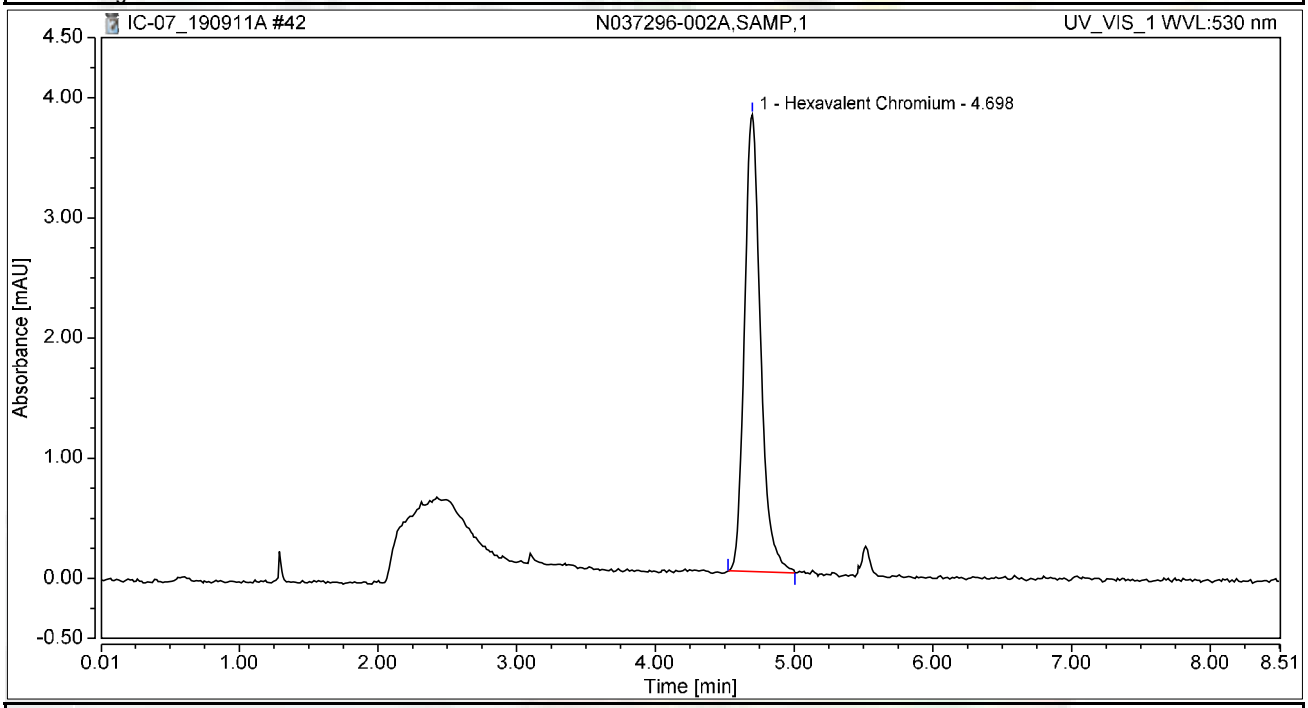
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.347	9.291	100.00	100.00	5.1896
Total:			**1.347**	**9.291**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037296-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 15:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

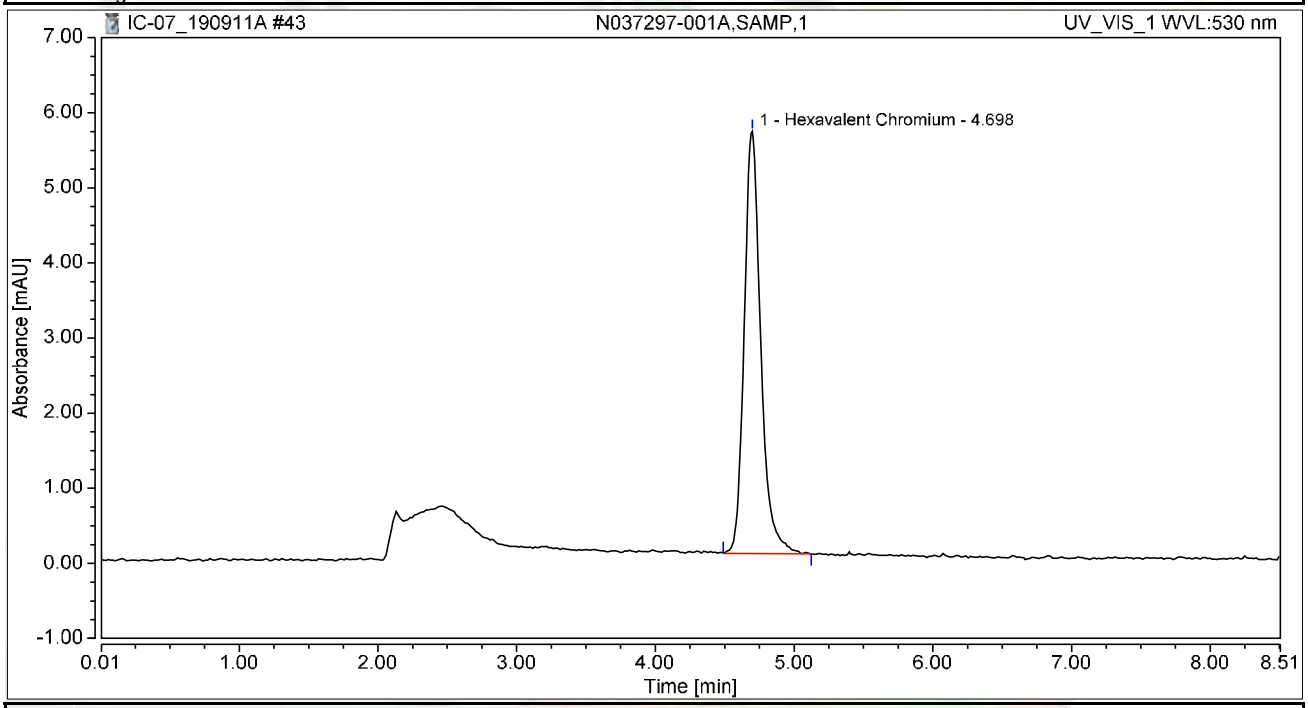
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.512	3.803	100.00	100.00	1.9726
Total:			**0.512**	**3.803**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037297-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 15:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

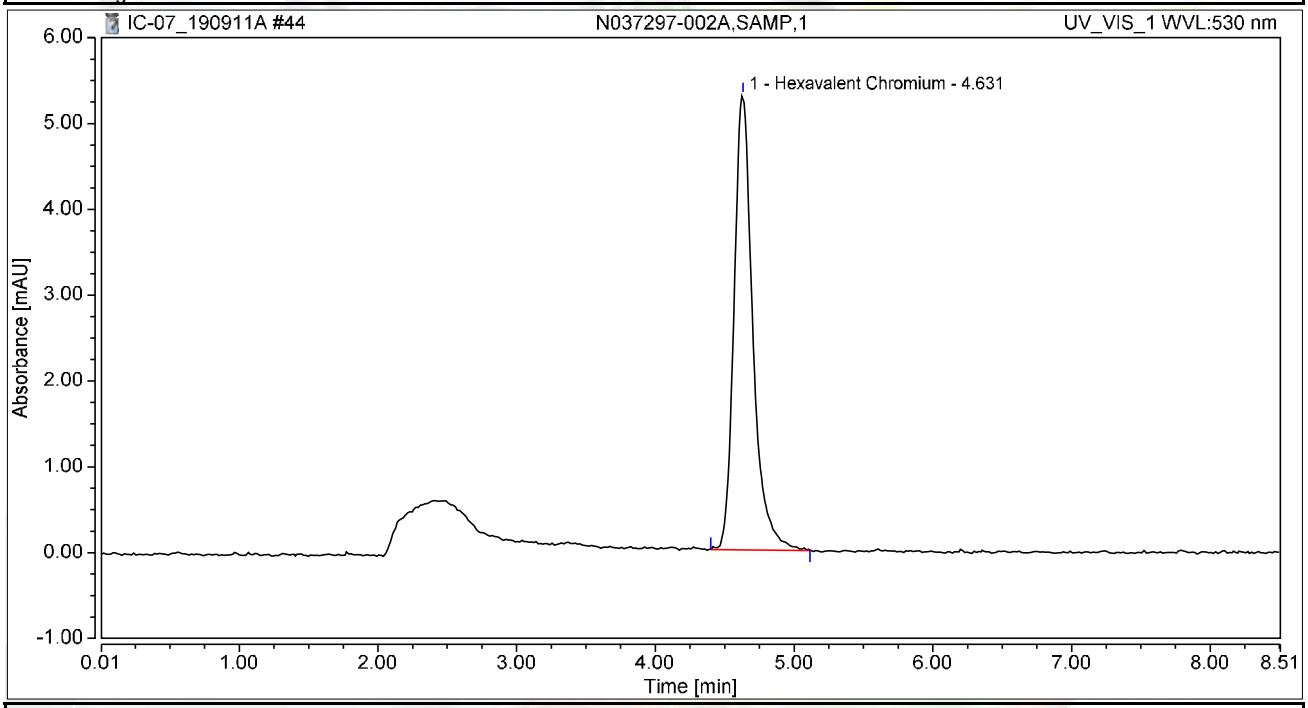
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.777	5.622	100.00	100.00	2.9955
Total:			**0.777**	**5.622**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037297-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 15:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

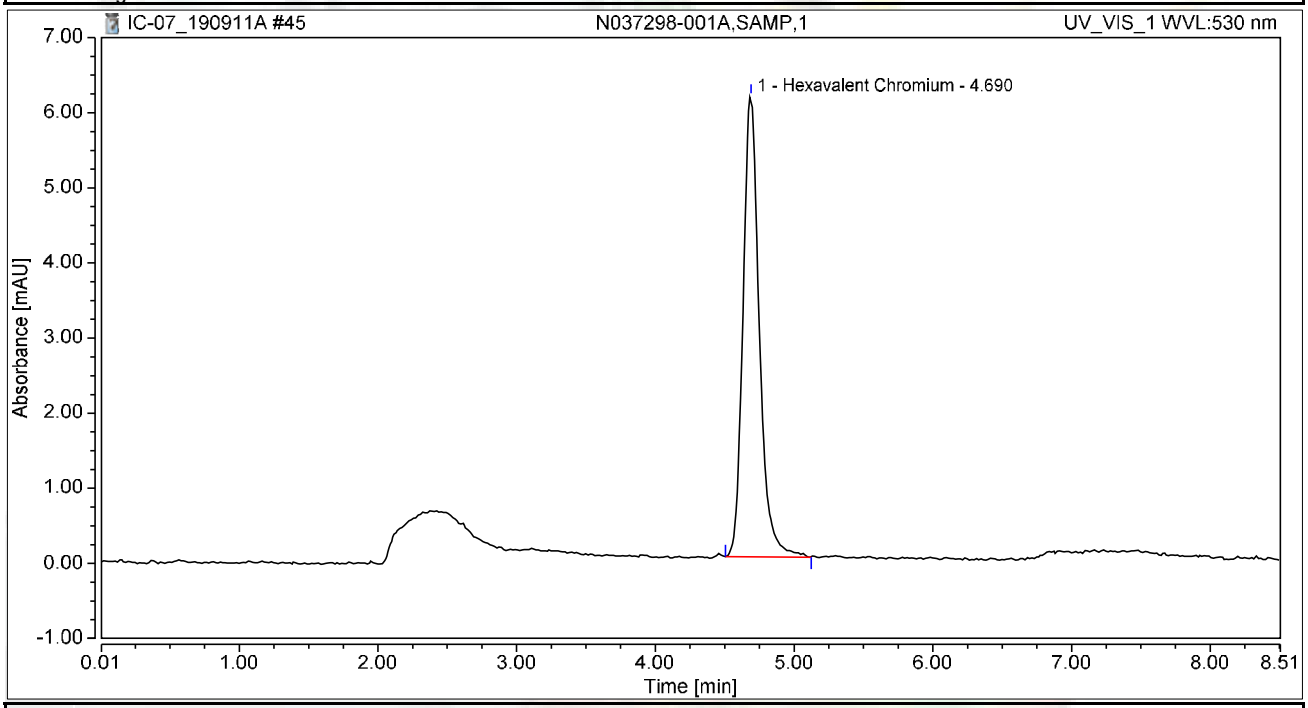
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	0.831	5.300	100.00	100.00	3.2024
Total:			**0.831**	**5.300**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037298-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 15:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

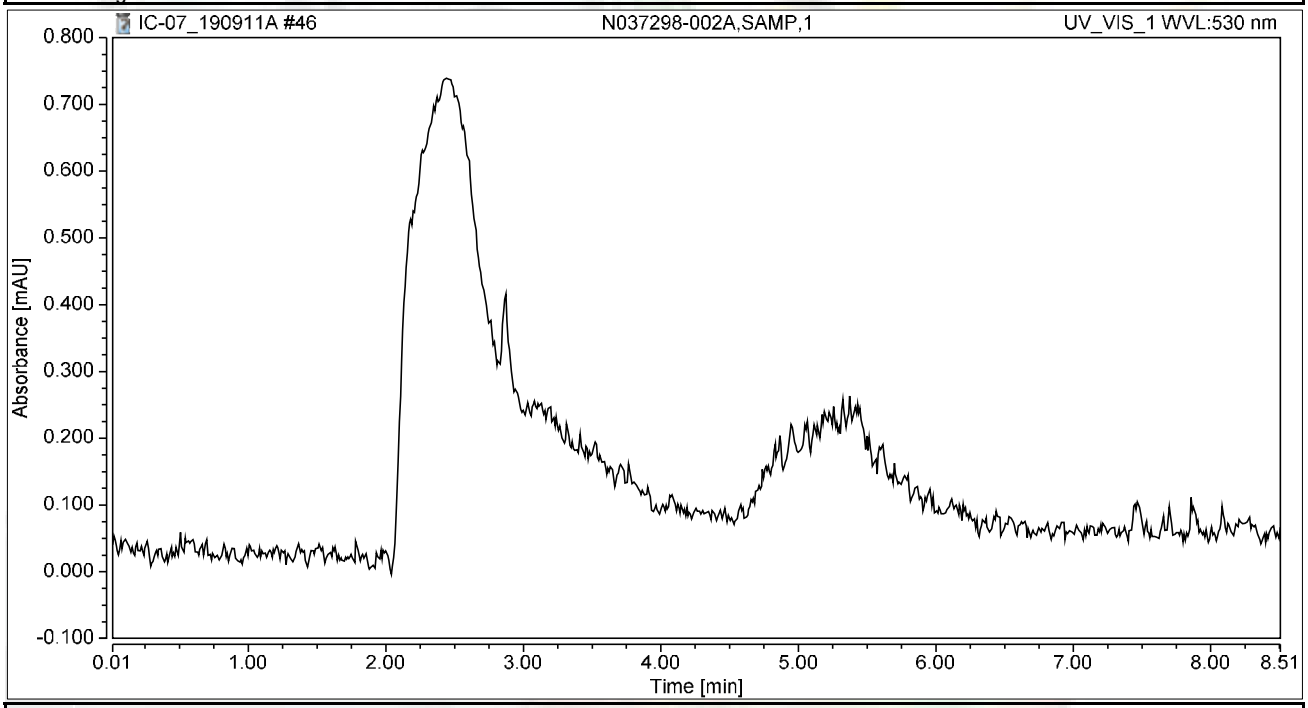
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.837	6.133	100.00	100.00	3.2252
Total:			**0.837**	**6.133**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037298-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 15:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

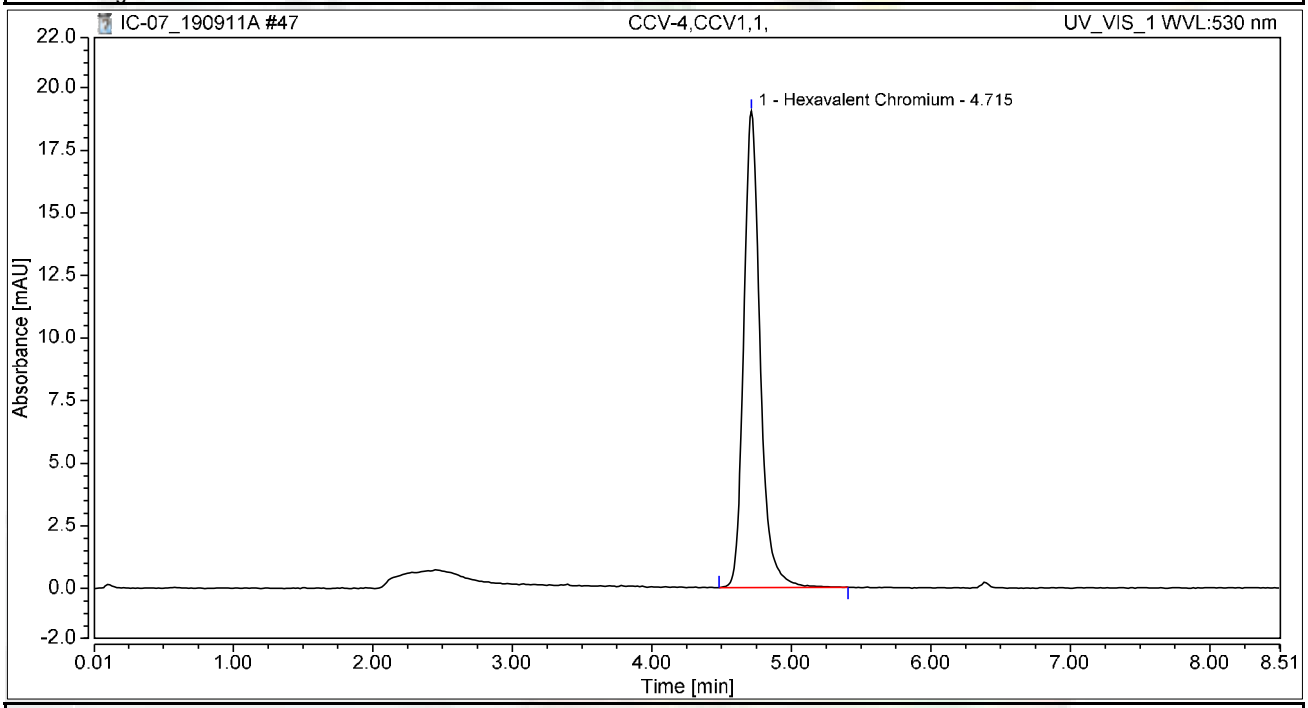
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 15:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

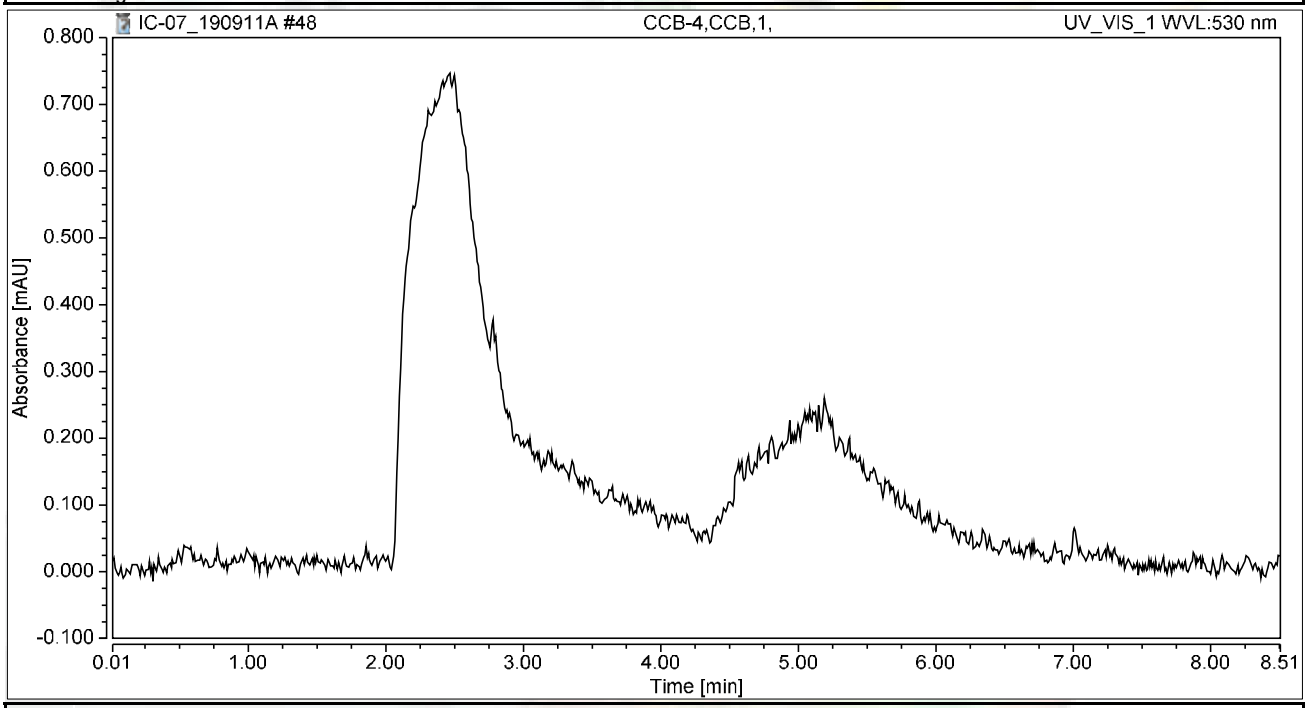
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.600	19.029	100.00	100.00	10.0187
Total:			**2.600**	**19.029**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 16:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

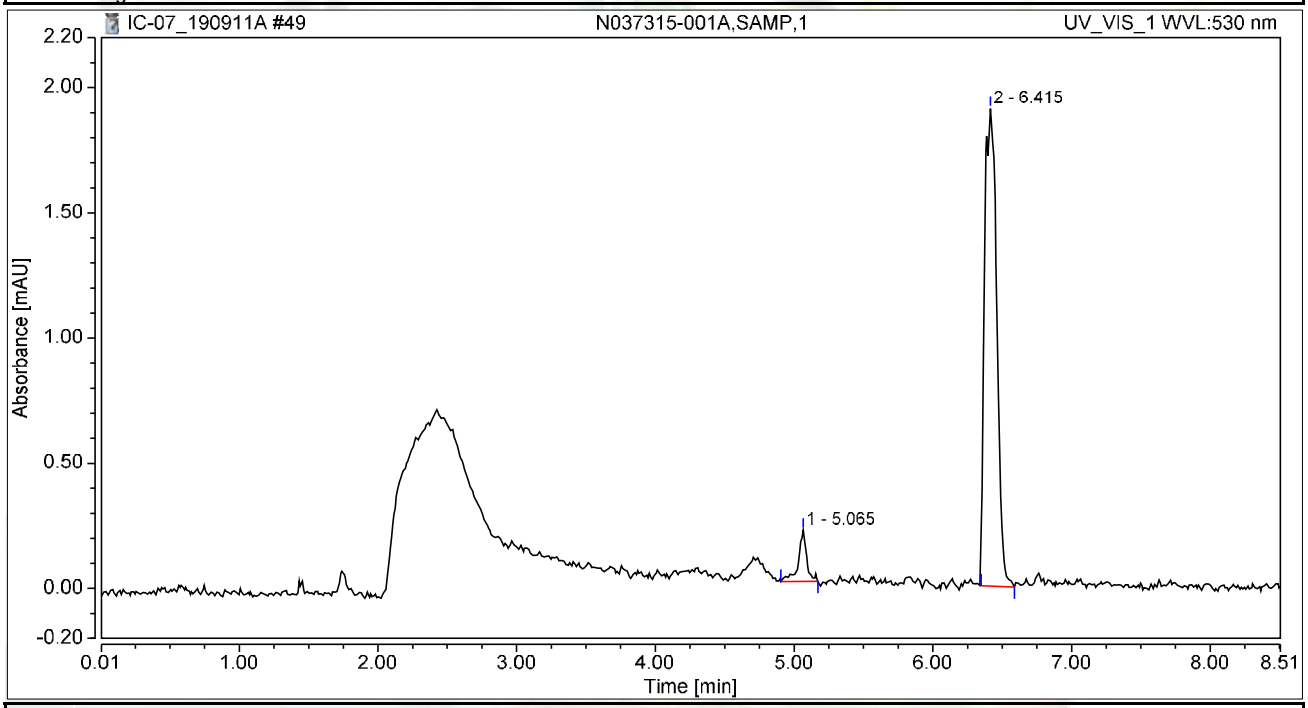
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037315-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

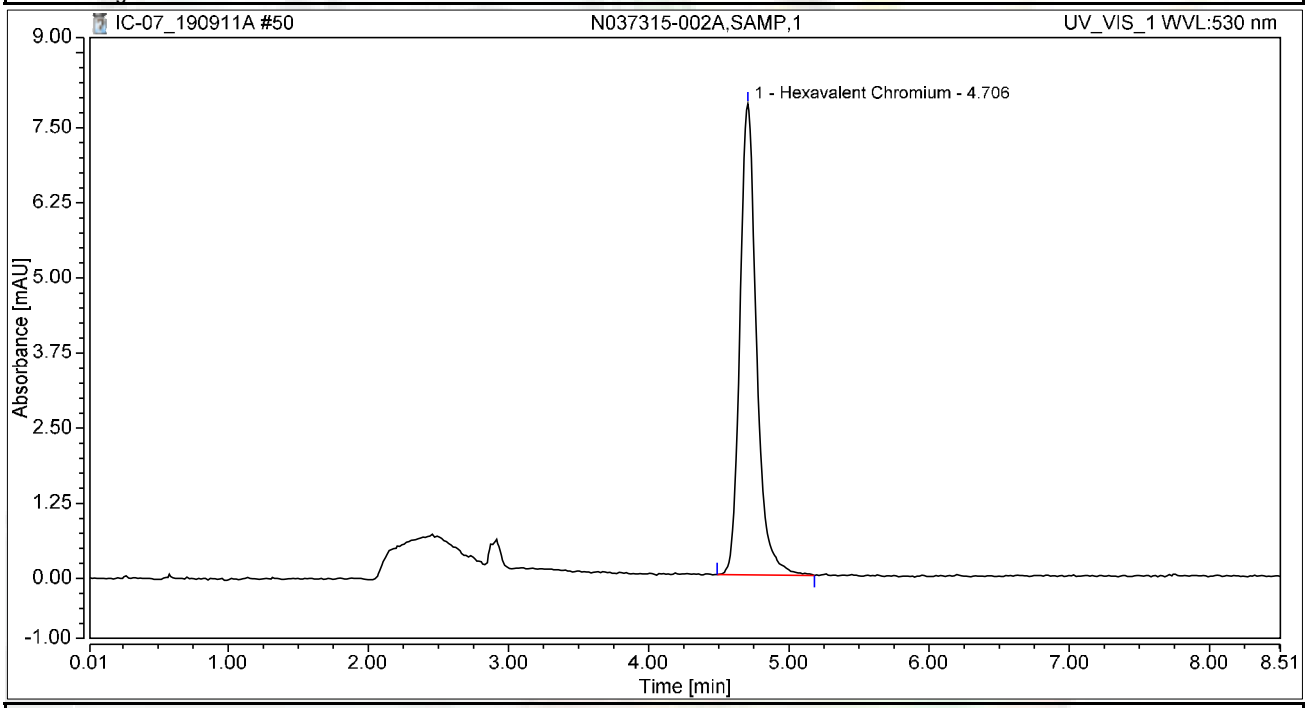
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.065	0.014	0.205	6.75	9.69	n.a.
2		6.415	0.194	1.907	93.25	90.31	n.a.
Total:			**0.208**	**2.112**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037315-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 16:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

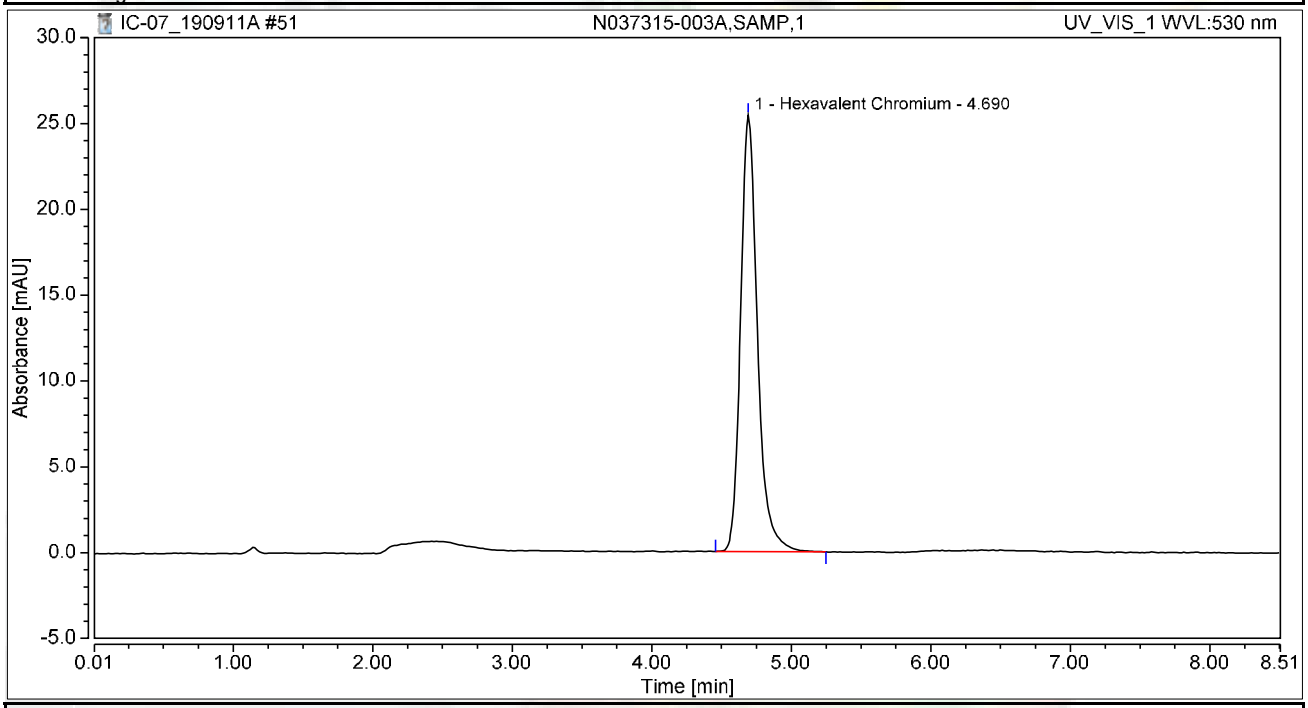
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.077	7.839	100.00	100.00	4.1500
Total:			**1.077**	**7.839**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037315-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 16:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

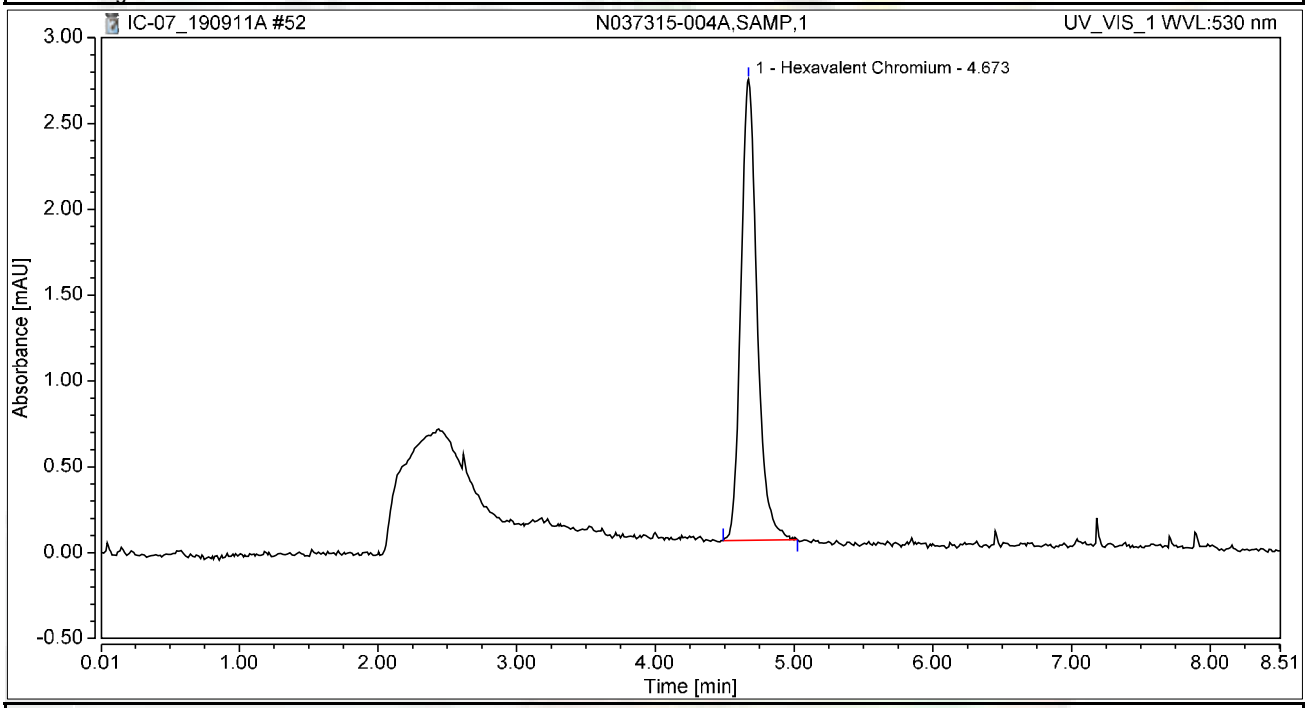
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.563	25.425	100.00	100.00	13.7320
Total:			**3.563**	**25.425**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037315-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 16:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

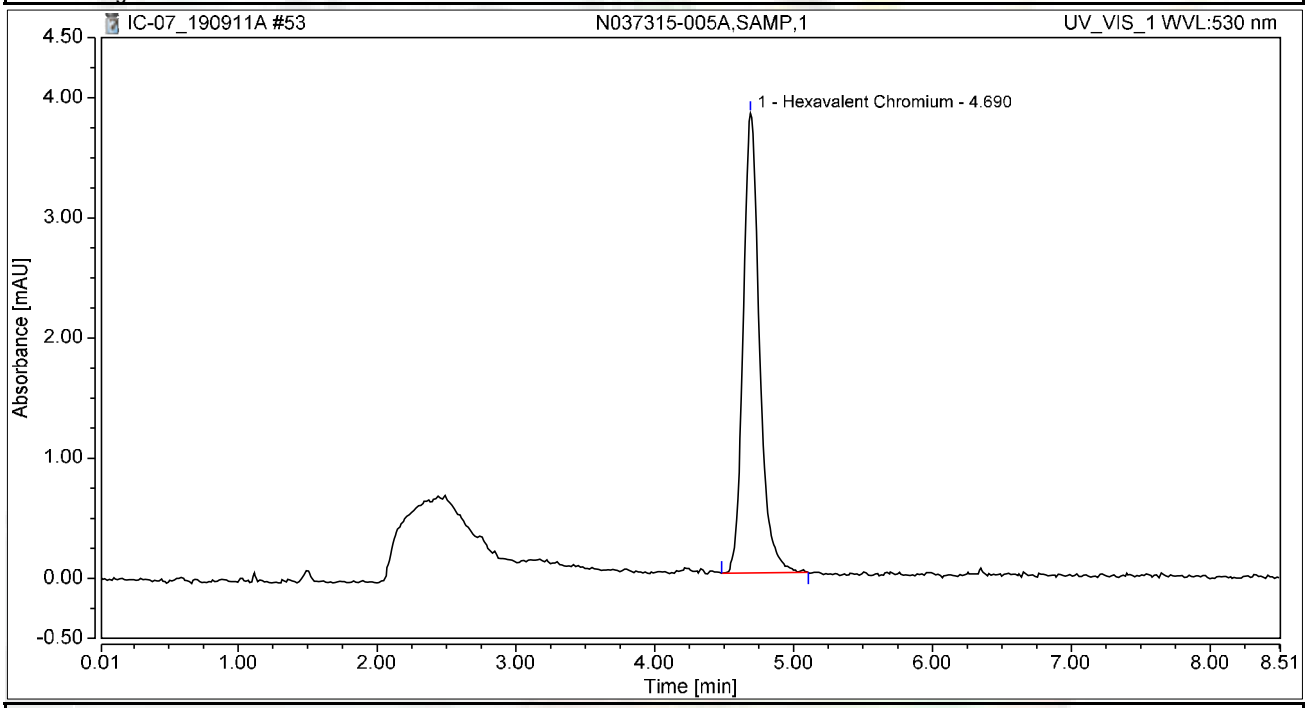
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.364	2.686	100.00	100.00	1.4021
Total:			**0.364**	**2.686**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037315-005A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 16:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

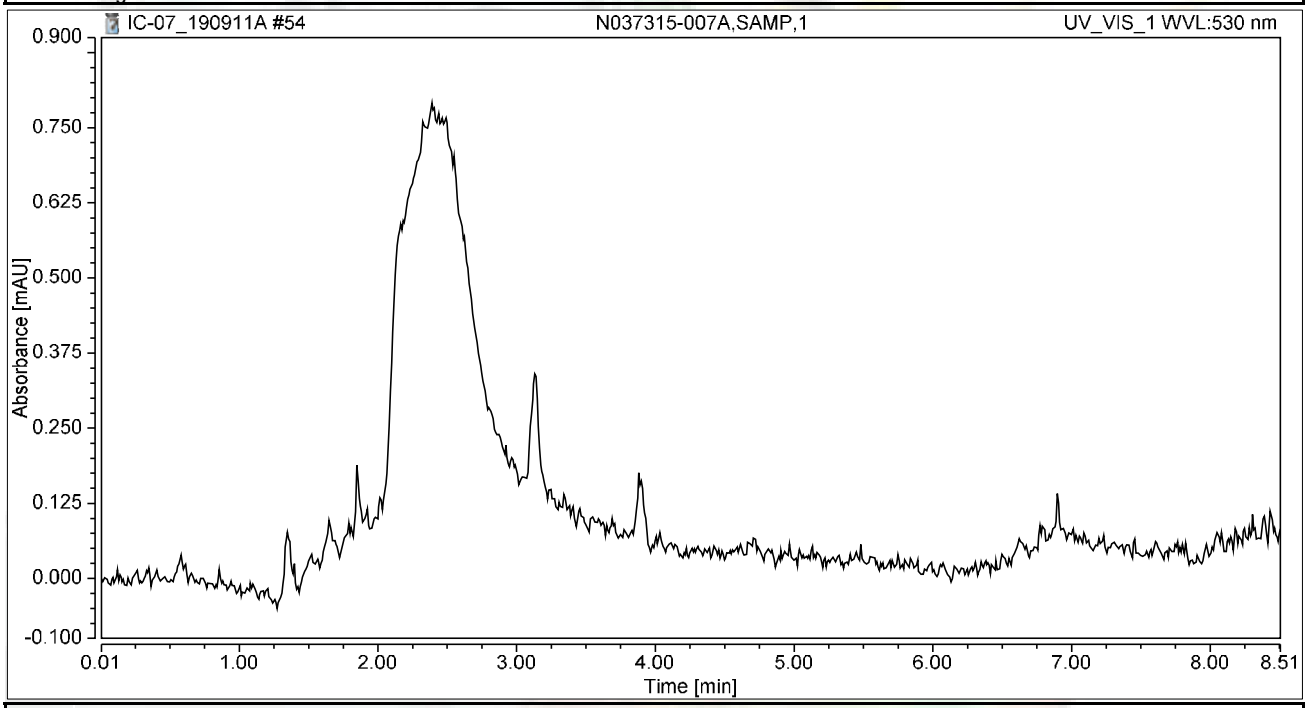
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.523	3.825	100.00	100.00	2.0146
Total:			**0.523**	**3.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037315-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 16:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

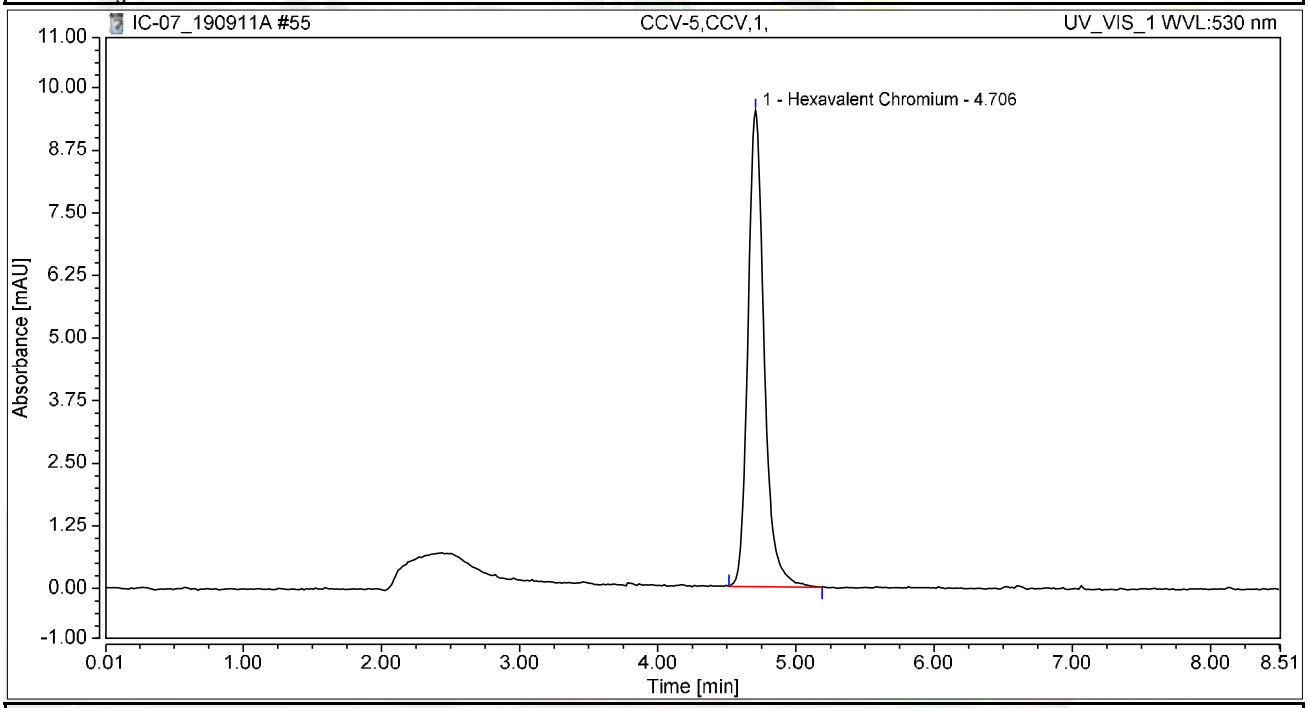
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 17:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

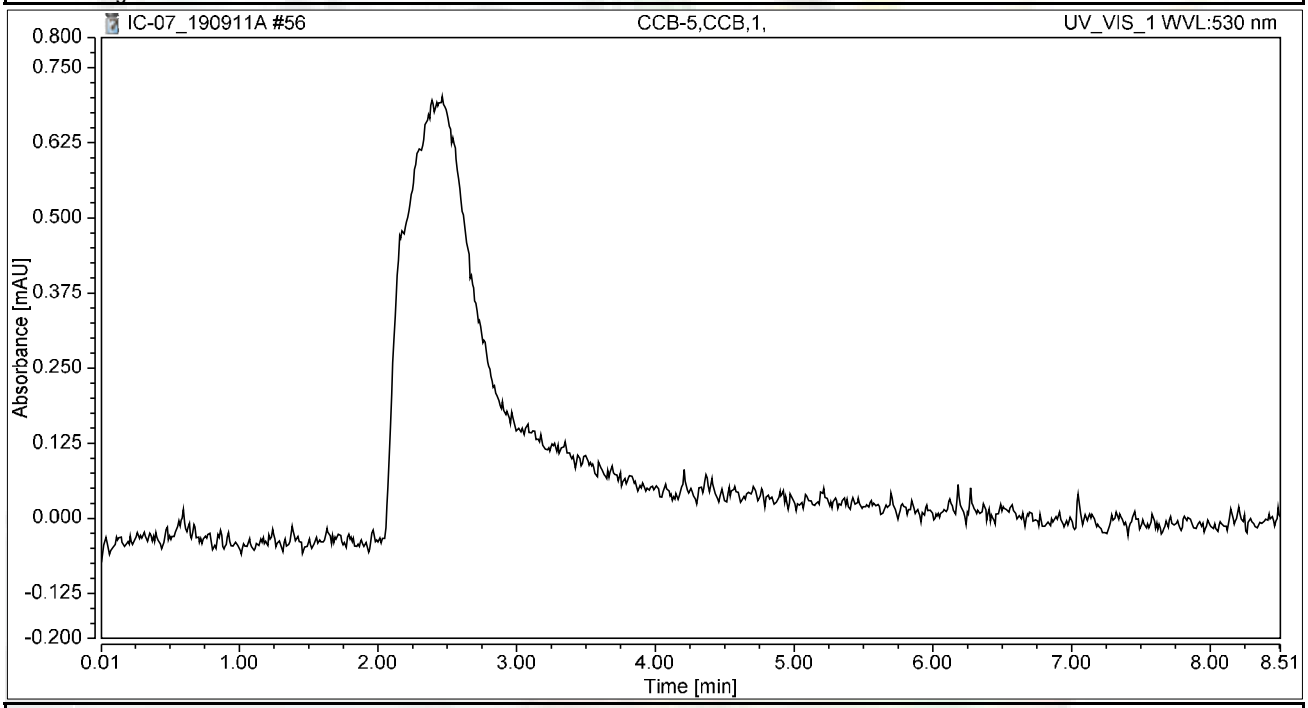
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.295	9.507	100.00	100.00	4.9924
Total:			**1.295**	**9.507**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 17:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

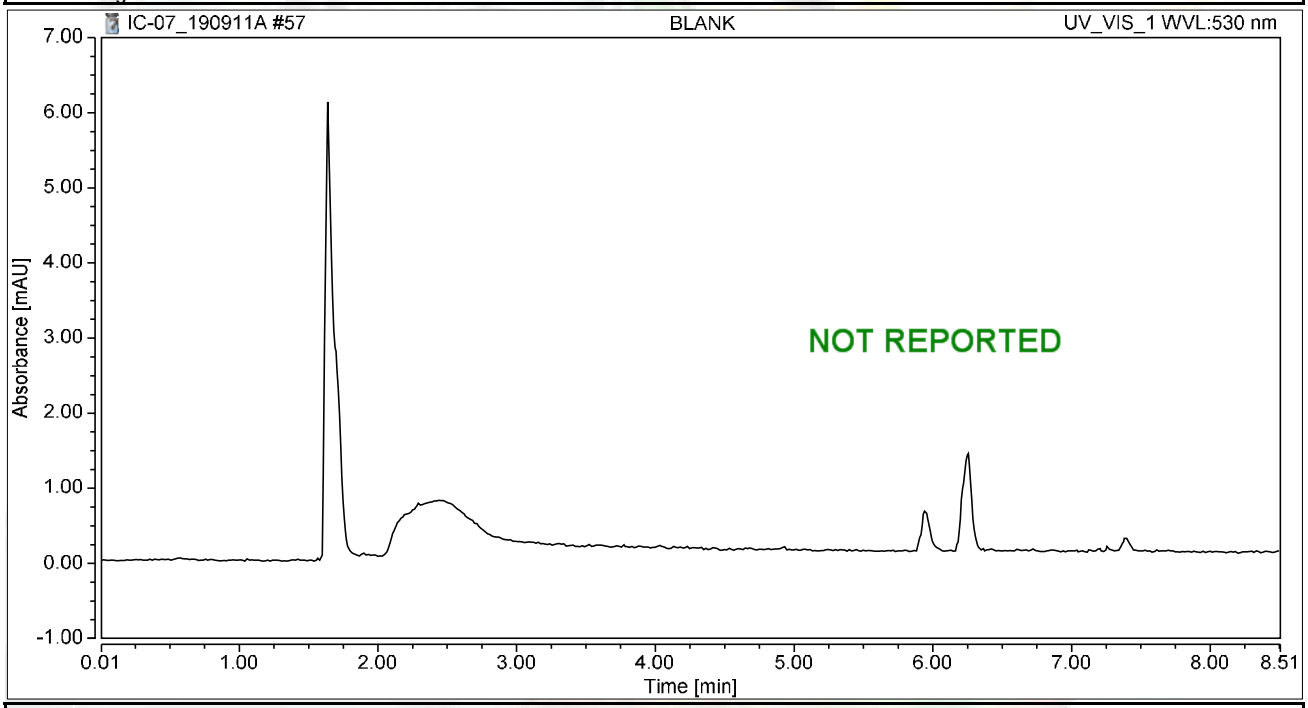
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190827_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**11/Sep/19 17:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320 B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136302 **Analyst:** LSR

ASSET #: N037314 **Date Analyzed:** 5-Sep

Method: EPA 2320

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/6/2019

2nd Level Reviewer: 9/18/2019 Date: —

SAMPLE CALCULATION

Sample ID: **N037314-001C @ pH 7.68**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.60 mL)

= **0.02155 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (10.35) (0.02155 N) (1) * 1000

= 223.0425 mg**/L**

Reporting results in two significant figures,

= 220 as CaCO3

Julia Ramit 9/6/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02155 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (10.35 mL) (0.02155) (1) * 1000

= 223.0425 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 223.0425 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **220 mg/L**

Julia Ramit 9/6/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.59	50	0.00	0.050	MBLK
LCS-1	8.30	50	0.00	4.70	LCS
N037314-001C	7.68	50	0.00	10.35	SAMP
N037314-002C	7.83	50	0.00	7.40	SAMP
N037314-001CDUP	7.87	50	0.00	10.30	DUP
N037314-001CMS	7.96	50	0.00	15.00	MS
N037314-001CMSD	7.97	50	0.00	14.90	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.600**	ml
N H2SO4	**0.02155**	Normal
Date Analyzed:	**9/5/19**	
Time:	**9:45 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190816B**	

Silvia Ramit 9/6/2019

Date Analyzed:	9/5/19		Reagents:					Standardization:					P = 0
Time Started:	9:45 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.6	mL		P = 1/2 T
				Sulfuric Acid:		R190816B							P > 1/2 T
									N H2SO4	0.02155	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.59				0.02155	0.00	0.05	0.05	1	0.00	1.08	
LCS-1	50	8.3				0.02155	0.00	4.70	4.70	1	0.00	101.29	
N037314-001C	50	7.68				0.02155	0.00	10.35	10.35	1	0.00	223.06	
N037314-002C	50	7.83				0.02155	0.00	7.40	7.40	1	0.00	159.48	
N037314-001CDU	50	7.87				0.02155	0.00	10.30	10.30	1	0.00	221.98	
N037314-001CMS	50	7.96				0.02155	0.00	15.00	15.00	1	0.00	323.28	
N037314-001CMS	50	7.97				0.02155	0.00	14.90	14.90	1	0.00	321.12	

Julia Ramit 9/6/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	9/5/19
Time:	9:45 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.08	1.08	1.08		P = 0
LCS-1	0.00	0.00	101.29	101.29	101.29		P = 0
N037314-001C	0.00	0.00	223.06	223.06	223.06		P = 0
N037314-002C	0.00	0.00	159.48	159.48	159.48		P = 0
N037314-001CDUP	0.00	0.00	221.98	221.98	221.98		P = 0
N037314-001CMS	0.00	0.00	323.28	323.28	323.28		P = 0
N037314-001CMSD	0.00	0.00	321.12	321.12	321.12		P = 0

Julia Ramit 9/6/2019

Alkalinity Preparation and Runlog

Matrix: H_2O

Date Extracted: 9/5/19
Time Extracted: 9/5/19
Extracted By: LSR

Date Analyzed: 9/5/19
Time Analyzed: 945
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV-161205A
Hydrochloric Acid: -
Sulfuric Acid: R190816B
Sodium Bicarbonate: CINV-180570A

pH meter Calibration:
SLOPE: 99.1%
pH 7 - 7.00 . CINV 190724 H
4 - 4.01 . ↓ J
10 . 10.02 CINV 190801A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50mL	10.57	1WST190814A	5mL	0.05N	-	-	11.60	50/50	$N\ H_2SO_4 = \frac{(2.65\ g/L)(5mL)}{(53)(V\ titrant)}$	= 0.021551724
	#2	↓	10.51	↓	↓	↓	-	-	11.60	↓		
1)	MBLK	50mL	5.59	-	-	-	0.02155	0	0.05	50/50		
2)	LCS	↓	8.30	1WST190905A	1mL	0.05N	↓	0	4.70	↓		
3)	N037314-1C	↓	7.68	-	-	-	↓	0	10.35	↓		
4)	2C	↓	7.83	-	-	-	↓	0	7.40	↓		
5)	1CDUP	↓	7.87	-	-	-	↓	0	10.30	↓		
6)	1CMS	↓	7.96	1WST190905A	1mL	0.05N	↓	0	15.00	↓		
7)	1CMSD	↓	7.97	↓	↓	↓	↓	0	14.90	↓		
8)												
9)												
10)												
11)												
12)												
13)												
14)				$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$								
15)												
16)												
17)												
18)				$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$								
19)												
20)											Julia Ramit 9/6/2019	
	MS											
	MSD											
	LCS											

Logbook #7

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136413
ASSET #: N037225 / N037314

Instrument ID: IC-08
Analyst: HSG
Date Analyzed: 9/10/2019

Method:

[X] EPA 300.0
[ ] EPA 7199

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			X
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			X
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?			X			X
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			X
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			X
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HK 9/12/2019 Date: _____

2nd Level Reviewer NS 9/29/2019 Date: _____
for REB

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N037314-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.0363 * 50

= 251.815

Reporting result in two significant values,

Sulfate, mg/L = 250

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
2	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
3	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
4	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
5	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
6	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
7	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
8	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
9	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
10	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
11	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
12	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
13	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
14	N037147-001A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
15	N037147-002A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
16	N037176-001A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
17	N037176-002A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
18	N037176-003A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
19	N037176-004A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
20	N037181-001B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
21	N037225-001B,SAMP,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
22	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
23	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
24	N037147-001ADUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
25	N037176-001AMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
26	N037176-001AMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
27	N037107-007A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
28	N037107-007AMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
29	N037107-008A,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
30	N037147-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
31	N037147-001A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
32	N037147-002A,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
33	N037147-002A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
34	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
35	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
36	N037147-001ADUP,DUP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
37	N037147-001ADUP,DUP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
38	N037147-002AMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
39	N037147-002AMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
40	N037147-002AMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
41	N037147-002AMSD,MSD,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished

09/11/2019

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK	9/9/2019 9:41:18 AM	BLANK
2	BLANK	9/9/2019 9:58:06 AM	BLANK
3	BLANK	9/9/2019 10:27:00 AM	BLANK
4	Std - 0	9/9/2019 10:43:47 AM	IBLANK
5	Std - 1	9/9/2019 11:05:31 AM	STD-LOW
6	Std - 2	9/9/2019 11:22:19 AM	STD
7	Std - 3	9/9/2019 11:39:07 AM	STD
8	Std - 4	9/9/2019 11:55:55 AM	STD
9	Std - 5	9/9/2019 12:12:43 PM	STD-HIGH
10	ICV,ICV,1	9/9/2019 12:40:06 PM	ICV
11	ICB,ICB,1	9/9/2019 12:56:54 PM	ICB
12	MB-H2O,MBLK,1	9/9/2019 1:13:42 PM	METHOD BLANK
13	LCS-H2O,LCS,1	9/9/2019 1:30:30 PM	LCS
14	N037147-001A,SAMP,5	9/9/2019 1:52:27 PM	SAMP,10mL
15	N037147-002A,SAMP,5	9/9/2019 2:09:14 PM	SAMP,10mL
16	N037176-001A,SAMP,5	9/9/2019 2:26:02 PM	SAMP,10mL
17	N037176-002A,SAMP,5	9/9/2019 2:42:50 PM	SAMP,10mL
18	N037176-003A,SAMP,5	9/9/2019 2:59:38 PM	SAMP,10mL
19	N037176-004A,SAMP,5	9/9/2019 3:16:26 PM	SAMP,10mL
20	N037181-001B,SAMP,5	9/9/2019 3:33:14 PM	SAMP,10mL
21	N037225-001B,SAMP,1	9/9/2019 3:50:02 PM	SAMP,10mL
22	CCV-1,CCV,1	9/9/2019 4:06:49 PM	CCV
23	CCB-1,CCB,1	9/9/2019 4:23:37 PM	CCB
24	N037147-001ADUP,DUP,5	9/9/2019 5:26:20 PM	SAMP,10mL
25	N037176-001AMS,MS,5	9/9/2019 5:43:08 PM	SAMP,10mL
26	N037176-001AMSD,MSD,5	9/9/2019 5:59:56 PM	SAMP,10mL
27	N037107-007A,SAMP,500	9/9/2019 6:17:53 PM	SAMP,10mL
28	N037107-007AMS,MS,500	9/9/2019 6:34:42 PM	SAMP,10mL
29	N037107-008A,SAMP,500	9/9/2019 6:51:30 PM	SAMP,10mL
30	N037147-001A,SAMP,100	9/9/2019 7:08:17 PM	SAMP,10mL
31	N037147-001A,SAMP,1000	9/9/2019 7:25:05 PM	SAMP,10mL
32	N037147-002A,SAMP,50	9/9/2019 7:41:53 PM	SAMP,10mL
33	N037147-002A,SAMP,1000	9/9/2019 7:58:41 PM	SAMP,10mL
34	CCV-2,CCV,1	9/9/2019 8:15:28 PM	CCV
35	CCB-2,CCB,1	9/9/2019 8:32:16 PM	CCB
36	N037147-001ADUP,DUP,100	9/9/2019 8:49:04 PM	SAMP,10mL
37	N037147-001ADUP,DUP,1000	9/9/2019 9:05:52 PM	SAMP,10mL
38	N037147-002AMS,MS,50	9/9/2019 9:22:40 PM	SAMP,10mL
39	N037147-002AMSD,MSD,50	9/9/2019 9:39:28 PM	SAMP,10mL
40	N037147-002AMS,MS,1000	9/9/2019 9:56:16 PM	SAMP,10mL
41	N037147-002AMSD,MSD,1000	9/9/2019 10:13:03 PM	SAMP,10mL

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
N037145-001C 42	~~N037145-001A~~,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
N037145-001C 43	~~N037145-001A~~,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
N037145-002C 44	~~N037145-002A~~,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
N037145-002C 45	~~N037145-002A~~,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
46	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
47	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
48	N037176-001A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
49	N037176-001A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
50	N037176-002A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
51	N037176-002A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
52	N037176-003A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
53	N037176-003A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
54	N037176-004A,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
55	N037176-004A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
56	N037181-001B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
57	N037181-001B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
58	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
59	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
60	N037225-001B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
61	N037225-001B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
62	N037093-001B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
63	N037176-002A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
64	N037176-003A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
65	N037176-004A,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
66	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
67	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished

09/11/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 67
Created: 9/9/2019 9:23:14 AM by IC-05
Last Update: 9/10/2019 5:33:44 AM by IC-05

	No.	Name	Inj. Date/Time	Comment
N037145-001C	42	~~N037145-001A~~,SAMP,50	9/9/2019 10:29:51 PM	SAMP,10mL
N037145-001C	43	~~N037145-001A~~,SAMP,100	9/9/2019 10:46:39 PM	SAMP,10mL
N037145-002C	44	~~N037145-002A,SA~~MP,50	9/9/2019 11:03:27 PM	SAMP,10mL
N037145-002C	45	~~N037145-002A,S~~AMP,500	9/9/2019 11:20:14 PM	SAMP,10mL
	46	CCV-3,CCV,1	9/9/2019 11:37:02 PM	CCV
	47	CCB-3,CCB,1	9/9/2019 11:53:51 PM	CCB
	48	N037176-001A,SAMP,100	9/10/2019 12:10:38 AM	SAMP,10mL
	49	N037176-001A,SAMP,1000	9/10/2019 12:27:26 AM	SAMP,10mL
	50	N037176-002A,SAMP,100	9/10/2019 12:44:14 AM	SAMP,10mL
	51	N037176-002A,SAMP,1000	9/10/2019 1:01:02 AM	SAMP,10mL
	52	N037176-003A,SAMP,100	9/10/2019 1:17:50 AM	SAMP,10mL
	53	N037176-003A,SAMP,1000	9/10/2019 1:34:38 AM	SAMP,10mL
	54	N037176-004A,SAMP,100	9/10/2019 1:51:26 AM	SAMP,10mL
	55	N037176-004A,SAMP,1000	9/10/2019 2:08:15 AM	SAMP,10mL
	56	N037181-001B,SAMP,50	9/10/2019 2:25:02 AM	SAMP,10mL
	57	N037181-001B,SAMP,1000	9/10/2019 2:41:50 AM	SAMP,10mL
	58	CCV-4,CCV,1	9/10/2019 2:58:38 AM	CCV
	59	CCB-4,CCB,1	9/10/2019 3:15:26 AM	CCB
	60	N037225-001B,SAMP,100	9/10/2019 3:32:14 AM	SAMP,10mL
	61	N037225-001B,SAMP,500	9/10/2019 3:49:02 AM	SAMP,10mL
	62	N037093-001B,SAMP,10000	9/10/2019 4:05:50 AM	SAMP,10mL
	63	N037176-002A,SAMP,2000	9/10/2019 4:22:37 AM	SAMP,10mL
	64	N037176-003A,SAMP,2000	9/10/2019 4:39:26 AM	SAMP,10mL
	65	N037176-004A,SAMP,2000	9/10/2019 4:56:14 AM	SAMP,10mL
	66	CCV-5,CCV,1	9/10/2019 5:13:02 AM	CCV
	67	CCB-5,CCB,1	9/10/2019 5:29:50 AM	CCB

09/11/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 9/10/2019 8:37:26 AM by IC-05
Last Update: 9/10/2019 4:53:44 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
2	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
3	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
4	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
5	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
6	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
7	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
8	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
9	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190909	Finished
10	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
11	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
12	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
13	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
14	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
15	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
16	N037225-001B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
17	N037225-001B,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
18	N037314-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
19	N037314-002C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
20	N037225-001BMS,MS,20	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
21	N037225-001BMSD,MSD,20	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
22	N037225-001BMS,MS,200	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
23	N037225-001BMSD,MSD,200	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
24	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
25	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
26	N037313-002B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
27	N037314-001C,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
28	N037314-001CDUP,DUP,100	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
29	N037314-002CDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
30	N037314-002C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
31	N037313-002BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
32	N037313-002BMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
33	N037313-002BMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
34	N037313-002B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
35	N037313-002BMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
36	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
37	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
38	N037169-001A,SAMP,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
39	N037170-001A,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
40	N037172-001A,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
41	N037173-001A,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished

9/12/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 9/10/2019 8:37:26 AM by IC-05
Last Update: 9/10/2019 4:53:44 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK	9/9/2019 9:41:18 AM	BLANK
2	BLANK	9/9/2019 9:58:06 AM	BLANK
3	BLANK	9/9/2019 10:27:00 AM	BLANK
4	Std - 0	9/9/2019 10:43:47 AM	IBLANK
5	Std - 1	9/9/2019 11:05:31 AM	STD-LOW
6	Std - 2	9/9/2019 11:22:19 AM	STD
7	Std - 3	9/9/2019 11:39:07 AM	STD
8	Std - 4	9/9/2019 11:55:55 AM	STD
9	Std - 5	9/9/2019 12:12:43 PM	STD-HIGH
10	BLANK	9/10/2019 8:39:49 AM	BLANK
11	BLANK	9/10/2019 8:56:37 AM	BLANK
12	CCV-1,CCV,1	9/10/2019 9:13:25 AM	ICV
13	CCB-1,CCB,1	9/10/2019 9:30:13 AM	ICB
14	MB-H2O,MBLK,1	9/10/2019 9:57:57 AM	METHOD BLANK
15	LCS-H2O,LCS,1	9/10/2019 10:14:46 AM	LCS
16	N037225-001B,SAMP,20	9/10/2019 10:39:19 AM	SAMP,10mL
17	N037225-001B,SAMP,200	9/10/2019 10:56:07 AM	SAMP,10mL
18	N037314-001C,SAMP,50	9/10/2019 11:12:55 AM	SAMP,10mL
19	N037314-002C,SAMP,50	9/10/2019 11:29:42 AM	SAMP,10mL
20	N037225-001BMS,MS,20	9/10/2019 11:46:30 AM	SAMP,10mL
21	N037225-001BMSD,MSD,20	9/10/2019 12:03:18 PM	SAMP,10mL
22	N037225-001BMS,MS,200	9/10/2019 12:20:06 PM	SAMP,10mL
23	N037225-001BMSD,MSD,200	9/10/2019 12:36:54 PM	SAMP,10mL
24	CCV-2,CCV,1	9/10/2019 12:53:42 PM	CCV
25	CCB-2,CCB,1	9/10/2019 1:10:30 PM	CCB
26	N037313-002B,SAMP,5	9/10/2019 1:27:18 PM	SAMP,10mL
27	N037314-001C,SAMP,100	9/10/2019 1:44:05 PM	SAMP,10mL
28	N037314-001CDUP,DUP,100	9/10/2019 2:00:53 PM	SAMP,10mL
29	N037314-002CDUP,DUP,50	9/10/2019 2:17:41 PM	SAMP,10mL
30	N037314-002C,SAMP,500	9/10/2019 2:34:29 PM	SAMP,10mL
31	N037313-002BDUP,DUP,5	9/10/2019 2:51:17 PM	SAMP,10mL
32	N037313-002BMS,MS,5	9/10/2019 3:08:05 PM	SAMP,10mL
33	N037313-002BMSD,MSD,5	9/10/2019 3:24:53 PM	SAMP,10mL
34	N037313-002B,SAMP,50	9/10/2019 3:41:41 PM	SAMP,10mL
35	N037313-002BMS,MS,50	9/10/2019 3:58:29 PM	SAMP,10mL
36	CCV-3,CCV,1	9/10/2019 4:15:17 PM	CCV
37	CCB-3,CCB,1	9/10/2019 4:32:05 PM	CCB
38	N037169-001A,SAMP,1	9/10/2019 4:54:14 PM	SAMP,10mL
39	N037170-001A,SAMP,2	9/10/2019 5:11:02 PM	SAMP,10mL
40	N037172-001A,SAMP,2	9/10/2019 5:27:50 PM	SAMP,10mL
41	N037173-001A,SAMP,2	9/10/2019 5:44:38 PM	SAMP,10mL

9/12/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 9/10/2019 8:37:26 AM by IC-05
Last Update: 9/10/2019 4:53:44 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N037171-001A,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
43	N037174-001A,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
44	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
45	N037170-001A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
46	N037172-001A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
47	N037173-001A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
48	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
49	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
50	N037171-001A,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
51	N037171-001A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
52	N037174-001A,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
53	N037174-001A,SAMP,20000	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
54	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished
55	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190909	Finished

9/12/2019

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 55
Created: 9/10/2019 8:37:26 AM by IC-05
Last Update: 9/10/2019 4:53:44 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N037171-001A,SAMP,2	9/10/2019 6:01:25 PM	SAMP,10mL
43	N037174-001A,SAMP,200	9/10/2019 6:18:13 PM	SAMP,10mL
44	BLANK	9/10/2019 6:35:01 PM	BLANK
45	N037170-001A,SAMP,20	9/10/2019 6:51:49 PM	SAMP,10mL
46	N037172-001A,SAMP,20	9/10/2019 7:08:37 PM	SAMP,10mL
47	N037173-001A,SAMP,20	9/10/2019 7:25:24 PM	SAMP,10mL
48	CCV-4,CCV,1	9/10/2019 7:42:12 PM	CCV
49	CCB-4,CCB,1	9/10/2019 7:59:00 PM	CCB
50	N037171-001A,SAMP,5	9/10/2019 8:15:48 PM	SAMP,10mL
51	N037171-001A,SAMP,20	9/10/2019 8:32:36 PM	SAMP,10mL
52	N037174-001A,SAMP,10000	9/10/2019 8:49:24 PM	SAMP,10mL
53	N037174-001A,SAMP,20000	9/10/2019 9:06:12 PM	SAMP,10mL
54	CCV-5,CCV,1	9/10/2019 9:23:00 PM	CCV
55	CCB-5,CCB,1	9/10/2019 9:39:48 PM	CCB

9/12/2019

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 9/9/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0578	0.2351	0.4667	1.1928	2.4803	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 9/9/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0016	0.0765	0.1581	0.3188	0.8155	1.7192	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **ICV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3509621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.025	0.50	2.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.983	0.50	2.000	0	99.2	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.992	0.50	2.000	0	99.6	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.972	0.50	2.000	0	98.6	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.949	0.50	2.000	0	97.4	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.992	0.50	2.000	0	99.6	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **ICV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3509647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.048	0.50	4.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.004	0.50	4.000	0	100	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.060	0.50	4.000	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.008	0.50	4.000	0	100	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCV**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.075	0.50	4.000	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCV-5** SampType: **CCV** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136413**
Client ID: **CCV** Batch ID: **R136413** TestNo: **EPA 300.0** Analysis Date: **9/10/2019** SeqNo: **3509673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.368	0.50	4.000	0	109	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICB	**ICB**	**300_W_CLP**	**mg/L**		**136413**
Client ID: **ICB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3509622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-1	**CCB**	**300_W_CLP**	**mg/L**		**136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.096	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-2	**CCB**	**300_W_CLP**	**mg/L**		**136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.105	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-3	**CCB**	**300_W_CLP**	**mg/L**		**136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.098	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-4	**CCB**	**300_W_CLP**	**mg/L**		**136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.102	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.096	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **ICB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/9/2019**	SeqNo: **3509648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **136413**
Client ID: **CCB**	Batch ID: **R136413**	TestNo: **EPA 300.0**		Analysis Date: **9/10/2019**	SeqNo: **3509671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCB-5** SampType: **CCB** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **136413**
Client ID: **CCB** Batch ID: **R136413** TestNo: **EPA 300.0** Analysis Date: **9/10/2019** SeqNo: **3509674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 9/10/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.734	
CCV-1	Chloride	4.733	
CCV-2	Chloride	4.720	
CCV-3	Chloride	4.727	
CCV-4	Chloride	4.733	
CCV-5	Chloride	4.737	
	Average	4.730	
	Applied RT Window	4.530 - 4.930	
MB-R136413_CL	Chloride	4.723	PASS
LCS-R136413_CL	Chloride	4.727	PASS
N037225-001BMS	Chloride	4.720	PASS
N037225-001BMSD	Chloride	4.724	PASS
N037314-001C	Chloride	4.724	PASS
N037314-001CDUP	Chloride	4.723	PASS
N037314-002C	Chloride	4.724	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 9/10/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	12.027	
CCV-1	Sulfate	12.097	
CCV-2	Sulfate	12.130	
CCV-3	Sulfate	12.134	
CCV-4	Sulfate	12.107	
CCV-5	Sulfate	12.097	

Average 12.113

Applied RT Window 11.913 - 12.313

MB-R136413_SO4	Sulfate	N.A.	N.A.
LCS-R136413_SO4	Sulfate	12.113	PASS
N037314-001C	Sulfate	12.120	PASS
N037314-002C	Sulfate	12.127	PASS
N037225-001BMS	Sulfate	12.130	PASS
N037225-001BMSD	Sulfate	12.130	PASS
N037314-002CDUP	Sulfate	12.133	PASS
N037313-002BMS	Sulfate	12.133	PASS

MDL STUDY

METHOD DETECTION LIMIT 2019

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 1/7/2019 ; 1/9/2019 ; 5/6/2019
Analyst/Technician: Ria Abes / Hanah Glodoviza

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	190107A D51	190107A D52	190107A D53	190109A D79	190109A D80	190506A D16	190506A D17					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.034	0.039	0.039	0.038	0.038	0.043	0.043	0.020	0.0031	**0.0096**	0.020	0.10
Chloride	0.201	0.201	0.200	0.200	0.202	0.178	0.179	0.050	0.0111	**0.0348**	0.080	0.50
Nitrite	0.033	0.032	0.032	0.035	0.035	0.031	0.031	0.020	0.0016	**0.0050**	0.010	0.05
Bromide	0.040	0.043	0.044	0.043	0.043	0.025	0.022	0.040	0.0095	**0.0300**	0.060	0.50
Nitrate	0.037	0.035	0.035	0.037	0.042	0.040	0.040	0.020	0.0028	**0.0087**	0.020	0.05
Phosphate	0.067	0.069	0.061	0.066	0.069	0.080	0.097	0.040	0.0120	**0.0378**	0.080	0.10
Sulfate	0.294	0.291	0.289	0.325	0.305	0.309	0.306	0.100	0.0127	**0.0399**	0.080	0.50

Note: All 7 Method Blanks analyzed together with the MDL samples have 0 ug/L concentrations

MDL/LOD & PQL Verification 2019 (1st Quarter)

Method Name: **Inorganic Anions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 5/8/2019
Analyst: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD actual Conc., mg/L	PQL Spike Conc., mg/L	PQL actual Conc., mg/L	%Recovery
Fluoride	**0.0096**	0.02	0.038	0.100	0.114	**114**
Chloride	**0.0348**	0.08	0.207	0.500	0.550	**110**
Nitrite	**0.0050**	0.01	0.023	0.050	0.057	**114**
Bromide	**0.0300**	0.06	0.048	0.500	0.503	**101**
Nitrate	**0.0087**	0.02	0.032	0.050	0.064	**129**
Phosphate	**0.0378**	0.08	0.139	0.100	0.141	**141**
Sulfate	**0.0399**	0.08	0.291	0.500	0.661	**132**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136491 **Analyst:** ~~RBA~~ MBC

ASSET #: N037148, 117, 176, 314 **Date Analyzed:** 9/16/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer MBC Date: 9/17/2019

2nd Level Reviewer NS 9/17/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037314-002D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N = 0.5474 * 5
= 2.737 mg/L

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.7 mg/L

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

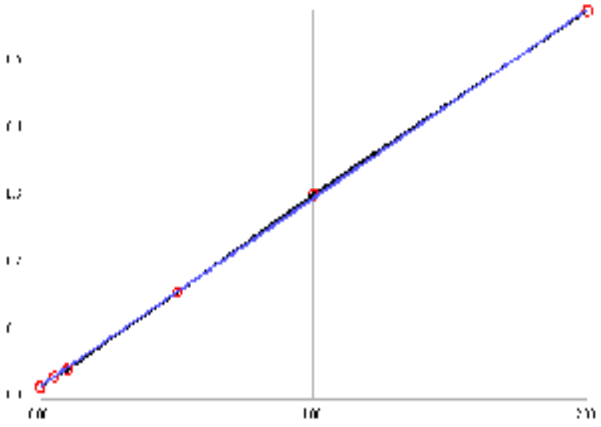
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2809x + 0.0194
Correlation	.999918

Calibrant	Energy	Set	Conc
1	0.0183	0.0000	-0.0041
2	0.0336	0.0500	0.0504
3	0.0455	0.1000	0.0928
4	0.1604	0.5000	0.5018
5	0.3055	1.0000	1.0184
6	0.5786	2.0000	1.9907

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **ICV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.513	0.050	0.5000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.507	0.050	0.5000	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513070**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.484	0.050	0.5000	0	96.7	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCV**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.461	0.050	0.5000	0	92.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037314
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **ICB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513071**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136491**
Client ID: **CCB**	Batch ID: **R136491**	TestNo: **SM4500-NO3**		Analysis Date: **9/16/2019**	SeqNo: **3513078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 09-16-2019 14:37
Time end: 09-16-2019 17:29

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:49:19	0.0084		0.0218
2	<BLANK>	16:50:19	0.0002		0.0195
3	<CAL1>	16:51:14	-0.0041	[0]	0.0183
4	<CAL2>	16:52:10	0.0504	[0.05]	0.0336
5	<CAL3>	16:53:10	0.0928	[0.1]	0.0455
6	<CAL4>	16:54:05	0.5018	[0.5]	0.1604
7	<CAL5>	16:55:01	1.0184	[1]	0.3055
8	<CAL6>	16:55:56	1.9907	[2]	0.5786
9	,BLANK,BLANK,1, NOT REPORTED	16:56:57	0.0358		0.0295
10	,ICV,ICV,1,	16:57:52	0.5125		0.1634
11	,ICB,ICB,1,	16:58:48	0.0055		0.0210
12	,MB-H2O,MBLK,1,	16:59:48	-0.0048		0.0181
13	,LCS-H2O,LCS,1,	17:00:43	0.5559		0.1756
14	,N037148-012E,SAMP,1,	17:01:39	0.3220		0.1099
15	,N037148-012EDUP,DUP,1,	17:02:35	0.3309		0.1124
16	,N037176-004B,SAMP,50, NOT REPORTED	17:03:35	0.0048		0.0208
17	,N037176-004BMS,MS,50,	17:04:31	0.4887		0.1567
18	,N037176-004BMSD,MSD,50,	17:05:27	0.5250		0.1669
19	,N037172-001D,SAMP,1,	17:06:27	0.2594		0.0923
20	,N037169-001D,SAMP,1,	17:07:22	0.0287		0.0275
21	,BLANK, NOT REPORTED	17:08:18	-0.0041		0.0183
22	,CCV-1,CCV,1,	17:09:13	0.5065		0.1617
23	,CCB-1,CCB,1,	17:10:14	-0.0019		0.0189
24	,N037176-001B,SAMP,1,	17:11:09	0.0561		0.0352
25	,N037176-002B,SAMP,1,	17:12:05	0.6022		0.1886

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
26	,N037176-003B,SAMP,1,	17:13:05	0.1440		0.0599
27	,N037170-001D,SAMP,1,	17:13:48	0.2797		0.0980
28	,N037173-001D,SAMP,1,	17:14:38	0.4367		0.1421
29	,N037313-002D,SAMP,5, NOT REPORTED	17:15:20	0.5492		0.1737
30	,N037314-001D,SAMP,1,	17:16:03	0.0162		0.0240
31	,N037314-002D,SAMP,5,	17:16:51	0.5474		0.1732
32	,N037181-001C,SAMP,1,	17:17:35	3.1901		0.9155
33	,BLANK, NOT REPORTED	17:18:17	0.0369		0.0298
34	,CCV-2,CCV,1,	17:19:00	0.4837		0.1553
35	,CCB-2,CCB,1,	17:19:50	-0.0059		0.0178
36	,N037225-001C,SAMP,1, NOT REPORTED	17:20:32	4.3596	[HL][OR]	1.2440
37	,N037148-003E,SAMP,1,	17:21:15	0.6588		0.2045
38	,N037148-009E,SAMP,1,	17:22:04	0.4221		0.1380
39	,N037117-005B,SAMP,2,	17:22:47	0.9419		0.2840
40	,N037117-008B,SAMP,1,	17:23:29	0.3765		0.1252
41	,N037171-001D,SAMP,1,	17:24:13	0.2555		0.0912
42	,N037174-001D,SAMP,500, NOT REPORTED	17:25:01	0.0881		0.0442
43	,BLANK, NOT REPORTED	17:25:44	-0.0144		0.0154
44	,CCV-3,CCV,1,	17:26:27	0.4612		0.1490
45	,CCB-3,CCB,1,	17:27:16	-0.0059		0.0178

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/16/2019
Time Analyzed: 2:37 PM ; 5:29 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190913A
Color reagent: R190913B
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037148-012E		8.10							
N037176-004B		7.92							
N037172-001D		7.39							
N037169-001D		7.52							
N037176-001B		8.40							
N037176-002B		8.05							
N037176-003B		7.60							
N037170-001D		7.80							
N037173-001D		6.63							
N037173-002D		8.34							
N037314-001D		7.40							
N037314-002D		7.71							
N037181-001C		7.83							
N037225-001C		7.38							
N037148-003E		7.85							
N037148-009E		8.75							
N037117-005B		6.49							
N037117-008B		7.8							
N037171-001D		5.25							
N037174-001D		6.38							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

October 15, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037646

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 25, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucan for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037646

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N037646-002 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum in QC samples N037645-001B-MS and N037645-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for SM 4500-NO3F:

Method Blank MB-R136710 has hit greater than 1/2 the reporting limit. Affected sample result was greater than 5x the Method Blank concentration therefore reanalysis of the sample was not necessary.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N037613-011BMS and N037613-011BMSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Sample Duplicate N037646-002CDUP is outside criteria; however, the analytical batch was

validated by the Laboratory Control Sample (LCS).

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037646
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037646-001A	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-001B	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-001C	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-001D	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-002A	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019
N037646-002B	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019
N037646-002C	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019
N037646-002D	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 9:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190926C**	QC Batch: **R136661**			PrepDate:			Analyst: **LR**
Specific Conductance	1700	0.10	0.10		umhos/cm	1	9/26/2019 01:30 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 3:40:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190926C**	QC Batch: **R136661**			PrepDate:			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/26/2019 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N037646-002DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **136661**
Client ID: **ZZZZZZ** Batch ID: **R136661** TestNo: **EPA 120.1** Analysis Date: **9/26/2019** SeqNo: **3520489**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12330.000	0.10						12300	0.244	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 9:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	4.8	0.033	0.20		µg/L	1	10/2/2019 12:01 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191008B**	QC Batch: **75482**			PrepDate:	**9/26/2019**		Analyst: **CEI**
Chromium	4.7	0.13	1.0		µg/L	1	10/8/2019 04:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 3:40:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	10/2/2019 12:32 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_191008B**	QC Batch: **75482**			PrepDate:	**9/26/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	10/8/2019 04:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R136743**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **PBW**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R136743**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **LCSW**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	90	110				

Sample ID: **N037646-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	5.000	4.813	102	90	110				

Sample ID: **N037645-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.185	1.0	5.000	0	104	90	110				

Sample ID: **N037646-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.053	1.0	5.000	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037666-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	251.676	4.0	100.0	151.6	100	90	110				

Sample ID: **N037666-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	572.540	10	250.0	326.0	98.6	90	110				

Sample ID: **N037666-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	575.035	10	250.0	328.0	98.8	90	110				

Sample ID: **N037666-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14705.100	200	5000	9736	99.4	90	110				

Sample ID: **N037666-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.214	0.20	1.000	1.245	96.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037666-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.249	0.20	1.000	1.215	103	90	110				

Sample ID: **N037666-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	126.961	2.0	50.00	78.28	97.4	90	110				

Sample ID: **N037666-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	250.074	4.0	100.0	151.6	98.5	90	110	251.7	0.639	20	

Sample ID: **N037666-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	78.017	2.0						78.28	0.342	20	

Sample ID: **N037709-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037645-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.976	0.20	1.000	0	97.6	90	110				

Sample ID: **N037709-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	229.220	4.0	100.0	129.8	99.4	90	110				

Sample ID: **N037709-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	154.886	2.0	50.00	105.7	98.3	90	110				

Sample ID: **N037709-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	68.950	1.0	25.00	44.24	98.8	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-75482**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **PBW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-75482**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **LCSW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.545	1.0	10.00	0	105	85	115				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.915	1.0	10.00	0	99.2	75	125				

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.934	1.0	10.00	0	99.3	75	125	9.915	0.193	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 9:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190930D**	QC Batch: **R136710**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	4.4	0.16	0.25		mg/L	5	9/30/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 3:40:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191014D**	QC Batch: **R136950**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.097	0.032	0.050		mg/L	1	10/14/2019

Qualifiers:	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference
		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R136710**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **PBW**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.035	0.050									

Sample ID: **LCS-R136710**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **LCSW**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.556	0.050	0.5000	0	111	85	115				

Sample ID: **N037646-002CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **ZZZZZZ**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.052	0.050						0.07060	30.7	20	R

Sample ID: **N037613-011BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **ZZZZZZ**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	30.044	1.0	20.00	17.88	60.8	75	125				S

Sample ID: **N037613-011BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **ZZZZZZ**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	30.448	1.0	20.00	17.88	62.8	75	125	30.04	1.34	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R136950** SampType: **MBLK** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **136950**
Client ID: **PBW** Batch ID: **R136950** TestNo: **SM4500-NO3** Analysis Date: **10/14/2019** SeqNo: **3535531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R136950** SampType: **LCS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **136950**
Client ID: **LCSW** Batch ID: **R136950** TestNo: **SM4500-NO3** Analysis Date: **10/14/2019** SeqNo: **3535532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.464	0.050	0.5000	0	92.9	85	115				

Sample ID: **N037613-003BDUP** SampType: **DUP** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **136950**
Client ID: **ZZZZZZ** Batch ID: **R136950** TestNo: **SM4500-NO3** Analysis Date: **10/14/2019** SeqNo: **3535595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.921	0.050						0.8966	2.72	20	

Sample ID: **N037757-002DMS** SampType: **MS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **136950**
Client ID: **ZZZZZZ** Batch ID: **R136950** TestNo: **SM4500-NO3** Analysis Date: **10/14/2019** SeqNo: **3535598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.216	0.25	2.500	2.822	95.8	75	125				

Sample ID: **N037757-002DMSD** SampType: **MSD** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **136950**
Client ID: **ZZZZZZ** Batch ID: **R136950** TestNo: **SM4500-NO3** Analysis Date: **10/14/2019** SeqNo: **3535674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.531	0.25	2.500	2.822	108	75	125	5.216	5.87	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 9:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191008B**	QC Batch: **75482**			PrepDate:		**9/26/2019**	Analyst: **CEI**
Arsenic	5.5	0.081	0.10		µg/L	1	10/8/2019 04:03 PM
Manganese	52	0.26	0.50		µg/L	1	10/8/2019 04:03 PM
Molybdenum	23	0.21	0.50		µg/L	1	10/10/2019 03:28 PM
Selenium	4.7	0.36	0.50		µg/L	1	10/8/2019 04:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037646
Project: PG&E Topock - GMP, 30019131
Lab ID: N037646-002

Client Sample ID: MW-62-110-Q319
Collection Date: 9/25/2019 3:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191008B**	QC Batch: **75482**			PrepDate:		**9/26/2019**	Analyst: **CEI**
Arsenic	3.6	0.081	0.10		µg/L	1	10/8/2019 04:13 PM
Manganese	64	0.26	0.50		µg/L	1	10/8/2019 04:13 PM
Molybdenum	45	0.21	0.50		µg/L	1	10/10/2019 03:33 PM
Selenium	ND	0.36	0.50		µg/L	1	10/8/2019 04:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-75482**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **PBW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-75482**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **LCSW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.615	0.10	10.00	0	106	85	115				
Manganese	108.139	0.50	100.0	0	108	85	115				
Selenium	10.933	0.50	10.00	0	109	85	115				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.669	0.10	10.00	3.853	108	75	125				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	264.454	2.5	100.0	160.4	104	75	125				

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.220	0.10	10.00	3.853	104	75	125	14.67	3.11	20	

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	258.152	2.5	100.0	160.4	97.7	75	125	264.5	2.41	20	

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3533276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.401	0.50	10.00	0.8942	105	75	125				

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3533277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	12.304	0.50	10.00	0.8942	114	75	125	11.40	7.62	20	

Sample ID: **MB-75482**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **PBW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-75482**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **LCSW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	10.238	0.50	10.00	0	102	85	115				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	260.582	2.5	10.00	259.6	9.97	75	125				S

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534325**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	255.051	2.5	10.00	259.6	-45.3	75	125	260.6	2.14	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **136857**			
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**			SeqNo: **3531159**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.553	0.10	10.00	3.853	107	80	120				

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **136857**			
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**			SeqNo: **3531160**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	265.086	2.5	100.0	160.4	105	80	120				

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **136857**			
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**			SeqNo: **3533275**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.654	0.50	10.00	0.8942	108	80	120				

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **136922**			
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**			SeqNo: **3534321**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	265.727	2.5	10.00	259.6	61.4	80	120				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9617-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		

Signature: Date: 9/25/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Sampled By: Nara Tej
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for
Signature: 9/25/2019

Project Name: PG&E Topock - GMP
Project Number: 30019131

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE				
Geotracker		RWQCB	✓	1. Chilled	✓	
Labspec		CalTrans		2. Headspace		
Others	✓	LEVEL III		3. Container Intact	✓	
Specify: RWQCB		LEVEL IV		4. Seal Present		
		Regulatory		5. IR number		
Global ID:		Specify State:		6. Method of Cooling: Ice		
				Sample Temp: 4.1°C		

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Courier: ASSET
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037646-01	MW-38S-Q319	9/25/2019	9:26		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-62-110-Q319	9/25/2019	15:40		X		X	X	X	X	X	X		X						E	4	P	BNS	
3																					E	4	P	BNS	
4																					E	4	P	BNS	
5																					E	4	P	BNS	
6																					E	4	P	BNS	
7																					E	4	P	BNS	
8																					E	5	P	BNS	
9																					E	1	P	B	
10																					E	4	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tej	9/25/19 1630	JULIA BUNDALIAN	9/25/19 1630
JULIA BUNDALIAN	9/25/19 1902	JULIA BUNDALIAN	9/25/19 1902

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/25/2019	Workorder:	N037646
Rep sample Temp (Deg C):	4.1	IR Gun ID:	1

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 9/27/2019

Reviewed By: LG 100819

ASSET Laboratories

WORK ORDER Summary

26-Sep-19

WorkOrder: N037646

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/25/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037646-001A	MW-38S-Q319	9/25/2019 9:26:00 AM	10/9/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037646-001B			10/9/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037646-001C			10/9/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037646-001D			10/9/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037646-002A	MW-62-110-Q319	9/25/2019 3:40:00 PM	10/9/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037646-002B			10/9/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037646-002C			10/9/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037646-002D			10/9/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037646-003A	FOLDER	10/9/2019	10/9/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/9/2019		Folder	Folder	☐	☐	☐	LAB
			10/9/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037646

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 15, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037646

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 25, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucan for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037646

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N037646-002 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum in QC samples N037645-001B-MS and N037645-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for SM 4500-NO3F:

Method Blank MB-R136710 has hit greater than 1/2 the reporting limit. Affected sample result was greater than 5x the Method Blank concentration therefore reanalysis of the sample was not necessary.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N037613-011BMS and N037613-011BMSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Sample Duplicate N037646-002CDUP is outside criteria; however, the analytical batch was

validated by the Laboratory Control Sample (LCS).

ASSET Laboratories

Date: *15-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037646
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037646-001A	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-001B	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-001C	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-001D	MW-38S-Q319	Groundwater	9/25/2019 9:26:00 AM	9/25/2019	10/15/2019
N037646-002A	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019
N037646-002B	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019
N037646-002C	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019
N037646-002D	MW-62-110-Q319	Groundwater	9/25/2019 3:40:00 PM	9/25/2019	10/15/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 9:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190926C**	QC Batch: **R136661**			PrepDate:			Analyst: **LR**
Specific Conductance	1700	0.10	0.10		umhos/cm	1	9/26/2019 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 3:40:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190926C**	QC Batch: **R136661**			PrepDate:			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/26/2019 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N037646-002DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **136661**
Client ID: **ZZZZZZ** Batch ID: **R136661** TestNo: **EPA 120.1** Analysis Date: **9/26/2019** SeqNo: **3520489**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12330.000	0.10						12300	0.244	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037646
Project: PG&E Topock - GMP, 30019131
Lab ID: N037646-001

Client Sample ID: MW-38S-Q319
Collection Date: 9/25/2019 9:26:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	4.8	0.033	0.20		µg/L	1	10/2/2019 12:01 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_191008B** QC Batch: **75482**				PrepDate:	**9/26/2019**		Analyst: **CEI**
Chromium	4.7	0.13	1.0		µg/L	1	10/8/2019 04:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 3:40:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	10/2/2019 12:32 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_191008B** QC Batch: **75482**				PrepDate:	**9/26/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	10/8/2019 04:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R136743**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **PBW**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R136743**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **LCSW**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	90	110				

Sample ID: **N037646-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	5.000	4.813	102	90	110				

Sample ID: **N037645-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.185	1.0	5.000	0	104	90	110				

Sample ID: **N037646-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.053	1.0	5.000	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037666-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	251.676	4.0	100.0	151.6	100	90	110				

Sample ID: **N037666-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	572.540	10	250.0	326.0	98.6	90	110				

Sample ID: **N037666-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	575.035	10	250.0	328.0	98.8	90	110				

Sample ID: **N037666-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14705.100	200	5000	9736	99.4	90	110				

Sample ID: **N037666-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.214	0.20	1.000	1.245	96.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037666-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.249	0.20	1.000	1.215	103	90	110				

Sample ID: **N037666-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	126.961	2.0	50.00	78.28	97.4	90	110				

Sample ID: **N037666-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	250.074	4.0	100.0	151.6	98.5	90	110	251.7	0.639	20	

Sample ID: **N037666-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	78.017	2.0						78.28	0.342	20	

Sample ID: **N037709-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N037645-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.976	0.20	1.000	0	97.6	90	110				

Sample ID: **N037709-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	229.220	4.0	100.0	129.8	99.4	90	110				

Sample ID: **N037709-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	154.886	2.0	50.00	105.7	98.3	90	110				

Sample ID: **N037709-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	68.950	1.0	25.00	44.24	98.8	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-75482**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **PBW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-75482**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **LCSW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.545	1.0	10.00	0	105	85	115				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.915	1.0	10.00	0	99.2	75	125				

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.934	1.0	10.00	0	99.3	75	125	9.915	0.193	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 9:26:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190930D**	QC Batch: **R136710**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	4.4	0.16	0.25		mg/L	5	9/30/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q319
Lab Order:	N037646	**Collection Date:**	9/25/2019 3:40:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037646-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_191014D**	QC Batch: **R136950**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	0.097	0.032	0.050		mg/L	1	10/14/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R136710**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **136710**			
Client ID: **PBW**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**			SeqNo: **3523630**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.035	0.050									

Sample ID: **LCS-R136710**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **136710**			
Client ID: **LCSW**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**			SeqNo: **3523631**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.556	0.050	0.5000	0	111	85	115				

Sample ID: **N037646-002CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **136710**			
Client ID: **ZZZZZZ**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**			SeqNo: **3523633**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.052	0.050						0.07060	30.7	20	R

Sample ID: **N037613-011BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **136710**			
Client ID: **ZZZZZZ**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**			SeqNo: **3523635**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	30.044	1.0	20.00	17.88	60.8	75	125				S

Sample ID: **N037613-011BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **136710**			
Client ID: **ZZZZZZ**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**			SeqNo: **3523636**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	30.448	1.0	20.00	17.88	62.8	75	125	30.04	1.34	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R136950**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:				RunNo: **136950**		
Client ID: **PBW**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**				SeqNo: **3535531**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R136950**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:				RunNo: **136950**		
Client ID: **LCSW**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**				SeqNo: **3535532**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.464	0.050	0.5000	0	92.9	85	115				

Sample ID: **N037613-003BDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:				RunNo: **136950**		
Client ID: **ZZZZZZ**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**				SeqNo: **3535595**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.921	0.050						0.8966	2.72	20	

Sample ID: **N037757-002DMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:				RunNo: **136950**		
Client ID: **ZZZZZZ**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**				SeqNo: **3535598**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.216	0.25	2.500	2.822	95.8	75	125				

Sample ID: **N037757-002DMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:				RunNo: **136950**		
Client ID: **ZZZZZZ**	Batch ID: **R136950**	TestNo: **SM4500-NO3**		Analysis Date: **10/14/2019**				SeqNo: **3535674**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.531	0.25	2.500	2.822	108	75	125	5.216	5.87	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037646
Project: PG&E Topock - GMP, 30019131
Lab ID: N037646-001

Client Sample ID: MW-38S-Q319
Collection Date: 9/25/2019 9:26:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_191008B** QC Batch: **75482** PrepDate: **9/26/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	5.5	0.081	0.10		µg/L	1	10/8/2019 04:03 PM
Manganese	52	0.26	0.50		µg/L	1	10/8/2019 04:03 PM
Molybdenum	23	0.21	0.50		µg/L	1	10/10/2019 03:28 PM
Selenium	4.7	0.36	0.50		µg/L	1	10/8/2019 04:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037646
Project: PG&E Topock - GMP, 30019131
Lab ID: N037646-002

Client Sample ID: MW-62-110-Q319
Collection Date: 9/25/2019 3:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191008B**	QC Batch: **75482**			PrepDate:		**9/26/2019**	Analyst: **CEI**
Arsenic	3.6	0.081	0.10		µg/L	1	10/8/2019 04:13 PM
Manganese	64	0.26	0.50		µg/L	1	10/8/2019 04:13 PM
Molybdenum	45	0.21	0.50		µg/L	1	10/10/2019 03:33 PM
Selenium	ND	0.36	0.50		µg/L	1	10/8/2019 04:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-75482**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **PBW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-75482**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **LCSW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.615	0.10	10.00	0	106	85	115				
Manganese	108.139	0.50	100.0	0	108	85	115				
Selenium	10.933	0.50	10.00	0	109	85	115				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.669	0.10	10.00	3.853	108	75	125				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	264.454	2.5	100.0	160.4	104	75	125				

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.220	0.10	10.00	3.853	104	75	125	14.67	3.11	20	

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3531166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	258.152	2.5	100.0	160.4	97.7	75	125	264.5	2.41	20	

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3533276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.401	0.50	10.00	0.8942	105	75	125				

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**	SeqNo: **3533277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	12.304	0.50	10.00	0.8942	114	75	125	11.40	7.62	20	

Sample ID: **MB-75482**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **PBW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-75482**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **LCSW**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	10.238	0.50	10.00	0	102	85	115				

Sample ID: **N037645-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	260.582	2.5	10.00	259.6	9.97	75	125				S

Sample ID: **N037645-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/26/2019**	RunNo: **136922**
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**	SeqNo: **3534325**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	255.051	2.5	10.00	259.6	-45.3	75	125	260.6	2.14	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:				RunNo: **136857**		
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**				SeqNo: **3531159**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.553	0.10	10.00	3.853	107	80	120				

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:				RunNo: **136857**		
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**				SeqNo: **3531160**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	265.086	2.5	100.0	160.4	105	80	120				

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:				RunNo: **136857**		
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2019**				SeqNo: **3533275**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.654	0.50	10.00	0.8942	108	80	120				

Sample ID: **N037645-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:				RunNo: **136922**		
Client ID: **ZZZZZZ**	Batch ID: **75482**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/10/2019**				SeqNo: **3534321**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	265.727	2.5	10.00	259.6	61.4	80	120				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Others ✓ (Specify: RWQCB)
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RWQCB ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled ✓; 3. Container Intact ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9617-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		Global ID:

Signature: Date: 9/25/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Project Name: PG&E Topock - GMP
Project Number: 30019131

Sampled By: Nara Tej
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for
Signature: 9/25/2019

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Temp: 4.1°C

Courier: ASTET
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037646-01	MW-38S-Q319	9/25/2019	9:26		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-62-110-Q319	9/25/2019	15:40		X		X	X	X	X	X	X		X						E	4	P	BNS	
3																					E	4	P	BNS	
4																					E	4	P	BNS	
5																					E	4	P	BNS	
6																					E	4	P	BNS	
7																					E	4	P	BNS	
8																					E	5	P	BNS	
9																					E	1	P	B	
10																					E	4	P	BNS	

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Nara Tej	9/25/19 1630	JULIA BUNDAKIAN	9/25/19 1630
JULIA BUNDAKIAN	9/25/19 1902	JULIA BUNDAKIAN	9/25/19 1902

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/25/2019	Workorder:	N037646
Rep sample Temp (Deg C):	4.1	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 9/27/2019

Reviewed By: LG 100819

ASSET Laboratories

WORK ORDER Summary

26-Sep-19

WorkOrder: N037646

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/25/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037646-001A	MW-38S-Q319	9/25/2019 9:26:00 AM	10/9/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037646-001B			10/9/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037646-001C			10/9/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037646-001D			10/9/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037646-002A	MW-62-110-Q319	9/25/2019 3:40:00 PM	10/9/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037646-002B			10/9/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037646-002C			10/9/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037646-002D			10/9/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037646-003A	FOLDER	10/9/2019	10/9/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/9/2019		Folder	Folder	☐	☐	☐	LAB
			10/9/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037646

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1
Hanah Glodoviza	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136661 **Analyst:** LSR

ASSET #: N037646 **Date Analyzed:** 26-Sep

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/27/2019

2nd Level Reviewer: 10/14/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 9/25/19 1720
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CNW - 190724B	10.22 @ 22.0C	% Rec: (90-110%)
1410 |	| 190724 D	1434 @ 21.9C	
9985 |	| 190724 F	10230 @ 21.9C	
99999 |	| 190613A	101800 @ 21.8C	

	Sample ID	Matrix	Reading	Comments
1	ND37635--1A	H2O	1185 @ 19.7C	MB - 033
2	| 1ADUP	|	1183 @ 19.8C	
3				
4				
5				
6				
7				
8				
9	1413 uS/cm	CNW - 190726A	1463 @ 25.5C	
10	10000 |	| 190724G	10320 @ 25.6C	
Dup	99999 |	| 190524A	103100 @ 25.6C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 9/26/19 1330
Analyst: LSR

Julia Ramit 9/27/2019

Standard	Std ID	Reading	Comments
9.98 uS/cm	CNW - 190724B	10.06 @ 25.9C	% Rec: (90-110%)
1410 |	| D	1421 @ 25.9C	
9985 |	| F	10090 @ 25.9C	
99999 |	CNW - 190613A	99900 @ 26.0C	

	Sample ID	Matrix	Reading	Comments
1	ND37646--1D	H2O	1685 @ 24.6C	MB - 0.46
2	| 2D	|	12300 @ 24.3C	
3	| 2DDUP		12330 @ 24.2C	
4				
5				
6				
7				
8	1413 uS/cm	CNW - 190726A	1455 @ 25.2C	
9	10000 |	| 190724G	10350 @ 25.3C	
10	99999 |	| 190524A	101500 @ 25.3C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136743
ASSET #: N037646

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 10/2/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: HSG Date: 10/14/2019

2nd Level Reviewer: NS 10/14/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037646-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.8128 * 1$$

$$Cr^{+6}, \mu g/L = 4.8128$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 4.8}$$

ANALYSIS RUN LOG

INJECTION LOG: 190924A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	ICV	ICV	1	Hexavalent Chromium	09/24/19 10:59 AM	Reported
9	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/24/19 11:10 AM	Reported
10	ICB	ICB	1	Hexavalent Chromium	09/24/19 11:20 AM	Reported
11	MB-R136616	MBLK	1	Hexavalent Chromium	09/24/19 11:29 AM	Reported
12	LCS-R136616	LCS	1	Hexavalent Chromium	09/24/19 11:38 AM	Reported
13	N037597-001AMS	MS	5	Hexavalent Chromium	09/24/19 12:09 PM	Reported
14	N037597-002AMS	MS	1	Hexavalent Chromium	09/24/19 12:21 PM	Reported
15	N037597-003AMS	MS	1	Hexavalent Chromium	09/24/19 12:30 PM	Reported
16	N037597-004AMS	MS	1	Hexavalent Chromium	09/24/19 12:40 PM	Reported
17	N037597-001A	SAMP	5	Hexavalent Chromium	09/24/19 1:57 PM	Reported
18	N037597-002A	SAMP	1	Hexavalent Chromium	09/24/19 2:08 PM	Reported
19	N037597-003A	SAMP	1	Hexavalent Chromium	09/24/19 2:18 PM	Reported
20	N037597-004A	SAMP	1	Hexavalent Chromium	09/24/19 2:27 PM	Reported
21	CCV-1	CCV1	1	Hexavalent Chromium	09/24/19 2:37 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	09/24/19 2:46 PM	Reported
23	N037599-001A	SAMP	20	Hexavalent Chromium	09/24/19 3:01 PM	Not Reported
24	N037597-002ADUP	DUP	1	Hexavalent Chromium	09/24/19 3:13 PM	Reported
25	N037597-003AMSD	MSD	1	Hexavalent Chromium	09/24/19 3:22 PM	Reported
26	N037599-001A	SAMP	500	Hexavalent Chromium	09/24/19 4:01 PM	Reported
27	N037599-001AMS	MS	500	Hexavalent Chromium	09/24/19 4:12 PM	Reported
28	CCV-2	CCV	1	Hexavalent Chromium	09/24/19 4:22 PM	Reported
29	CCB-2	CCB	1	Hexavalent Chromium	09/24/19 4:31 PM	Reported
30	BLANK	BLANK	1	Hexavalent Chromium	09/24/19 4:41 PM	Not Reported

10/1/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190924A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Sep/19 17:11:38**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	ICV,ICV,1,	9	1000	Unknown		09/24/2019 10:59	Finished	ICV @5ppb, IWST-190702B
9	PQL@0.2ppb,CCV2,1	10	1000	Unknown		09/24/2019 11:10	Finished	PQL @ 0.2ppb
10	ICB,ICB,1,	11	1000	Unknown		09/24/2019 11:20	Finished	CCB R190830A
11	MB-H2O,MBLK,1,	12	1000	Unknown		09/24/2019 11:29	Finished	MB R190830A
12	LCS-H2O,LCS,1,	13	1000	Unknown		09/24/2019 11:38	Finished	LCS @5ppb, IWST-190702B
13	N037597-001AMS,MS	14	1000	Unknown		09/24/2019 12:09	Finished	MS (1ppb), IWST-190702B,2>1
14	N037597-002AMS,MS	15	1000	Unknown		09/24/2019 12:21	Finished	MS (1ppb), IWST-190702B,10
15	N037597-003AMS,MS	16	1000	Unknown		09/24/2019 12:30	Finished	MS (1ppb), IWST-190702B,10
16	N037597-004AMS,MS	17	1000	Unknown		09/24/2019 12:40	Finished	MS (1ppb), IWST-190702B,10
17	N037597-001A,SAMP	19	1000	Unknown		09/24/2019 13:57	Finished	SAMP,2>10mL
18	N037597-002A,SAMP	20	1000	Unknown		09/24/2019 14:08	Finished	SAMP,10mL
19	N037597-003A,SAMP	21	1000	Unknown		09/24/2019 14:18	Finished	SAMP,10mL
20	N037597-004A,SAMP	22	1000	Unknown		09/24/2019 14:27	Finished	SAMP,10mL
21	CCV-2,CCV1,1,	23	1000	Unknown		09/24/2019 14:37	Finished	CCV @10ppb, IWST-190702A
22	CCB-2,CCB,1,	24	1000	Unknown		09/24/2019 14:46	Finished	CCB R190830A
23	N037599-001A,SAMP	26	1000	Unknown		09/24/2019 15:01	Finished	SAMP,0.5>10mL
24	N037597-002ADUP,D	27	1000	Unknown		09/24/2019 15:13	Finished	DUP,10mL
25	N037597-003AMSD,M	28	1000	Unknown		09/24/2019 15:22	Finished	
26	N037599-001A,SAMP	30	1000	Unknown		09/24/2019 16:01	Finished	SAMP,0.02>10mL
27	N037599-001AMS,MS	31	1000	Unknown		09/24/2019 16:12	Finished	MS (1ppb), IWST-190702B,0.0
28	CCV-3,CCV,1,	32	1000	Unknown		09/24/2019 16:22	Finished	CCV @5ppb, IWST-190702A
29	CCB-3,CCB,1,	33	1000	Unknown		09/24/2019 16:31	Finished	CCB R190830A
30	BLANK	34	1000	Unknown		09/24/2019 16:41	Finished	BLANK
31	SHUTDOWN	35	1000	Unknown		09/24/2019 16:50	Finished	
32	Eluent: R190924B	36	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190920B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 9:43 AM	Not Reported
9	CCV-1	CCV	1	Hexavalent Chromium	10/02/19 9:54 AM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/19 10:03 AM	Reported
11	CCB-1	CCB	1	Hexavalent Chromium	10/02/19 10:13 AM	Reported
12	MB-R136743	MBLK	1	Hexavalent Chromium	10/02/19 10:22 AM	Reported
13	LCS-R136743	LCS	1	Hexavalent Chromium	10/02/19 10:32 AM	Reported
14	N037645-001AMS	MS	1	Hexavalent Chromium	10/02/19 10:46 AM	Not Reported
15	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 10:57 AM	Not Reported
16	N037646-001AMS	MS	1	Hexavalent Chromium	10/02/19 11:06 AM	Reported
17	N037646-002AMS	MS	1	Hexavalent Chromium	10/02/19 11:16 AM	Not Reported
18	N037645-001A	SAMP	5	Hexavalent Chromium	10/02/19 11:31 AM	Reported
19	N037645-001AMS	MS	5	Hexavalent Chromium	10/02/19 11:42 AM	Reported
20	N037645-002A	SAMP	1	Hexavalent Chromium	10/02/19 11:52 AM	Reported
21	N037646-001A	SAMP	1	Hexavalent Chromium	10/02/19 12:01 PM	Reported
22	CCV-2	CCV1	1	Hexavalent Chromium	10/02/19 12:11 PM	Reported
23	CCB-2	CCB	1	Hexavalent Chromium	10/02/19 12:20 PM	Reported
24	N037646-002A	SAMP	5	Hexavalent Chromium	10/02/19 12:32 PM	Reported
25	N037646-002AMS	MS	5	Hexavalent Chromium	10/02/19 12:43 PM	Reported
26	N037666-001A	SAMP	50	Hexavalent Chromium	10/02/19 12:52 PM	Not Reported
27	N037666-001AMS	MS	50	Hexavalent Chromium	10/02/19 1:02 PM	Not Reported
28	N037666-002A	SAMP	20	Hexavalent Chromium	10/02/19 1:11 PM	Reported
29	N037666-002AMS	MS	20	Hexavalent Chromium	10/02/19 1:21 PM	Reported
30	N037666-003A	SAMP	50	Hexavalent Chromium	10/02/19 1:30 PM	Reported
31	N037666-003AMS	MS	50	Hexavalent Chromium	10/02/19 1:40 PM	Reported
32	N037666-004A	SAMP	50	Hexavalent Chromium	10/02/19 1:49 PM	Reported
33	N037666-004AMS	MS	50	Hexavalent Chromium	10/02/19 1:59 PM	Reported
34	CCV-3	CCV	1	Hexavalent Chromium	10/02/19 2:08 PM	Reported
35	CCB-3	CCB	1	Hexavalent Chromium	10/02/19 2:18 PM	Reported
36	N037666-005A	SAMP	1000	Hexavalent Chromium	10/02/19 2:27 PM	Reported
37	N037666-005AMS	MS	1000	Hexavalent Chromium	10/02/19 2:36 PM	Reported
38	N037666-006A	SAMP	1	Hexavalent Chromium	10/02/19 2:46 PM	Reported
39	N037666-006AMS	MS	1	Hexavalent Chromium	10/02/19 2:55 PM	Reported
40	N037666-007A	SAMP	1	Hexavalent Chromium	10/02/19 3:05 PM	Reported
41	N037666-007AMS	MS	1	Hexavalent Chromium	10/02/19 3:14 PM	Reported
42	N037666-001A	SAMP	10	Hexavalent Chromium	10/02/19 3:24 PM	Reported

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037666-001AMS	MS	10	Hexavalent Chromium	10/02/19 3:33 PM	Reported
44	N037666-002AMSD	MSD	20	Hexavalent Chromium	10/02/19 3:43 PM	Reported
45	N037666-001ADUP	DUP	10	Hexavalent Chromium	10/02/19 3:52 PM	Reported
46	CCV-4	CCV1	1	Hexavalent Chromium	10/02/19 4:02 PM	Reported
47	CCB-4	CCB	1	Hexavalent Chromium	10/02/19 4:11 PM	Reported
48	N037572-001A	SAMP	5	Hexavalent Chromium	10/02/19 4:21 PM	Not Reported
49	N037572-001AMS	MS	5	Hexavalent Chromium	10/02/19 4:30 PM	Not Reported
50	N037709-001AMS	MS	1	Hexavalent Chromium	10/02/19 4:40 PM	Not Reported
51	N037709-002AMS	MS	1	Hexavalent Chromium	10/02/19 4:49 PM	Not Reported
52	N037709-003AMS	MS	1	Hexavalent Chromium	10/02/19 4:58 PM	Not Reported
53	N037709-004AMS	MS	1	Hexavalent Chromium	10/02/19 5:08 PM	Reported
54	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 5:17 PM	Reported
55	N037709-001A	SAMP	20	Hexavalent Chromium	10/02/19 5:35 PM	Reported
56	N037709-001AMS	MS	20	Hexavalent Chromium	10/02/19 5:46 PM	Reported
57	N037709-002A	SAMP	10	Hexavalent Chromium	10/02/19 5:55 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	10/02/19 6:05 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	10/02/19 6:14 PM	Reported
60	N037709-002AMS	MS	10	Hexavalent Chromium	10/02/19 6:24 PM	Reported
61	N037709-003A	SAMP	5	Hexavalent Chromium	10/02/19 6:33 PM	Reported
62	N037709-003AMS	MS	5	Hexavalent Chromium	10/02/19 6:42 PM	Reported
63	N037709-004A	SAMP	1	Hexavalent Chromium	10/02/19 6:52 PM	Reported
64	CCV-6	CCV	1	Hexavalent Chromium	10/02/19 7:01 PM	Reported
65	CCB-6	CCB	1	Hexavalent Chromium	10/02/19 7:11 PM	Reported
66	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 7:20 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Oct/19 19:51:09**
No. of Injections:	**69**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	BLANK	1	1000	Unknown		10/02/2019 09:43	Finished	BLANK
9	CCV1,CCV,1,	2	1000	Unknown		10/02/2019 09:54	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/02/2019 10:03	Finished	PQL @ 0.2ppb
11	CCB1,CCB,1,	4	1000	Unknown		10/02/2019 10:13	Finished	CCB R190830A
12	MB-H2O,MBLK,1,	5	1000	Unknown		10/02/2019 10:22	Finished	MB R190830A
13	LCS-H2O,LCS,1,	6	1000	Unknown		10/02/2019 10:32	Finished	LCS @5ppb, IWST-190702B
14	N037645-001AMS,MS	8	1000	Unknown		10/02/2019 10:46	Finished	MS (1ppb), IWST-190702B,10
15	N037645-002AMS,MS	9	1000	Unknown		10/02/2019 10:57	Finished	MS (1ppb), IWST-190702B,10
16	N037646-001AMS,MS	10	1000	Unknown		10/02/2019 11:06	Finished	MS (5ppb), IWST-190702B,10
17	N037646-002AMS,MS	11	1000	Unknown		10/02/2019 11:16	Finished	MS (1ppb), IWST-190702B,10
18	N037645-001A,SAMP	13	1000	Unknown		10/02/2019 11:31	Finished	SAMP, 2>10 mL
19	N037645-001AMS,MS	14	1000	Unknown		10/02/2019 11:42	Finished	MS (1ppb), IWST-190702B,2>1
20	N037645-002A,SAMP	15	1000	Unknown		10/02/2019 11:52	Finished	
21	N037646-001A,SAMP	16	1000	Unknown		10/02/2019 12:01	Finished	
22	CCV-2,CCV1,1,	17	1000	Unknown		10/02/2019 12:11	Finished	CCV @10ppb, IWST-190702A
23	CCB-2,CCB,1,	18	1000	Unknown		10/02/2019 12:20	Finished	CCB R190830A
24	N037646-002A,SAMP	19	1000	Unknown		10/02/2019 12:32	Finished	
25	N037646-002AMS,MS	20	1000	Unknown		10/02/2019 12:43	Finished	
26	N037666-001A,SAMP	21	1000	Unknown		10/02/2019 12:52	Finished	
27	N037666-001AMS,MS	22	1000	Unknown		10/02/2019 13:02	Finished	
28	N037666-002A,SAMP	23	1000	Unknown		10/02/2019 13:11	Finished	
29	N037666-002AMS,MS	24	1000	Unknown		10/02/2019 13:21	Finished	
30	N037666-003A,SAMP	25	1000	Unknown		10/02/2019 13:30	Finished	
31	N037666-003AMS,MS	26	1000	Unknown		10/02/2019 13:40	Finished	
32	N037666-004A,SAMP	27	1000	Unknown		10/02/2019 13:49	Finished	
33	N037666-004AMS,MS	28	1000	Unknown		10/02/2019 13:59	Finished	
34	CCV-3,CCV,1,	29	1000	Unknown		10/02/2019 14:08	Finished	CCV @5ppb, IWST-190702A
35	CCB-3,CCB,1,	30	1000	Unknown		10/02/2019 14:18	Finished	CCB R190830A
36	N037666-005A,SAMP	31	1000	Unknown		10/02/2019 14:27	Finished	
37	N037666-005AMS,MS	32	1000	Unknown		10/02/2019 14:36	Finished	
38	N037666-006A,SAMP	33	1000	Unknown		10/02/2019 14:46	Finished	
39	N037666-006AMS,MS	34	1000	Unknown		10/02/2019 14:55	Finished	
40	N037666-007A,SAMP	35	1000	Unknown		10/02/2019 15:05	Finished	
41	N037666-007AMS,MS	36	1000	Unknown		10/02/2019 15:14	Finished	
42	N037666-001A,SAMP	37	1000	Unknown		10/02/2019 15:24	Finished	
43	N037666-001AMS,MS	38	1000	Unknown		10/02/2019 15:33	Finished	
44	N037666-002AMSD,M	39	1000	Unknown		10/02/2019 15:43	Finished	
45	N037666-001ADUP,D	40	1000	Unknown		10/02/2019 15:52	Finished	
46	CCV-4,CCV1,1,	41	1000	Unknown		10/02/2019 16:02	Finished	CCV @10ppb, IWST-190702A
47	CCB-4,CCB,1,	42	1000	Unknown		10/02/2019 16:11	Finished	CCB R190830A
48	N037572-001A,SAMP	43	1000	Unknown		10/02/2019 16:21	Finished	
49	N037572-001AMS,MS	44	1000	Unknown		10/02/2019 16:30	Finished	
50	N037709-001AMS,MS	45	1000	Unknown		10/02/2019 16:40	Finished	
51	N037709-002AMS,MS	46	1000	Unknown		10/02/2019 16:49	Finished	
52	N037709-003AMS,MS	47	1000	Unknown		10/02/2019 16:58	Finished	
53	N037709-004AMS,MS	48	1000	Unknown		10/02/2019 17:08	Finished	
54	N037645-002AMS,MS	49	1000	Unknown		10/02/2019 17:17	Finished	
55	N037709-001A,SAMP	1	1000	Unknown		10/02/2019 17:35	Finished	
56	N037709-001AMS,MS	2	1000	Unknown		10/02/2019 17:46	Finished	
57	N037709-002A,SAMP	3	1000	Unknown		10/02/2019 17:55	Finished	
58	CCV-5,CCV,1,	4	1000	Unknown		10/02/2019 18:05	Finished	CCV @5ppb, IWST-190702A
59	CCB-5,CCB,1,	5	1000	Unknown		10/02/2019 18:14	Finished	CCB R190830A
60	N037709-002AMS,MS	6	1000	Unknown		10/02/2019 18:24	Finished	

61	N037709-003A,SAMP	7	1000	Unknown		10/02/2019 18:33	Finished	
62	N037709-003AMS,MS	8	1000	Unknown		10/02/2019 18:42	Finished	
63	N037709-004A,SAMP	9	1000	Unknown		10/02/2019 18:52	Finished	
64	CCV-6,CCV,1,	10	1000	Unknown		10/02/2019 19:01	Finished	CCV @10ppb, IWST-190702A
65	CCB-6,CCB,1,	11	1000	Unknown		10/02/2019 19:11	Finished	CCB R190830A
66	BLANK	12	1000	Unknown		10/02/2019 19:20	Finished	BLANK
67	SHUTDOWN	13	1000	Unknown		10/02/2019 19:30	Finished	
68	Eluent: R190930D	14	1000	Unknown		n.a.	Finished	Eluent
69	PCR: R190930E	15	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Sample Preparation

Date Prepared: 9/26/19
Time Prepared: 0900
Prepared By: HSG

SLOPE: 98.9%
pH 4: 4.02
7: 7.01
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190926A
NH4OH + NH4SO4 buffer: R190830A
GN NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037647-1A	8.77	9.33	~250mL	~250mL	10 drops GN	NaOH
2)	-2A	9.36	–				
3)	-3A	9.39	–				
4)	-4A	9.49	–				
5)	-5A	9.36	–				
6)	-6A	9.43	–				
7)	-7A	9.41	–				
8)	-8A	9.49	–				
9)	-9A	9.48	–				
10)	-10A	9.35	–				
11)	-11A	9.52	–				
12)	-12A	9.52	–				
13)	-13A	9.38	–				
14)	-14A	9.40	–				
15)	-15A	9.36	–				

Sample Preparation

Date Prepared: 9/26/19
Time Prepared: 0900
Prepared By: HSG

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: R190926A
NH4OH + NH4SO4 buffer: R190830A
GN NaOH: R190722A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037645-1A	9.39	–	~250 mL	~250 mL		
2)	2A	9.37	–				
3)	N037646-1A	9.38	–				
4)	2A	9.30	–				
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 9/24/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0583	0.2636	1.3281	2.6480	4.1596	5.4105	0.9995

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ICV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.889	0.20	5.000	0	97.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.194	0.20	0.2000	0	96.9	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.061	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.221	0.20	0.2000	0	110	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.987	0.20	10.00	0	99.9	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.016	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.830	0.20	10.00	0	98.3	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.992	0.20	5.000	0	99.8	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.859	0.20	10.00	0	98.6	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ICB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	

Average	4.747
Actual RT Window	4.667 - 4.827
Applied RT Window	4.547 - 4.947

MB-R136743	N.A.	N.A.
LCS-R136743	4.731	PASS
N037645-001AMS	N.A.	N.A.
N037645-002AMS	4.731	PASS
N037646-001AMS	4.698	PASS
N037646-002AMS	4.506	FAIL
N037645-001A	N.A.	N.A.
N037645-001AMS	4.665	PASS
N037645-002A	N.A.	N.A.
N037646-001A	4.715	PASS
N037646-002A	N.A.	N.A.
N037646-002AMS	4.698	PASS
N037666-001A	4.731	PASS
N037666-001AMS	4.731	PASS
N037666-002A	4.731	PASS
N037666-002AMS	4.731	PASS
N037666-003A	4.731	PASS
N037666-003AMS	4.731	PASS
N037666-004A	4.731	PASS
N037666-004AMS	4.731	PASS
N037666-005A	4.731	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	
Average	4.747	
Actual RT Window	4.667 - 4.827	
Applied RT Window	4.547 - 4.947	
N037666-005AMS	4.731	PASS
N037666-006A	4.648	PASS
N037666-006AMS	4.648	PASS
N037666-007A	4.640	PASS
N037666-007AMS	4.648	PASS
N037666-001A	4.731	PASS
N037666-001AMS	4.731	PASS
N037666-002AMSD	4.731	PASS
N037666-001ADUP	4.731	PASS
N037572-001A	4.706	PASS
N037572-001AMS	4.715	PASS
N037709-001AMS	4.698	PASS
N037709-002AMS	4.706	PASS
N037709-003AMS	4.715	PASS
N037709-004AMS	4.748	PASS
N037645-002AMS	4.748	PASS
N037709-001A	4.756	PASS
N037709-001AMS	4.756	PASS
N037709-002A	4.756	PASS
N037709-002AMS	4.773	PASS
N037709-003A	4.773	PASS
N037709-003AMS	4.781	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	
Average	4.747	
Actual RT Window	4.667 - 4.827	
Applied RT Window	4.547 - 4.947	
N037709-004A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190924A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	ICV	ICV	1	Hexavalent Chromium	09/24/19 10:59 AM	Reported
9	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/24/19 11:10 AM	Reported
10	ICB	ICB	1	Hexavalent Chromium	09/24/19 11:20 AM	Reported
11	MB-R136616	MBLK	1	Hexavalent Chromium	09/24/19 11:29 AM	Reported
12	LCS-R136616	LCS	1	Hexavalent Chromium	09/24/19 11:38 AM	Reported
13	N037597-001AMS	MS	5	Hexavalent Chromium	09/24/19 12:09 PM	Reported
14	N037597-002AMS	MS	1	Hexavalent Chromium	09/24/19 12:21 PM	Reported
15	N037597-003AMS	MS	1	Hexavalent Chromium	09/24/19 12:30 PM	Reported
16	N037597-004AMS	MS	1	Hexavalent Chromium	09/24/19 12:40 PM	Reported
17	N037597-001A	SAMP	5	Hexavalent Chromium	09/24/19 1:57 PM	Reported
18	N037597-002A	SAMP	1	Hexavalent Chromium	09/24/19 2:08 PM	Reported
19	N037597-003A	SAMP	1	Hexavalent Chromium	09/24/19 2:18 PM	Reported
20	N037597-004A	SAMP	1	Hexavalent Chromium	09/24/19 2:27 PM	Reported
21	CCV-1	CCV1	1	Hexavalent Chromium	09/24/19 2:37 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	09/24/19 2:46 PM	Reported
23	N037599-001A	SAMP	20	Hexavalent Chromium	09/24/19 3:01 PM	Not Reported
24	N037597-002ADUP	DUP	1	Hexavalent Chromium	09/24/19 3:13 PM	Reported
25	N037597-003AMSD	MSD	1	Hexavalent Chromium	09/24/19 3:22 PM	Reported
26	N037599-001A	SAMP	500	Hexavalent Chromium	09/24/19 4:01 PM	Reported
27	N037599-001AMS	MS	500	Hexavalent Chromium	09/24/19 4:12 PM	Reported
28	CCV-2	CCV	1	Hexavalent Chromium	09/24/19 4:22 PM	Reported
29	CCB-2	CCB	1	Hexavalent Chromium	09/24/19 4:31 PM	Reported
30	BLANK	BLANK	1	Hexavalent Chromium	09/24/19 4:41 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190924A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Sep/19 17:11:38**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

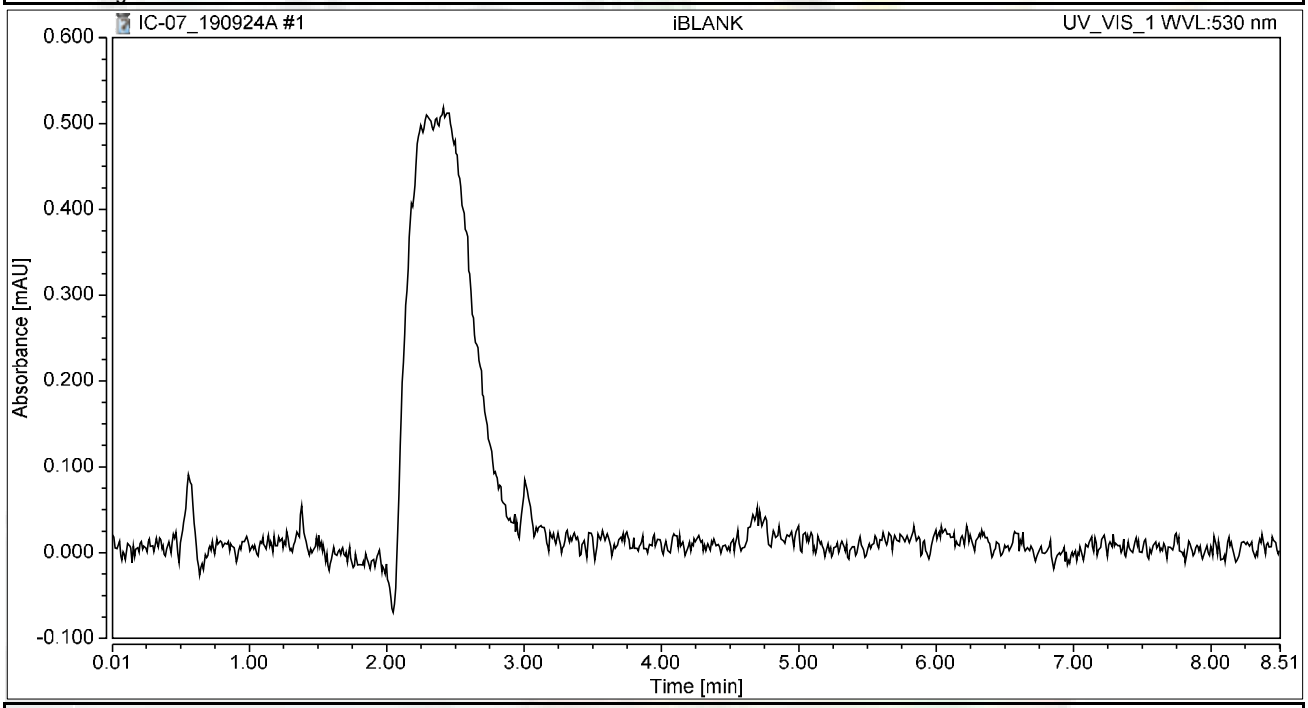
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	ICV,ICV,1,	9	1000	Unknown		09/24/2019 10:59	Finished	ICV @5ppb, IWST-190702B
9	PQL@0.2ppb,CCV2,1	10	1000	Unknown		09/24/2019 11:10	Finished	PQL @ 0.2ppb
10	ICB,ICB,1,	11	1000	Unknown		09/24/2019 11:20	Finished	CCB R190830A
11	MB-H2O,MBLK,1,	12	1000	Unknown		09/24/2019 11:29	Finished	MB R190830A
12	LCS-H2O,LCS,1,	13	1000	Unknown		09/24/2019 11:38	Finished	LCS @5ppb, IWST-190702B
13	N037597-001AMS,MS	14	1000	Unknown		09/24/2019 12:09	Finished	MS (1ppb), IWST-190702B,2>1
14	N037597-002AMS,MS	15	1000	Unknown		09/24/2019 12:21	Finished	MS (1ppb), IWST-190702B,10
15	N037597-003AMS,MS	16	1000	Unknown		09/24/2019 12:30	Finished	MS (1ppb), IWST-190702B,10
16	N037597-004AMS,MS	17	1000	Unknown		09/24/2019 12:40	Finished	MS (1ppb), IWST-190702B,10
17	N037597-001A,SAMP	19	1000	Unknown		09/24/2019 13:57	Finished	SAMP,2>10mL
18	N037597-002A,SAMP	20	1000	Unknown		09/24/2019 14:08	Finished	SAMP,10mL
19	N037597-003A,SAMP	21	1000	Unknown		09/24/2019 14:18	Finished	SAMP,10mL
20	N037597-004A,SAMP	22	1000	Unknown		09/24/2019 14:27	Finished	SAMP,10mL
21	CCV-2,CCV1,1,	23	1000	Unknown		09/24/2019 14:37	Finished	CCV @10ppb, IWST-190702A
22	CCB-2,CCB,1,	24	1000	Unknown		09/24/2019 14:46	Finished	CCB R190830A
23	N037599-001A,SAMP	26	1000	Unknown		09/24/2019 15:01	Finished	SAMP,0.5>10mL
24	N037597-002ADUP,D	27	1000	Unknown		09/24/2019 15:13	Finished	DUP,10mL
25	N037597-003AMSD,M	28	1000	Unknown		09/24/2019 15:22	Finished	
26	N037599-001A,SAMP	30	1000	Unknown		09/24/2019 16:01	Finished	SAMP,0.02>10mL
27	N037599-001AMS,MS	31	1000	Unknown		09/24/2019 16:12	Finished	MS (1ppb), IWST-190702B,0.0
28	CCV-3,CCV,1,	32	1000	Unknown		09/24/2019 16:22	Finished	CCV @5ppb, IWST-190702A
29	CCB-3,CCB,1,	33	1000	Unknown		09/24/2019 16:31	Finished	CCB R190830A
30	BLANK	34	1000	Unknown		09/24/2019 16:41	Finished	BLANK
31	SHUTDOWN	35	1000	Unknown		09/24/2019 16:50	Finished	
32	Eluent: R190924B	36	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190920B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

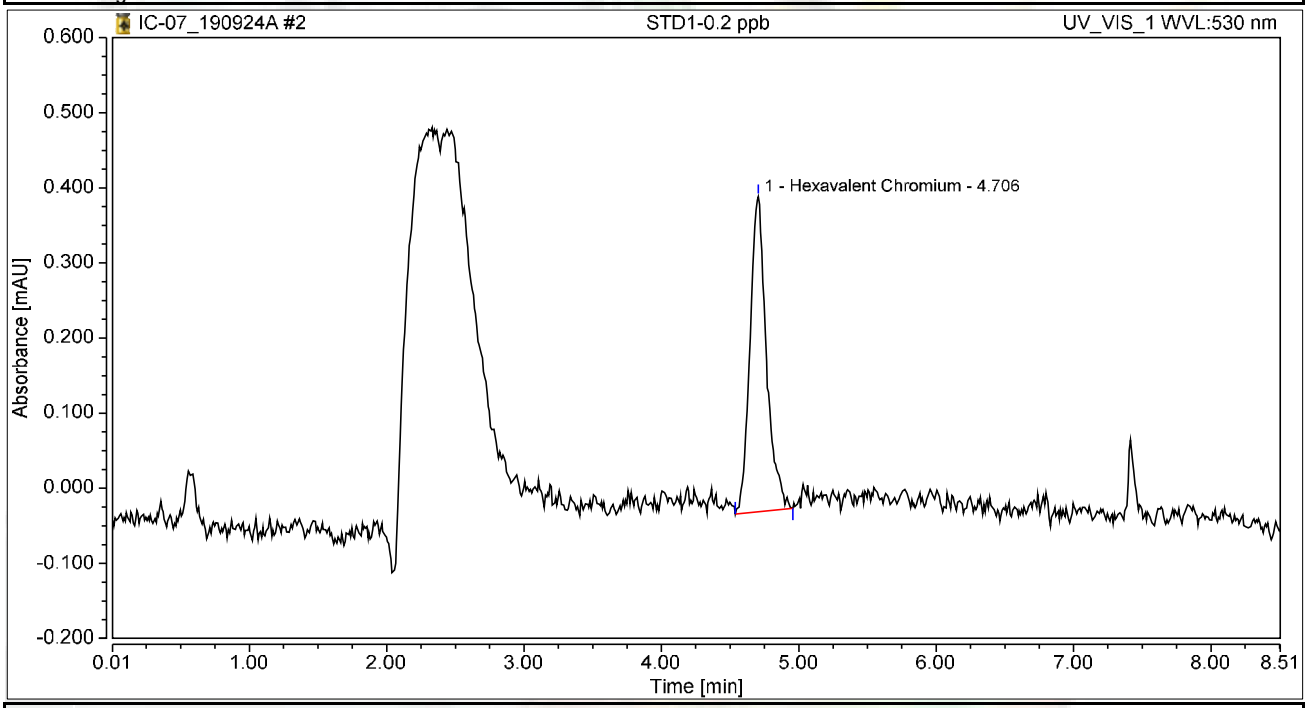
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

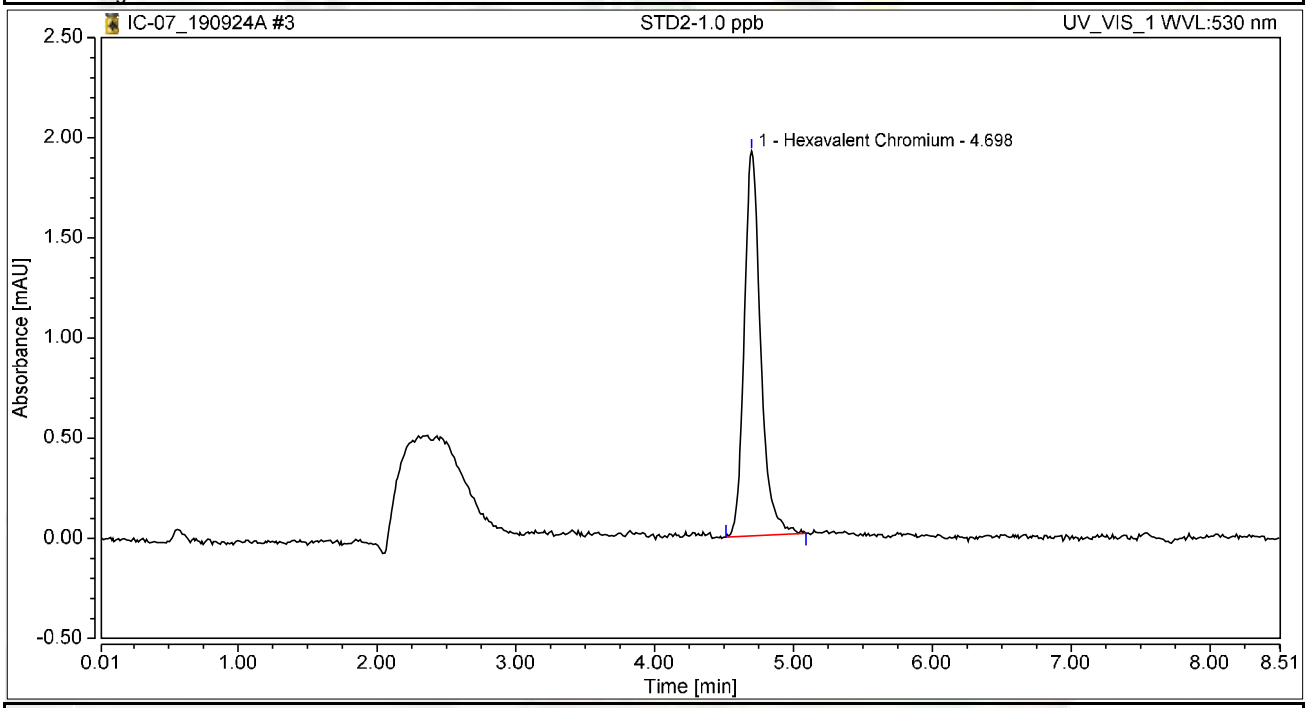
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.058	0.419	100.00	100.00	0.2147
Total:			**0.058**	**0.419**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

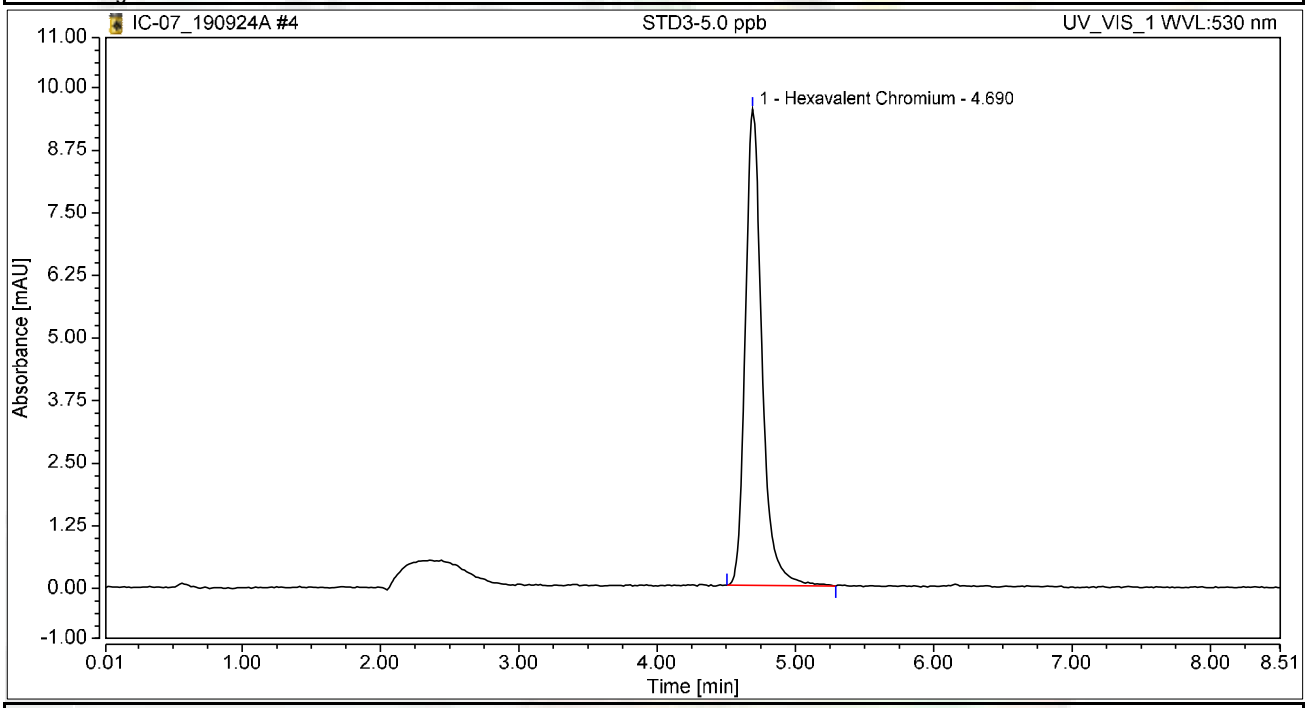
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.264	1.921	100.00	100.00	0.9706
Total:			**0.264**	**1.921**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

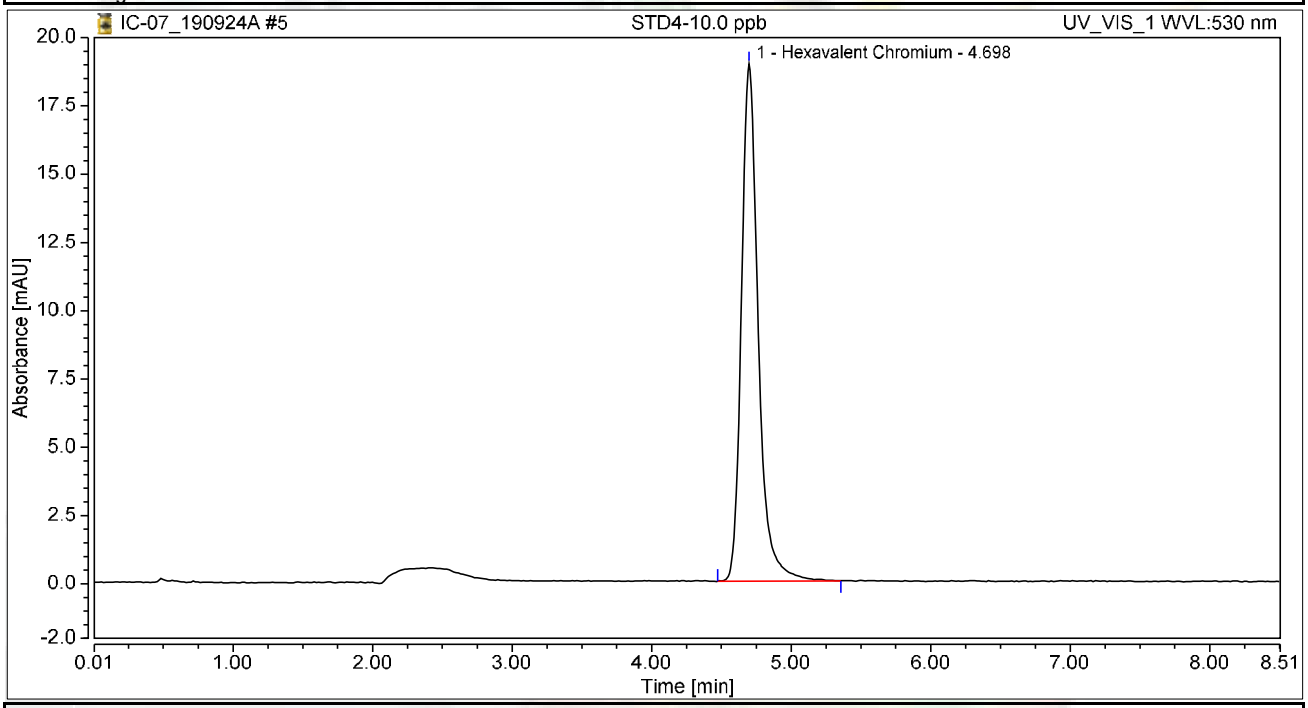
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.328	9.510	100.00	100.00	4.8896
Total:			**1.328**	**9.510**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

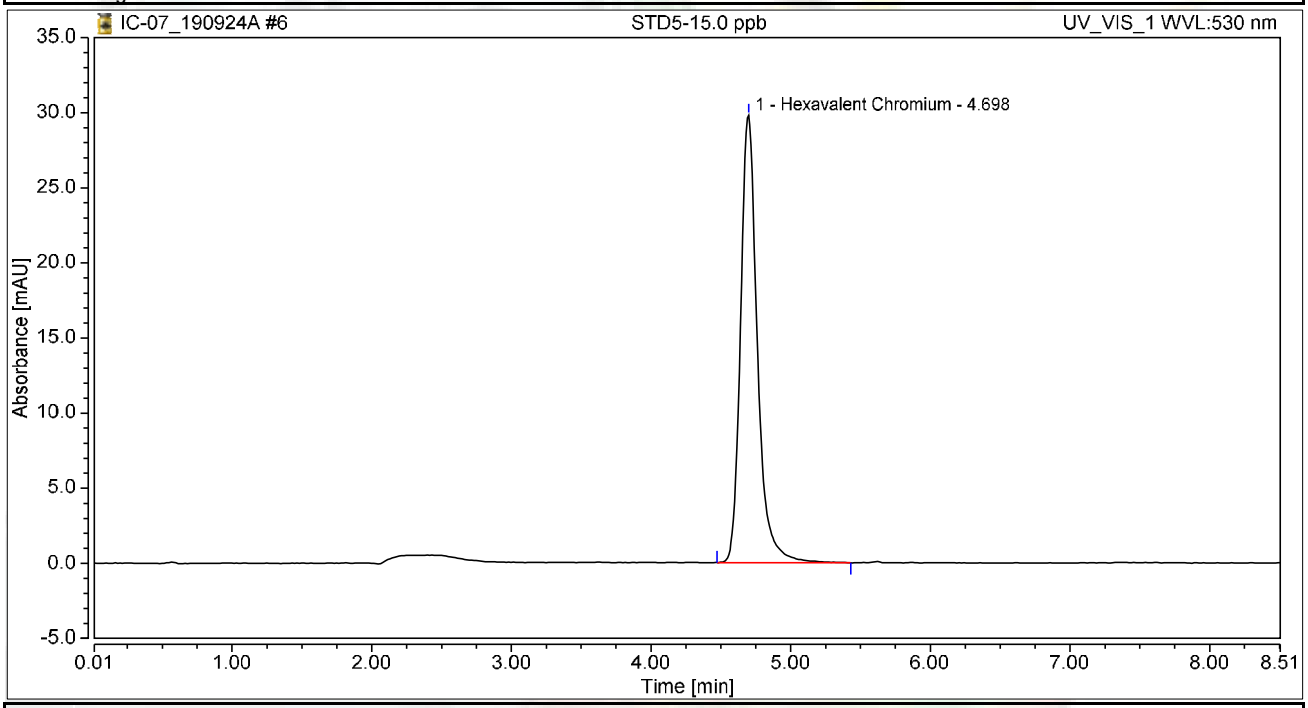
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.648	18.938	100.00	100.00	9.7487
Total:			**2.648**	**18.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

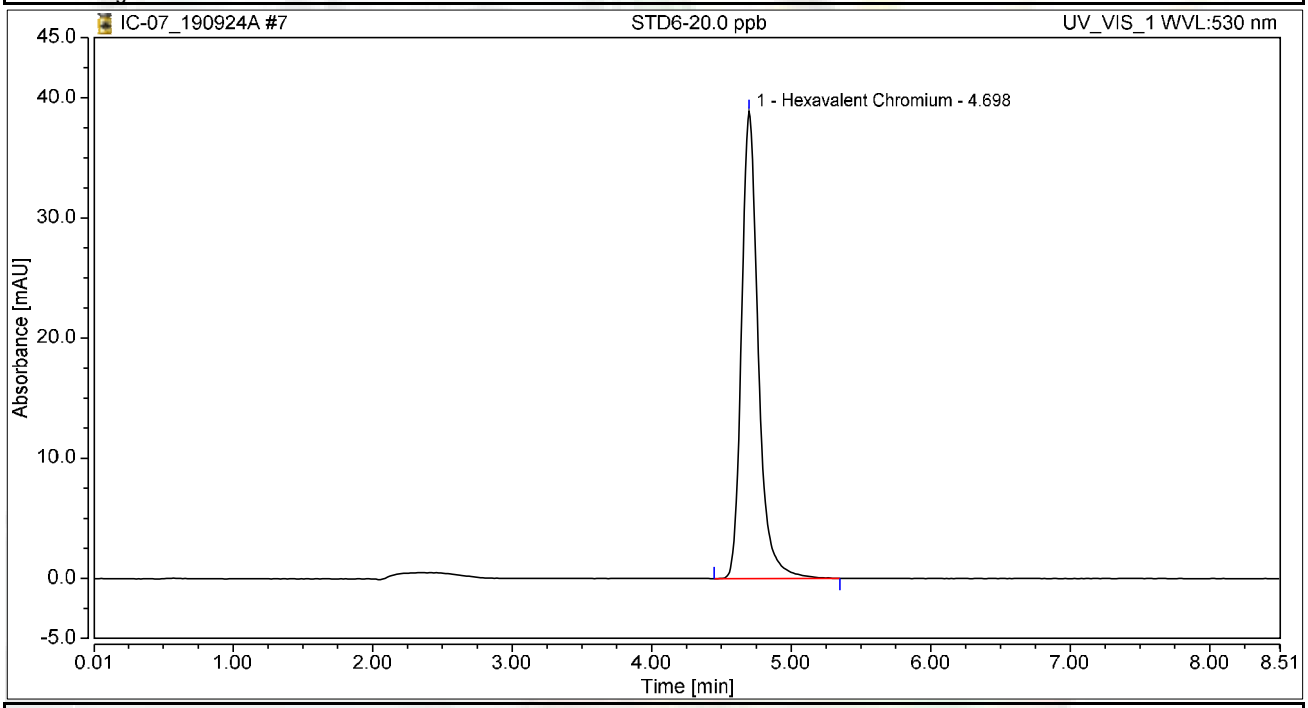
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	4.160	29.761	100.00	100.00	15.3139
Total:			**4.160**	**29.761**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:42**	*Sample Weight:*	**1.0000**

Chromatogram



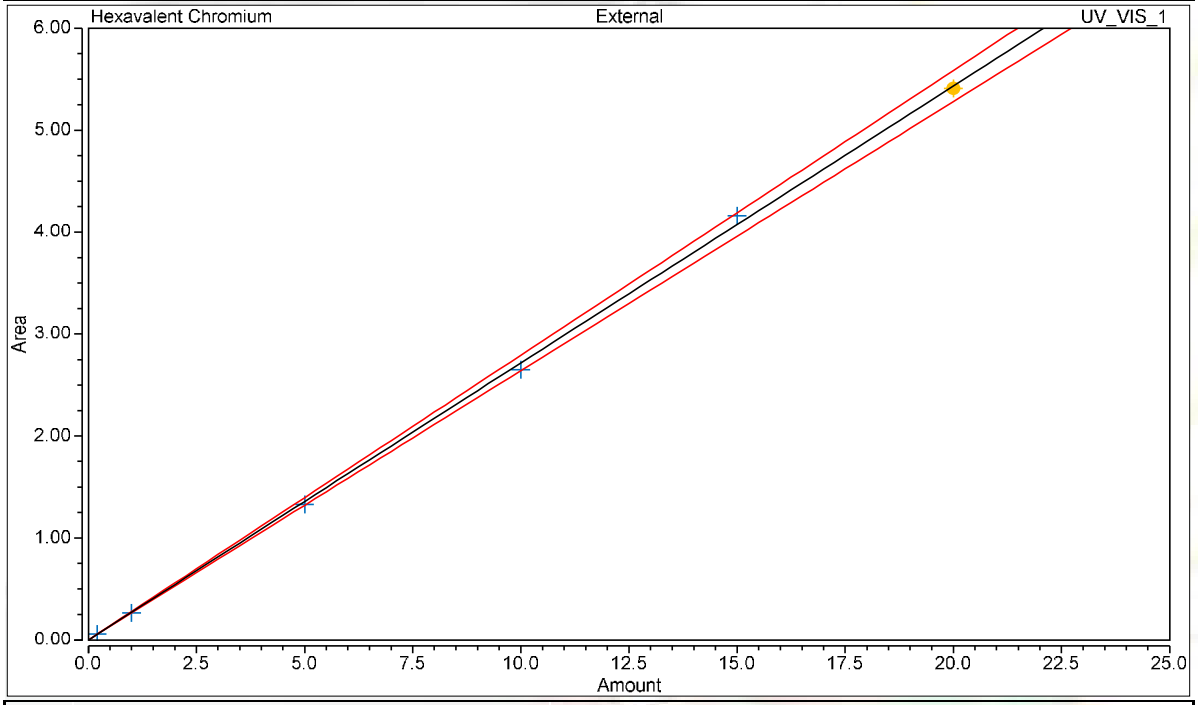
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.411	38.871	100.00	100.00	19.9192
Total:			**5.411**	**38.871**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2716
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99943

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

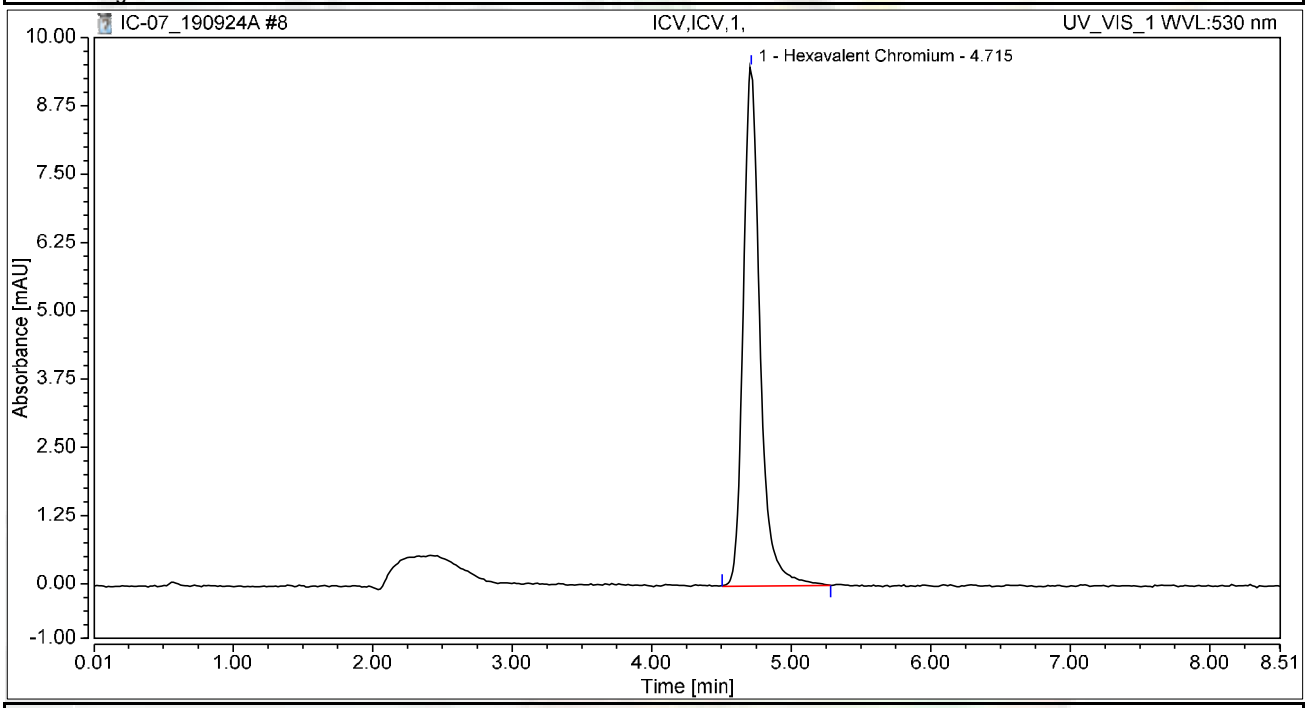
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
2	STD1-0.2 ppb	01	0.2000	0.0583	0.058	0.419
3	STD2-1.0 ppb	02	1.0000	0.2636	0.264	1.921
4	STD3-5.0 ppb	03	5.0000	1.3281	1.328	9.510
5	STD4-10.0 ppb	04	10.0000	2.6480	2.648	18.938
6	STD5-15.0 ppb	05	15.0000	4.1596	4.160	29.761
7	STD6-20.0 ppb	06	20.0000	5.4105	5.411	38.871

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

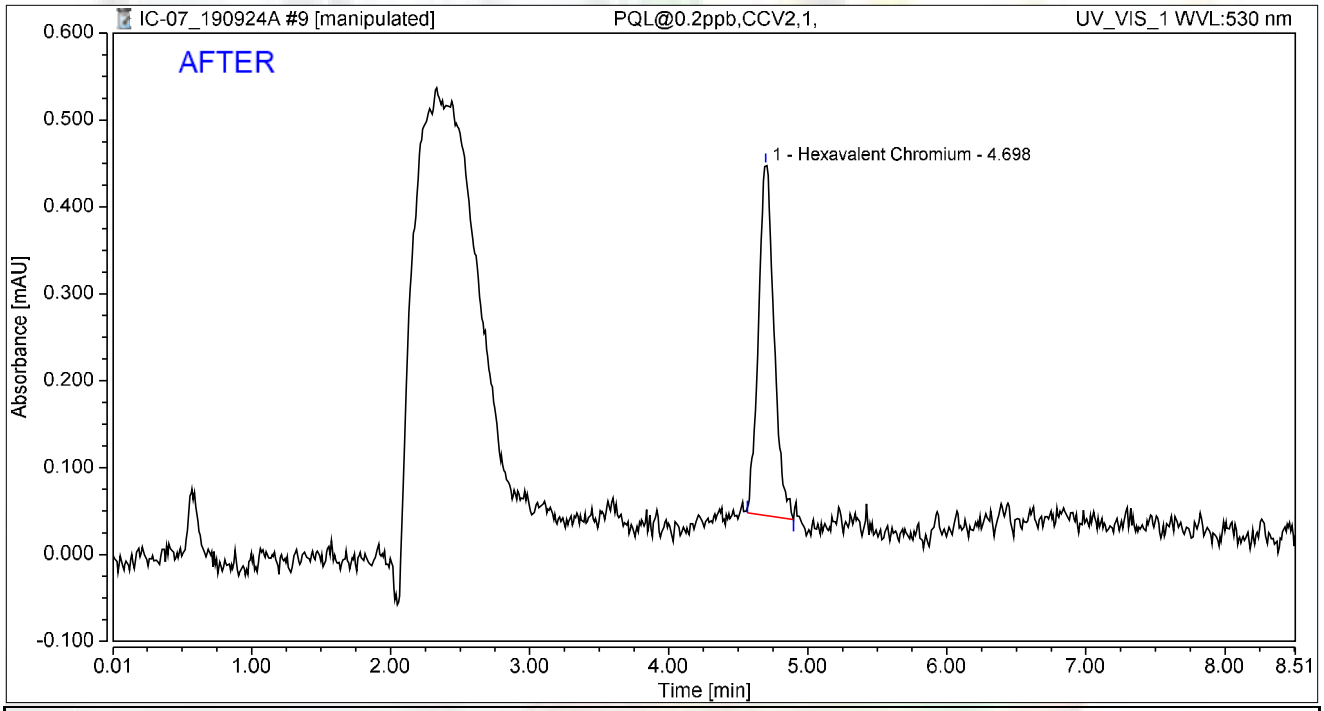
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.328	9.497	100.00	100.00	4.8891
Total:			**1.328**	**9.497**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.053	0.403	100.00	100.00	0.1937
Total:			**0.053**	**0.403**	**100.00**	**100.00**	

Reviewed by:
Nancy 9/26/2019

My first report/Integration

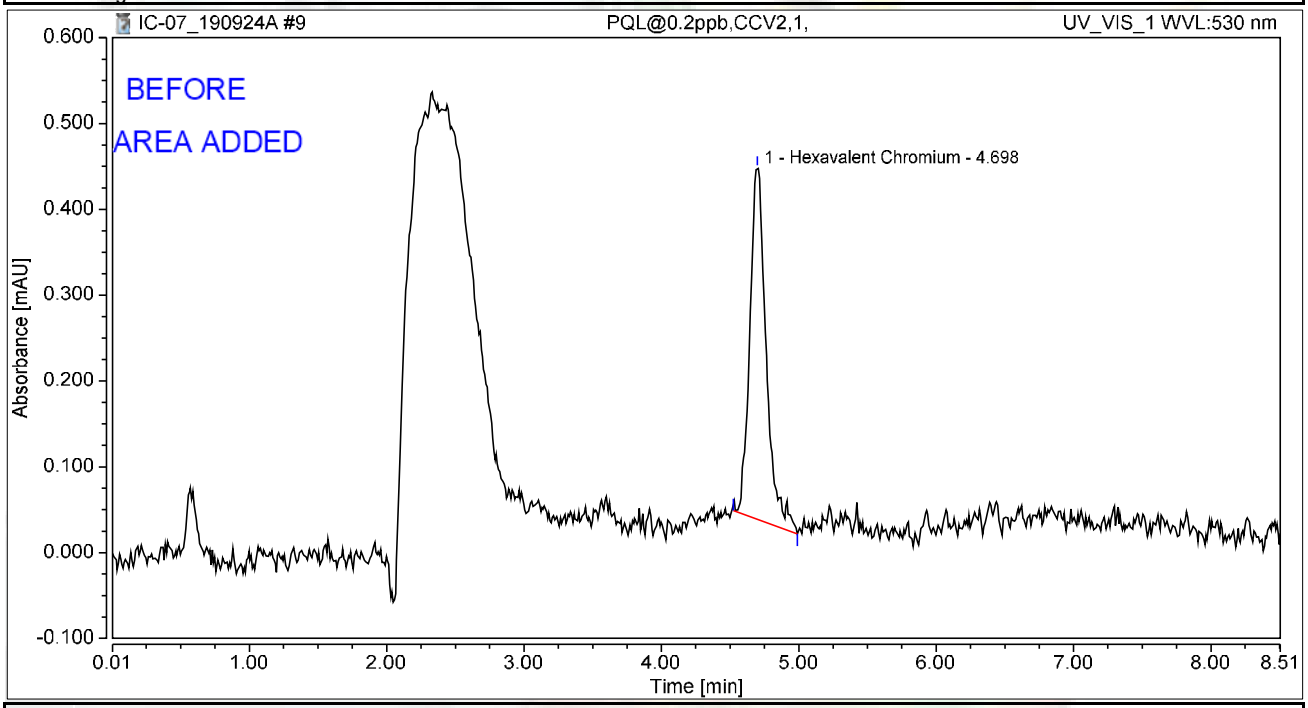
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

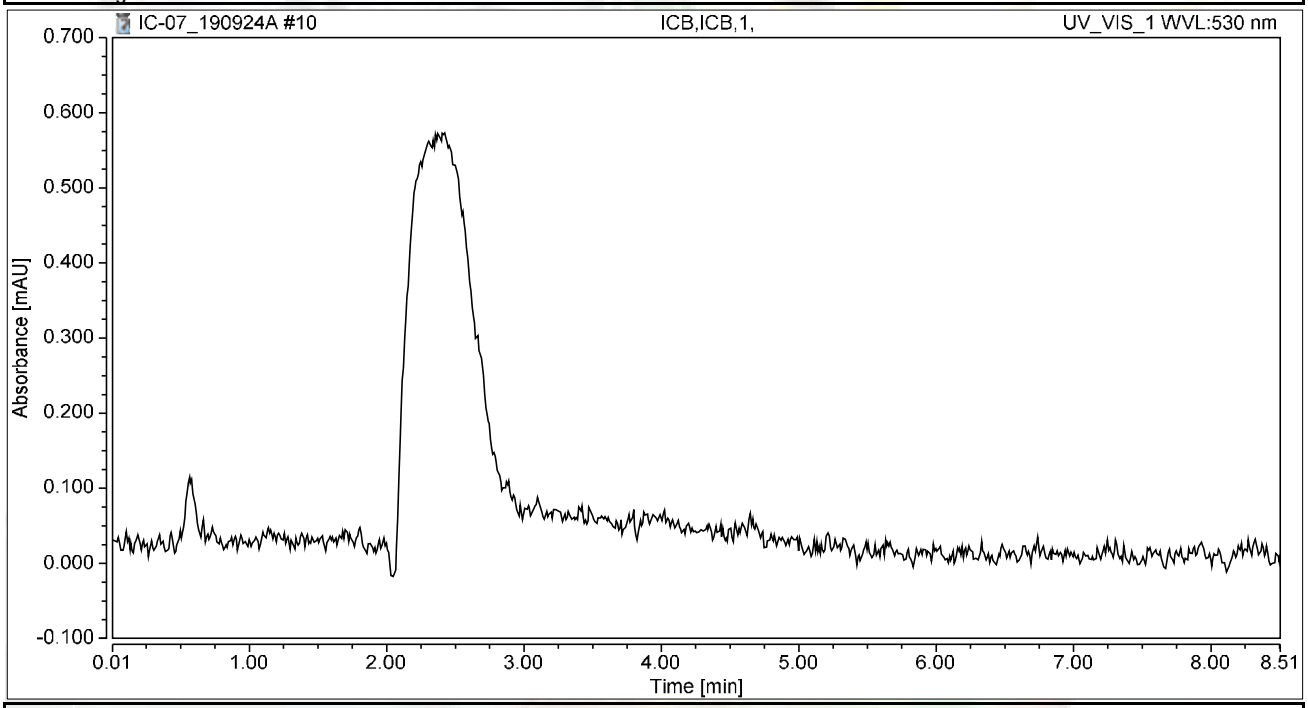
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.057	0.409	100.00	100.00	0.2088
Total:			**0.057**	**0.409**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 9:43 AM	Not Reported
9	CCV-1	CCV	1	Hexavalent Chromium	10/02/19 9:54 AM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/19 10:03 AM	Reported
11	CCB-1	CCB	1	Hexavalent Chromium	10/02/19 10:13 AM	Reported
12	MB-R136743	MBLK	1	Hexavalent Chromium	10/02/19 10:22 AM	Reported
13	LCS-R136743	LCS	1	Hexavalent Chromium	10/02/19 10:32 AM	Reported
14	N037645-001AMS	MS	1	Hexavalent Chromium	10/02/19 10:46 AM	Not Reported
15	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 10:57 AM	Not Reported
16	N037646-001AMS	MS	1	Hexavalent Chromium	10/02/19 11:06 AM	Reported
17	N037646-002AMS	MS	1	Hexavalent Chromium	10/02/19 11:16 AM	Not Reported
18	N037645-001A	SAMP	5	Hexavalent Chromium	10/02/19 11:31 AM	Reported
19	N037645-001AMS	MS	5	Hexavalent Chromium	10/02/19 11:42 AM	Reported
20	N037645-002A	SAMP	1	Hexavalent Chromium	10/02/19 11:52 AM	Reported
21	N037646-001A	SAMP	1	Hexavalent Chromium	10/02/19 12:01 PM	Reported
22	CCV-2	CCV1	1	Hexavalent Chromium	10/02/19 12:11 PM	Reported
23	CCB-2	CCB	1	Hexavalent Chromium	10/02/19 12:20 PM	Reported
24	N037646-002A	SAMP	5	Hexavalent Chromium	10/02/19 12:32 PM	Reported
25	N037646-002AMS	MS	5	Hexavalent Chromium	10/02/19 12:43 PM	Reported
26	N037666-001A	SAMP	50	Hexavalent Chromium	10/02/19 12:52 PM	Not Reported
27	N037666-001AMS	MS	50	Hexavalent Chromium	10/02/19 1:02 PM	Not Reported
28	N037666-002A	SAMP	20	Hexavalent Chromium	10/02/19 1:11 PM	Reported
29	N037666-002AMS	MS	20	Hexavalent Chromium	10/02/19 1:21 PM	Reported
30	N037666-003A	SAMP	50	Hexavalent Chromium	10/02/19 1:30 PM	Reported
31	N037666-003AMS	MS	50	Hexavalent Chromium	10/02/19 1:40 PM	Reported
32	N037666-004A	SAMP	50	Hexavalent Chromium	10/02/19 1:49 PM	Reported
33	N037666-004AMS	MS	50	Hexavalent Chromium	10/02/19 1:59 PM	Reported
34	CCV-3	CCV	1	Hexavalent Chromium	10/02/19 2:08 PM	Reported
35	CCB-3	CCB	1	Hexavalent Chromium	10/02/19 2:18 PM	Reported
36	N037666-005A	SAMP	1000	Hexavalent Chromium	10/02/19 2:27 PM	Reported
37	N037666-005AMS	MS	1000	Hexavalent Chromium	10/02/19 2:36 PM	Reported
38	N037666-006A	SAMP	1	Hexavalent Chromium	10/02/19 2:46 PM	Reported
39	N037666-006AMS	MS	1	Hexavalent Chromium	10/02/19 2:55 PM	Reported
40	N037666-007A	SAMP	1	Hexavalent Chromium	10/02/19 3:05 PM	Reported
41	N037666-007AMS	MS	1	Hexavalent Chromium	10/02/19 3:14 PM	Reported
42	N037666-001A	SAMP	10	Hexavalent Chromium	10/02/19 3:24 PM	Reported

10/14/2019

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037666-001AMS	MS	10	Hexavalent Chromium	10/02/19 3:33 PM	Reported
44	N037666-002AMSD	MSD	20	Hexavalent Chromium	10/02/19 3:43 PM	Reported
45	N037666-001ADUP	DUP	10	Hexavalent Chromium	10/02/19 3:52 PM	Reported
46	CCV-4	CCV1	1	Hexavalent Chromium	10/02/19 4:02 PM	Reported
47	CCB-4	CCB	1	Hexavalent Chromium	10/02/19 4:11 PM	Reported
48	N037572-001A	SAMP	5	Hexavalent Chromium	10/02/19 4:21 PM	Not Reported
49	N037572-001AMS	MS	5	Hexavalent Chromium	10/02/19 4:30 PM	Not Reported
50	N037709-001AMS	MS	1	Hexavalent Chromium	10/02/19 4:40 PM	Not Reported
51	N037709-002AMS	MS	1	Hexavalent Chromium	10/02/19 4:49 PM	Not Reported
52	N037709-003AMS	MS	1	Hexavalent Chromium	10/02/19 4:58 PM	Not Reported
53	N037709-004AMS	MS	1	Hexavalent Chromium	10/02/19 5:08 PM	Reported
54	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 5:17 PM	Reported
55	N037709-001A	SAMP	20	Hexavalent Chromium	10/02/19 5:35 PM	Reported
56	N037709-001AMS	MS	20	Hexavalent Chromium	10/02/19 5:46 PM	Reported
57	N037709-002A	SAMP	10	Hexavalent Chromium	10/02/19 5:55 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	10/02/19 6:05 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	10/02/19 6:14 PM	Reported
60	N037709-002AMS	MS	10	Hexavalent Chromium	10/02/19 6:24 PM	Reported
61	N037709-003A	SAMP	5	Hexavalent Chromium	10/02/19 6:33 PM	Reported
62	N037709-003AMS	MS	5	Hexavalent Chromium	10/02/19 6:42 PM	Reported
63	N037709-004A	SAMP	1	Hexavalent Chromium	10/02/19 6:52 PM	Reported
64	CCV-6	CCV	1	Hexavalent Chromium	10/02/19 7:01 PM	Reported
65	CCB-6	CCB	1	Hexavalent Chromium	10/02/19 7:11 PM	Reported
66	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 7:20 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Oct/19 19:51:09**
No. of Injections:	**69**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	BLANK	1	1000	Unknown		10/02/2019 09:43	Finished	BLANK
9	CCV1,CCV,1,	2	1000	Unknown		10/02/2019 09:54	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/02/2019 10:03	Finished	PQL @ 0.2ppb
11	CCB1,CCB,1,	4	1000	Unknown		10/02/2019 10:13	Finished	CCB R190830A
12	MB-H2O,MBLK,1,	5	1000	Unknown		10/02/2019 10:22	Finished	MB R190830A
13	LCS-H2O,LCS,1,	6	1000	Unknown		10/02/2019 10:32	Finished	LCS @5ppb, IWST-190702B
14	N037645-001AMS,MS	8	1000	Unknown		10/02/2019 10:46	Finished	MS (1ppb), IWST-190702B,10
15	N037645-002AMS,MS	9	1000	Unknown		10/02/2019 10:57	Finished	MS (1ppb), IWST-190702B,10
16	N037646-001AMS,MS	10	1000	Unknown		10/02/2019 11:06	Finished	MS (5ppb), IWST-190702B,10
17	N037646-002AMS,MS	11	1000	Unknown		10/02/2019 11:16	Finished	MS (1ppb), IWST-190702B,10
18	N037645-001A,SAMP	13	1000	Unknown		10/02/2019 11:31	Finished	SAMP, 2>10 mL
19	N037645-001AMS,MS	14	1000	Unknown		10/02/2019 11:42	Finished	MS (1ppb), IWST-190702B,2>1
20	N037645-002A,SAMP	15	1000	Unknown		10/02/2019 11:52	Finished	
21	N037646-001A,SAMP	16	1000	Unknown		10/02/2019 12:01	Finished	
22	CCV-2,CCV1,1,	17	1000	Unknown		10/02/2019 12:11	Finished	CCV @10ppb, IWST-190702A
23	CCB-2,CCB,1,	18	1000	Unknown		10/02/2019 12:20	Finished	CCB R190830A
24	N037646-002A,SAMP	19	1000	Unknown		10/02/2019 12:32	Finished	
25	N037646-002AMS,MS	20	1000	Unknown		10/02/2019 12:43	Finished	
26	N037666-001A,SAMP	21	1000	Unknown		10/02/2019 12:52	Finished	
27	N037666-001AMS,MS	22	1000	Unknown		10/02/2019 13:02	Finished	
28	N037666-002A,SAMP	23	1000	Unknown		10/02/2019 13:11	Finished	
29	N037666-002AMS,MS	24	1000	Unknown		10/02/2019 13:21	Finished	
30	N037666-003A,SAMP	25	1000	Unknown		10/02/2019 13:30	Finished	
31	N037666-003AMS,MS	26	1000	Unknown		10/02/2019 13:40	Finished	
32	N037666-004A,SAMP	27	1000	Unknown		10/02/2019 13:49	Finished	
33	N037666-004AMS,MS	28	1000	Unknown		10/02/2019 13:59	Finished	
34	CCV-3,CCV,1,	29	1000	Unknown		10/02/2019 14:08	Finished	CCV @5ppb, IWST-190702A
35	CCB-3,CCB,1,	30	1000	Unknown		10/02/2019 14:18	Finished	CCB R190830A
36	N037666-005A,SAMP	31	1000	Unknown		10/02/2019 14:27	Finished	
37	N037666-005AMS,MS	32	1000	Unknown		10/02/2019 14:36	Finished	
38	N037666-006A,SAMP	33	1000	Unknown		10/02/2019 14:46	Finished	
39	N037666-006AMS,MS	34	1000	Unknown		10/02/2019 14:55	Finished	
40	N037666-007A,SAMP	35	1000	Unknown		10/02/2019 15:05	Finished	
41	N037666-007AMS,MS	36	1000	Unknown		10/02/2019 15:14	Finished	
42	N037666-001A,SAMP	37	1000	Unknown		10/02/2019 15:24	Finished	
43	N037666-001AMS,MS	38	1000	Unknown		10/02/2019 15:33	Finished	
44	N037666-002AMSD,M	39	1000	Unknown		10/02/2019 15:43	Finished	
45	N037666-001ADUP,D	40	1000	Unknown		10/02/2019 15:52	Finished	
46	CCV-4,CCV1,1,	41	1000	Unknown		10/02/2019 16:02	Finished	CCV @10ppb, IWST-190702A
47	CCB-4,CCB,1,	42	1000	Unknown		10/02/2019 16:11	Finished	CCB R190830A
48	N037572-001A,SAMP	43	1000	Unknown		10/02/2019 16:21	Finished	
49	N037572-001AMS,MS	44	1000	Unknown		10/02/2019 16:30	Finished	
50	N037709-001AMS,MS	45	1000	Unknown		10/02/2019 16:40	Finished	
51	N037709-002AMS,MS	46	1000	Unknown		10/02/2019 16:49	Finished	
52	N037709-003AMS,MS	47	1000	Unknown		10/02/2019 16:58	Finished	
53	N037709-004AMS,MS	48	1000	Unknown		10/02/2019 17:08	Finished	
54	N037645-002AMS,MS	49	1000	Unknown		10/02/2019 17:17	Finished	
55	N037709-001A,SAMP	1	1000	Unknown		10/02/2019 17:35	Finished	
56	N037709-001AMS,MS	2	1000	Unknown		10/02/2019 17:46	Finished	
57	N037709-002A,SAMP	3	1000	Unknown		10/02/2019 17:55	Finished	
58	CCV-5,CCV,1,	4	1000	Unknown		10/02/2019 18:05	Finished	CCV @5ppb, IWST-190702A
59	CCB-5,CCB,1,	5	1000	Unknown		10/02/2019 18:14	Finished	CCB R190830A
60	N037709-002AMS,MS	6	1000	Unknown		10/02/2019 18:24	Finished	

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 9:43 AM	Not Reported
9	CCV-1	CCV	1	Hexavalent Chromium	10/02/19 9:54 AM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/19 10:03 AM	Reported
11	CCB-1	CCB	1	Hexavalent Chromium	10/02/19 10:13 AM	Reported
12	MB-R136743	MBLK	1	Hexavalent Chromium	10/02/19 10:22 AM	Reported
13	LCS-R136743	LCS	1	Hexavalent Chromium	10/02/19 10:32 AM	Reported
14	N037645-001AMS	MS	1	Hexavalent Chromium	10/02/19 10:46 AM	Not Reported
15	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 10:57 AM	Not Reported
16	N037646-001AMS	MS	1	Hexavalent Chromium	10/02/19 11:06 AM	Reported
17	N037646-002AMS	MS	1	Hexavalent Chromium	10/02/19 11:16 AM	Not Reported
18	N037645-001A	SAMP	5	Hexavalent Chromium	10/02/19 11:31 AM	Reported
19	N037645-001AMS	MS	5	Hexavalent Chromium	10/02/19 11:42 AM	Reported
20	N037645-002A	SAMP	1	Hexavalent Chromium	10/02/19 11:52 AM	Reported
21	N037646-001A	SAMP	1	Hexavalent Chromium	10/02/19 12:01 PM	Reported
22	CCV-2	CCV1	1	Hexavalent Chromium	10/02/19 12:11 PM	Reported
23	CCB-2	CCB	1	Hexavalent Chromium	10/02/19 12:20 PM	Reported
24	N037646-002A	SAMP	5	Hexavalent Chromium	10/02/19 12:32 PM	Reported
25	N037646-002AMS	MS	5	Hexavalent Chromium	10/02/19 12:43 PM	Reported
26	N037666-001A	SAMP	50	Hexavalent Chromium	10/02/19 12:52 PM	Not Reported
27	N037666-001AMS	MS	50	Hexavalent Chromium	10/02/19 1:02 PM	Not Reported
28	N037666-002A	SAMP	20	Hexavalent Chromium	10/02/19 1:11 PM	Reported
29	N037666-002AMS	MS	20	Hexavalent Chromium	10/02/19 1:21 PM	Reported
30	N037666-003A	SAMP	50	Hexavalent Chromium	10/02/19 1:30 PM	Reported
31	N037666-003AMS	MS	50	Hexavalent Chromium	10/02/19 1:40 PM	Reported
32	N037666-004A	SAMP	50	Hexavalent Chromium	10/02/19 1:49 PM	Reported
33	N037666-004AMS	MS	50	Hexavalent Chromium	10/02/19 1:59 PM	Reported
34	CCV-3	CCV	1	Hexavalent Chromium	10/02/19 2:08 PM	Reported
35	CCB-3	CCB	1	Hexavalent Chromium	10/02/19 2:18 PM	Reported
36	N037666-005A	SAMP	1000	Hexavalent Chromium	10/02/19 2:27 PM	Reported
37	N037666-005AMS	MS	1000	Hexavalent Chromium	10/02/19 2:36 PM	Reported
38	N037666-006A	SAMP	1	Hexavalent Chromium	10/02/19 2:46 PM	Reported
39	N037666-006AMS	MS	1	Hexavalent Chromium	10/02/19 2:55 PM	Reported
40	N037666-007A	SAMP	1	Hexavalent Chromium	10/02/19 3:05 PM	Reported
41	N037666-007AMS	MS	1	Hexavalent Chromium	10/02/19 3:14 PM	Reported
42	N037666-001A	SAMP	10	Hexavalent Chromium	10/02/19 3:24 PM	Reported

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037666-001AMS	MS	10	Hexavalent Chromium	10/02/19 3:33 PM	Reported
44	N037666-002AMSD	MSD	20	Hexavalent Chromium	10/02/19 3:43 PM	Reported
45	N037666-001ADUP	DUP	10	Hexavalent Chromium	10/02/19 3:52 PM	Reported
46	CCV-4	CCV1	1	Hexavalent Chromium	10/02/19 4:02 PM	Reported
47	CCB-4	CCB	1	Hexavalent Chromium	10/02/19 4:11 PM	Reported
48	N037572-001A	SAMP	5	Hexavalent Chromium	10/02/19 4:21 PM	Not Reported
49	N037572-001AMS	MS	5	Hexavalent Chromium	10/02/19 4:30 PM	Not Reported
50	N037709-001AMS	MS	1	Hexavalent Chromium	10/02/19 4:40 PM	Not Reported
51	N037709-002AMS	MS	1	Hexavalent Chromium	10/02/19 4:49 PM	Not Reported
52	N037709-003AMS	MS	1	Hexavalent Chromium	10/02/19 4:58 PM	Not Reported
53	N037709-004AMS	MS	1	Hexavalent Chromium	10/02/19 5:08 PM	Reported
54	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 5:17 PM	Reported
55	N037709-001A	SAMP	20	Hexavalent Chromium	10/02/19 5:35 PM	Reported
56	N037709-001AMS	MS	20	Hexavalent Chromium	10/02/19 5:46 PM	Reported
57	N037709-002A	SAMP	10	Hexavalent Chromium	10/02/19 5:55 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	10/02/19 6:05 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	10/02/19 6:14 PM	Reported
60	N037709-002AMS	MS	10	Hexavalent Chromium	10/02/19 6:24 PM	Reported
61	N037709-003A	SAMP	5	Hexavalent Chromium	10/02/19 6:33 PM	Reported
62	N037709-003AMS	MS	5	Hexavalent Chromium	10/02/19 6:42 PM	Reported
63	N037709-004A	SAMP	1	Hexavalent Chromium	10/02/19 6:52 PM	Reported
64	CCV-6	CCV	1	Hexavalent Chromium	10/02/19 7:01 PM	Reported
65	CCB-6	CCB	1	Hexavalent Chromium	10/02/19 7:11 PM	Reported
66	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 7:20 PM	Not Reported

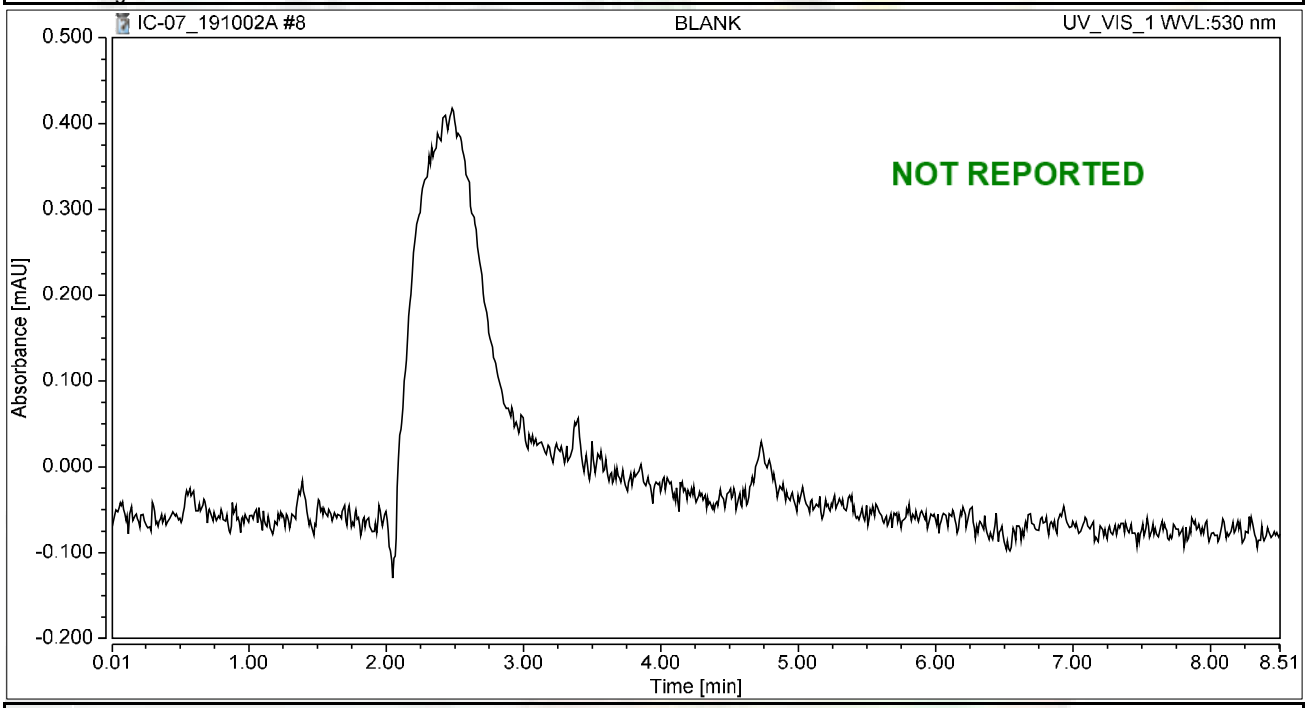
61	N037709-003A,SAMP	7	1000	Unknown		10/02/2019 18:33	Finished	
62	N037709-003AMS,MS	8	1000	Unknown		10/02/2019 18:42	Finished	
63	N037709-004A,SAMP	9	1000	Unknown		10/02/2019 18:52	Finished	
64	CCV-6,CCV,1,	10	1000	Unknown		10/02/2019 19:01	Finished	CCV @10ppb, IWST-190702A
65	CCB-6,CCB,1,	11	1000	Unknown		10/02/2019 19:11	Finished	CCB R190830A
66	BLANK	12	1000	Unknown		10/02/2019 19:20	Finished	BLANK
67	SHUTDOWN	13	1000	Unknown		10/02/2019 19:30	Finished	
68	Eluent: R190930D	14	1000	Unknown		n.a.	Finished	Eluent
69	PCR: R190930E	15	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 09:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

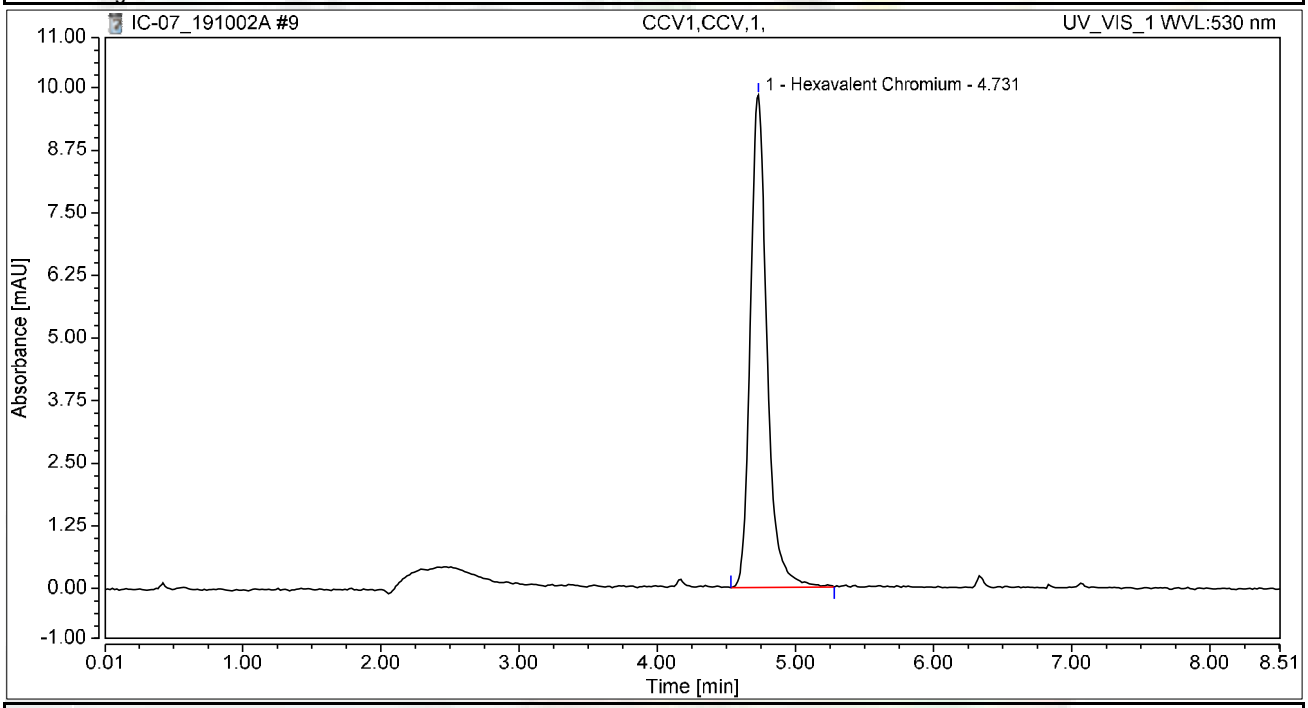
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 09:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

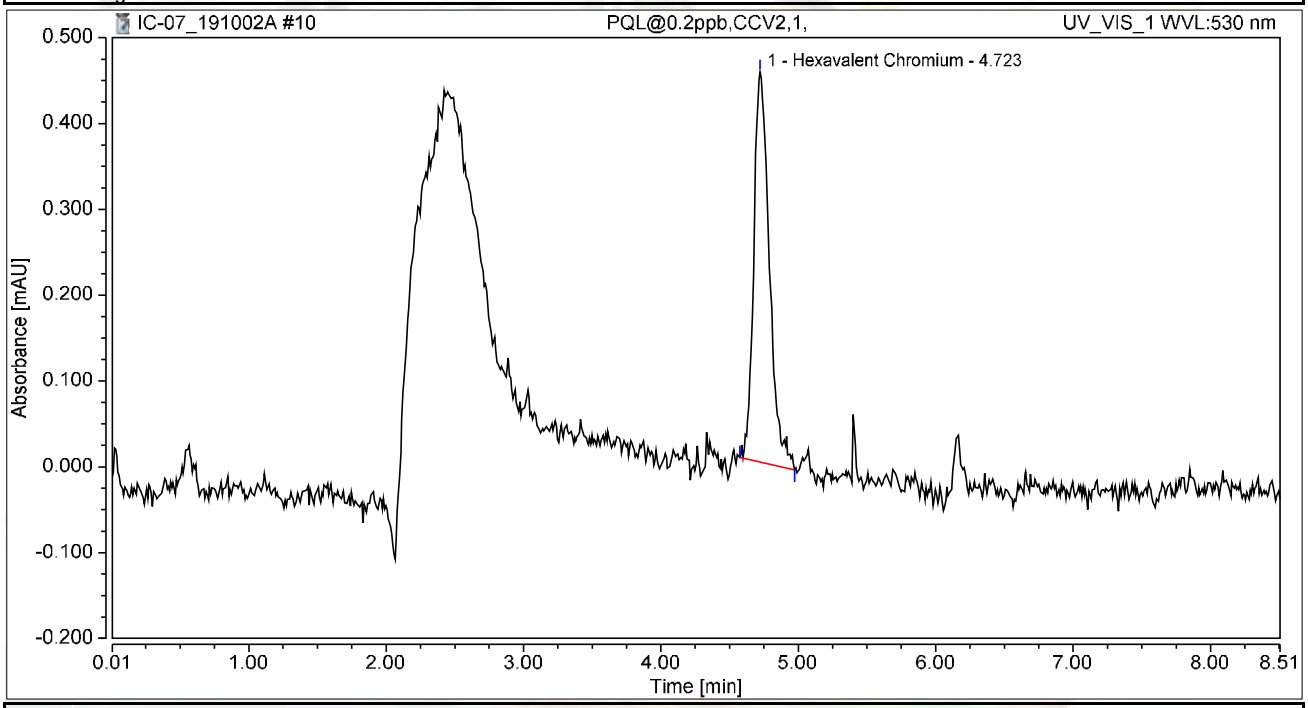
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.375	9.831	100.00	100.00	5.0614
Total:			**1.375**	**9.831**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

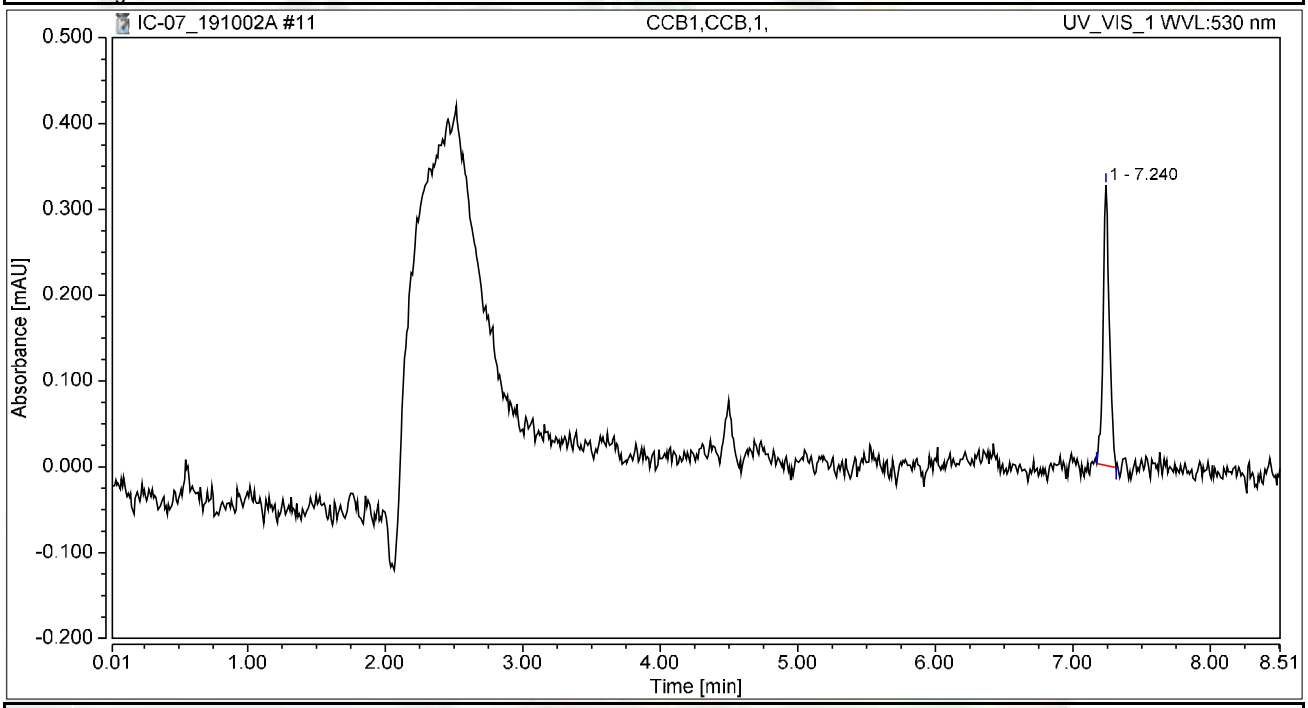
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.060	0.455	100.00	100.00	0.2206
Total:			**0.060**	**0.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

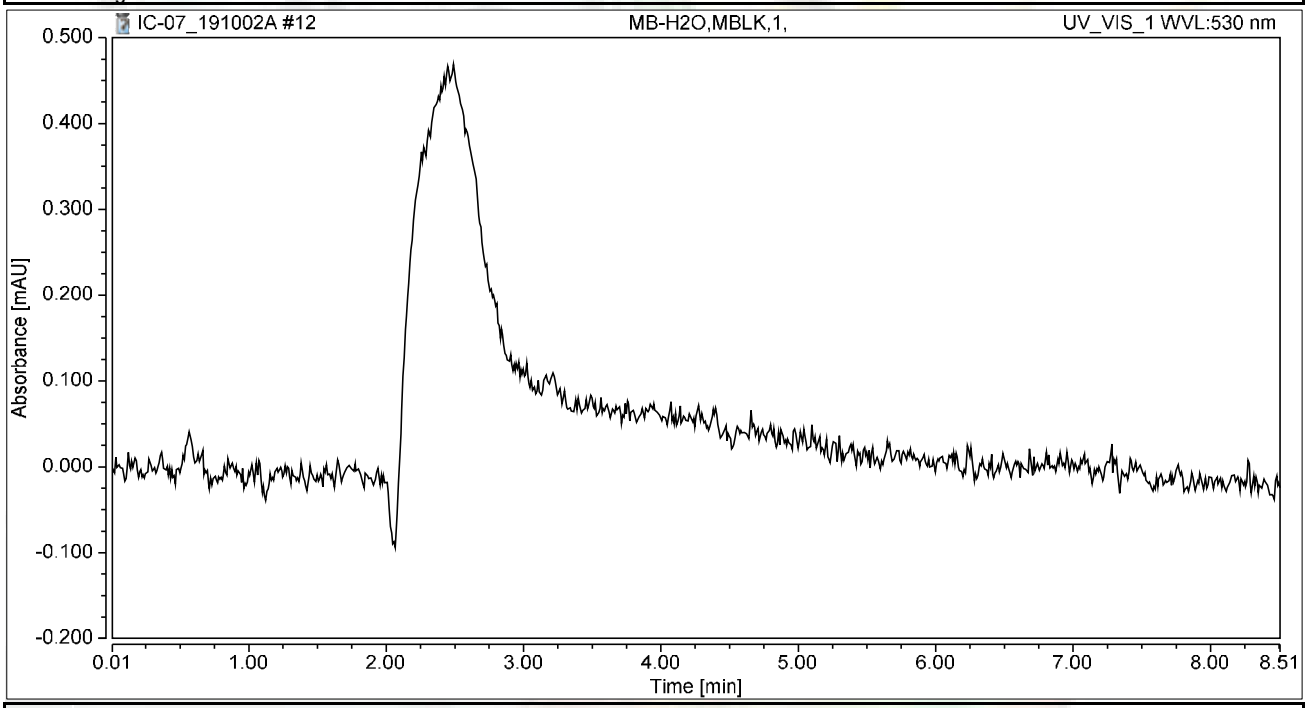
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.240	0.017	0.327	100.00	100.00	n.a.
Total:			**0.017**	**0.327**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

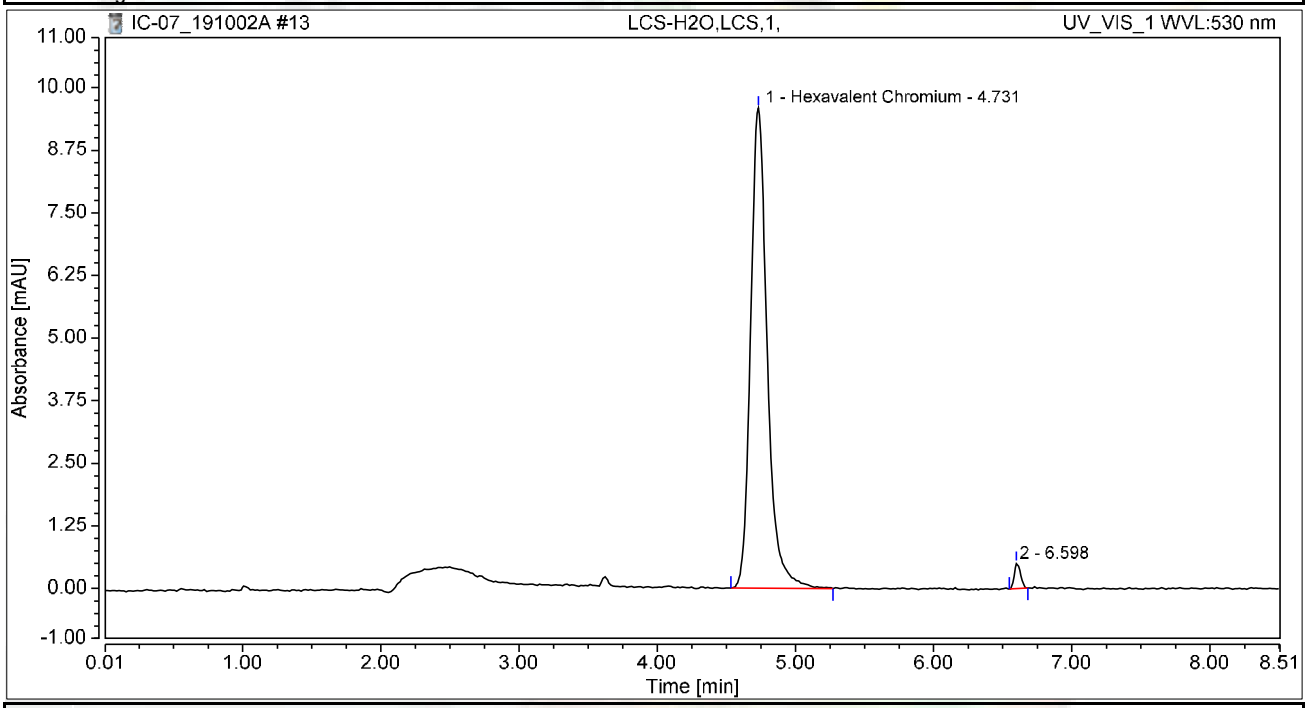
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

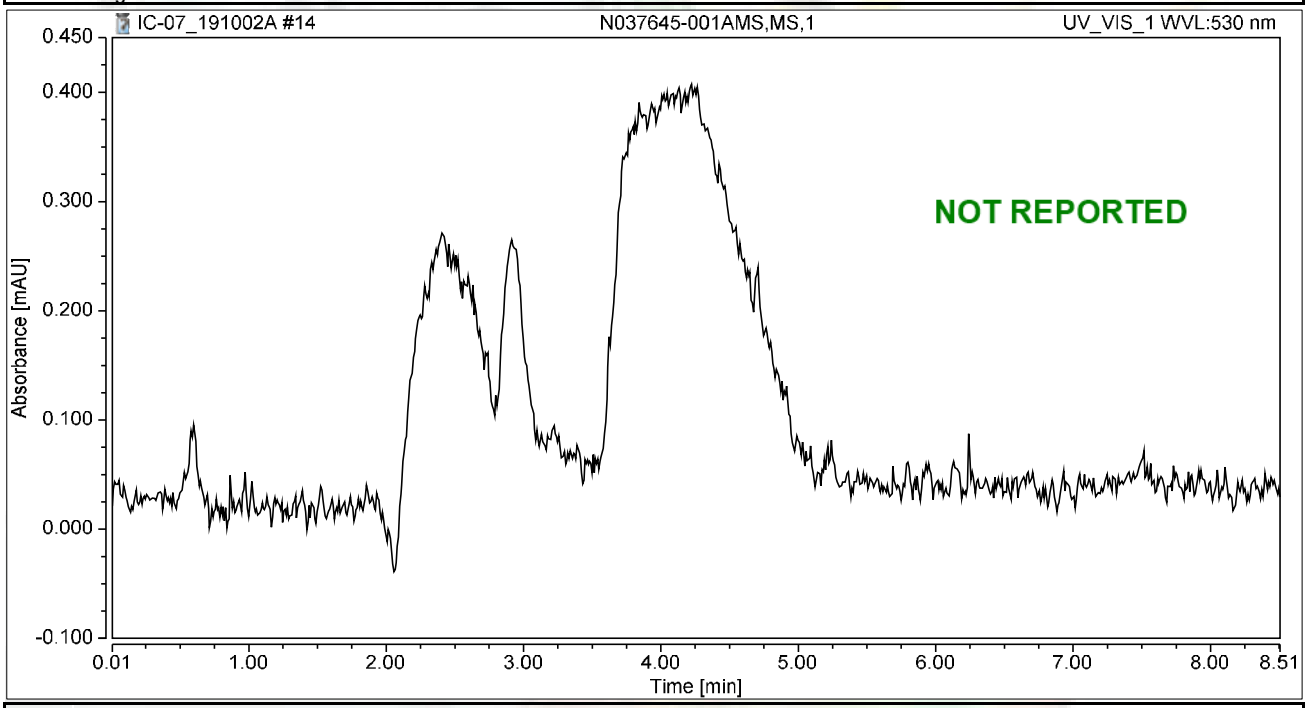
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.338	9.593	98.03	95.05	4.9254
2		6.598	0.027	0.500	1.97	4.95	n.a.
Total:			**1.365**	**10.093**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

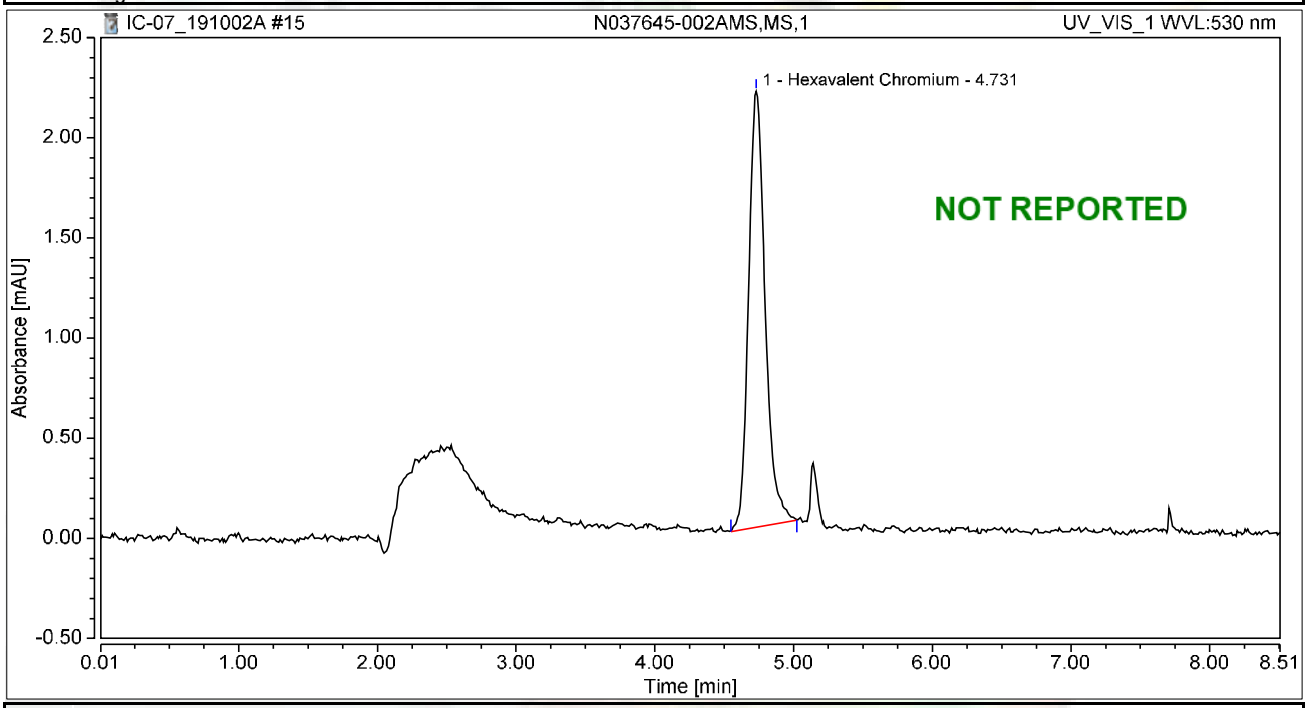
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

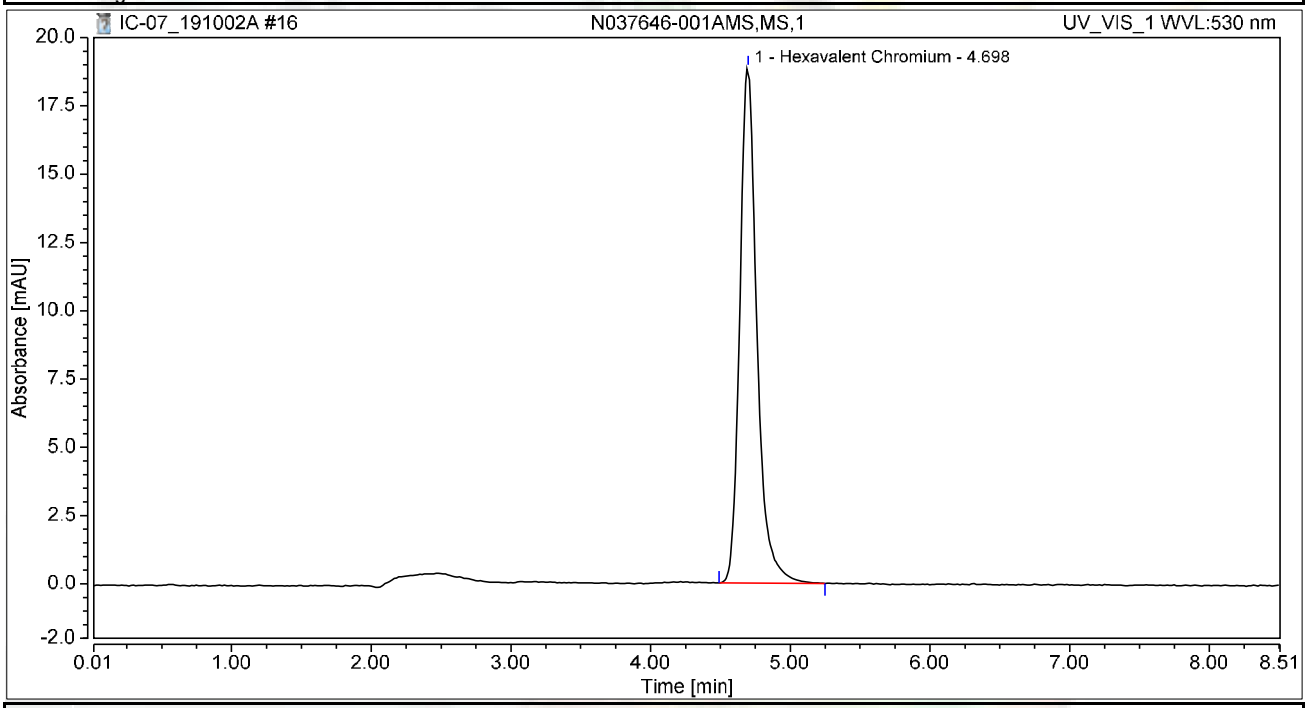
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.301	2.177	100.00	100.00	1.1084
Total:			**0.301**	**2.177**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

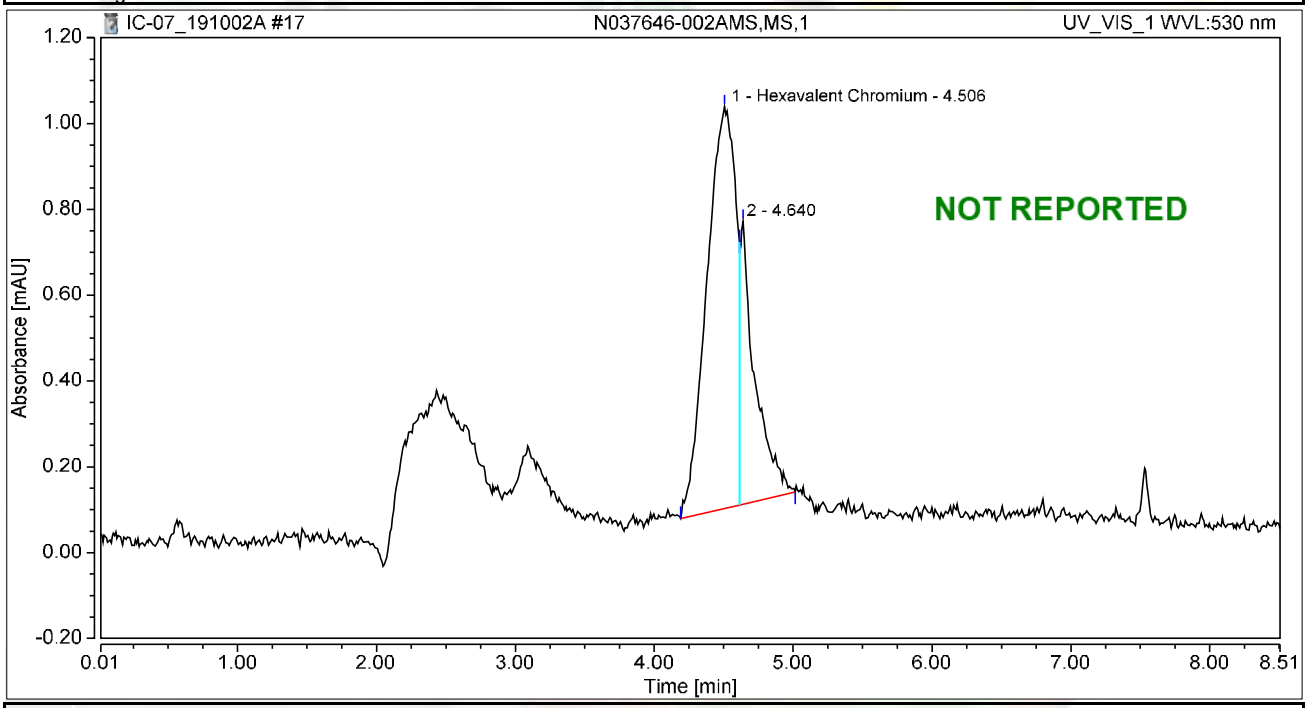
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.693	18.865	100.00	100.00	9.9133
Total:			**2.693**	**18.865**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

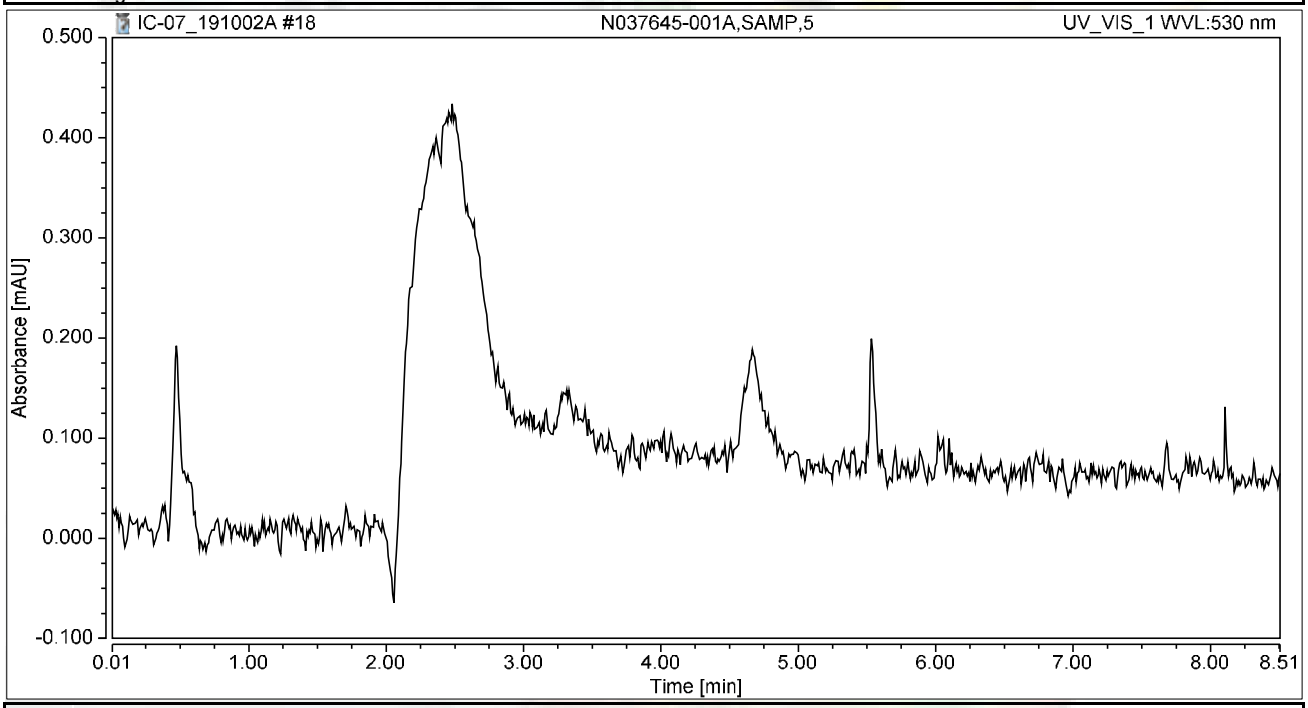
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.225	0.936	73.16	58.68	0.8272
2		4.640	0.082	0.659	26.84	41.32	n.a.
Total:			**0.307**	**1.594**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

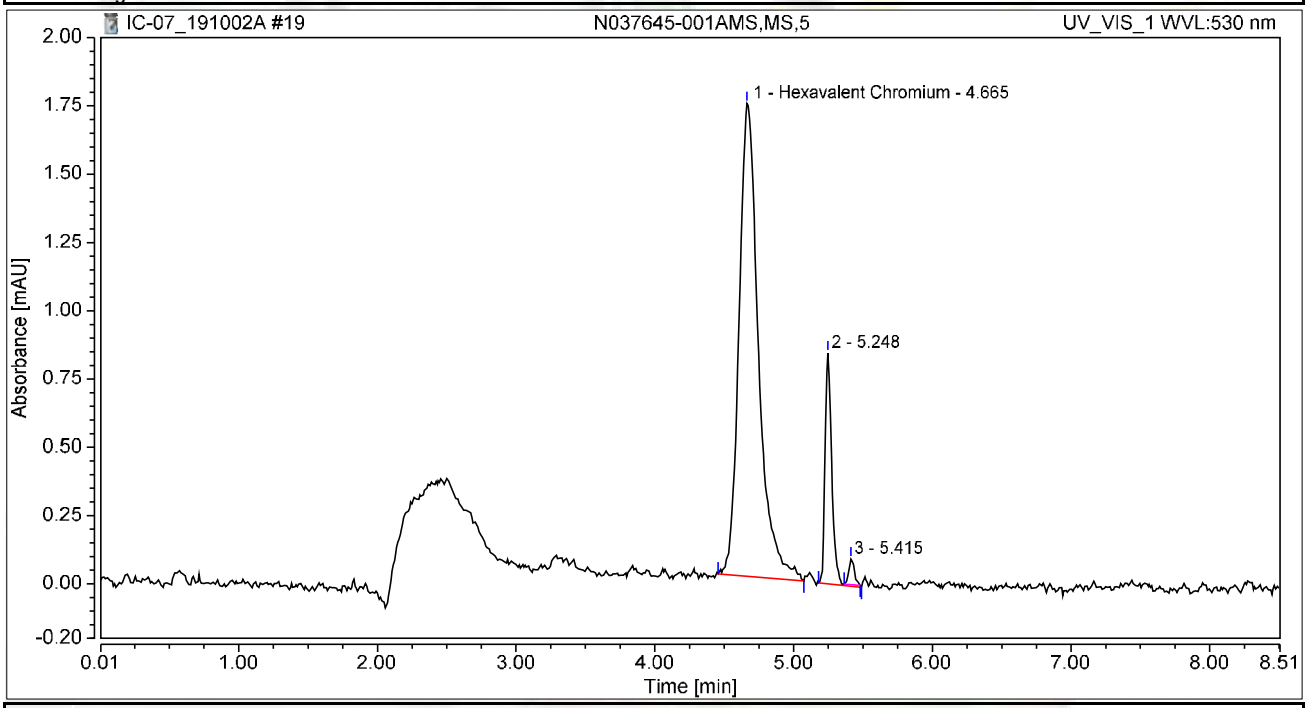
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

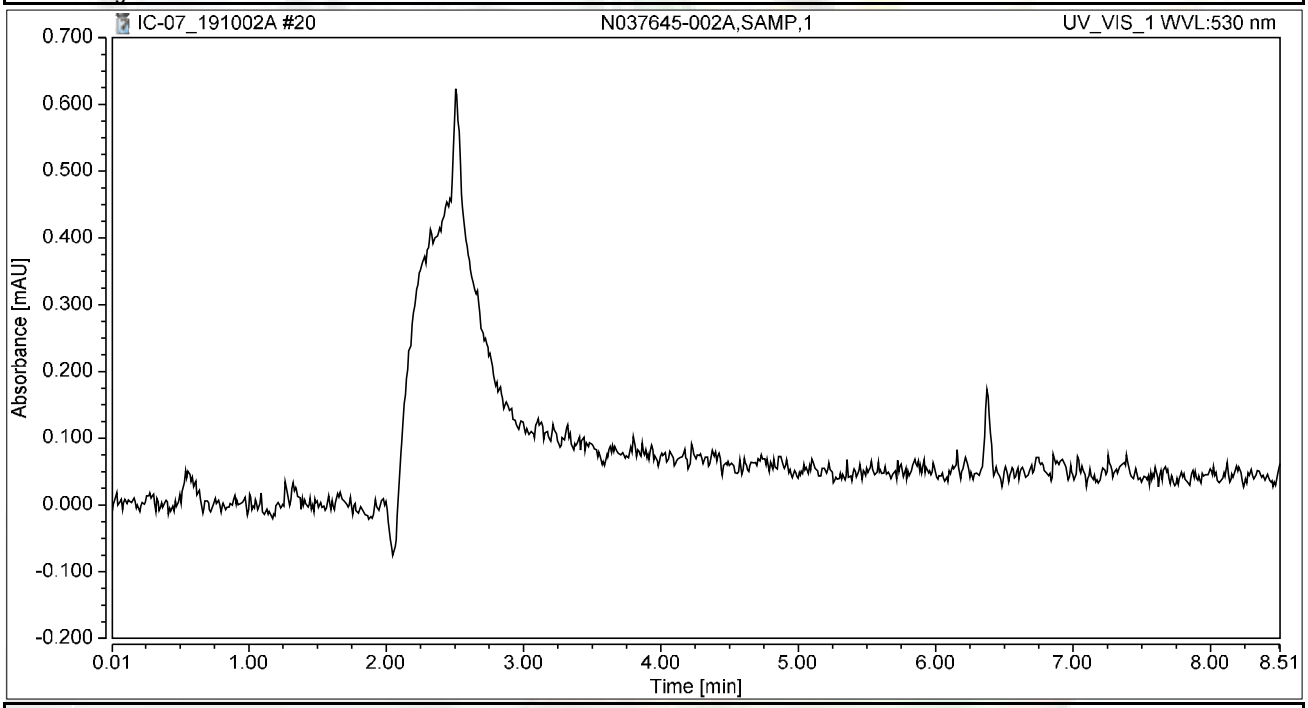
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.282	1.732	84.47	64.81	1.0370
2		5.248	0.047	0.846	14.22	31.67	n.a.
3		5.415	0.004	0.094	1.30	3.52	n.a.
Total:			**0.333**	**2.672**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

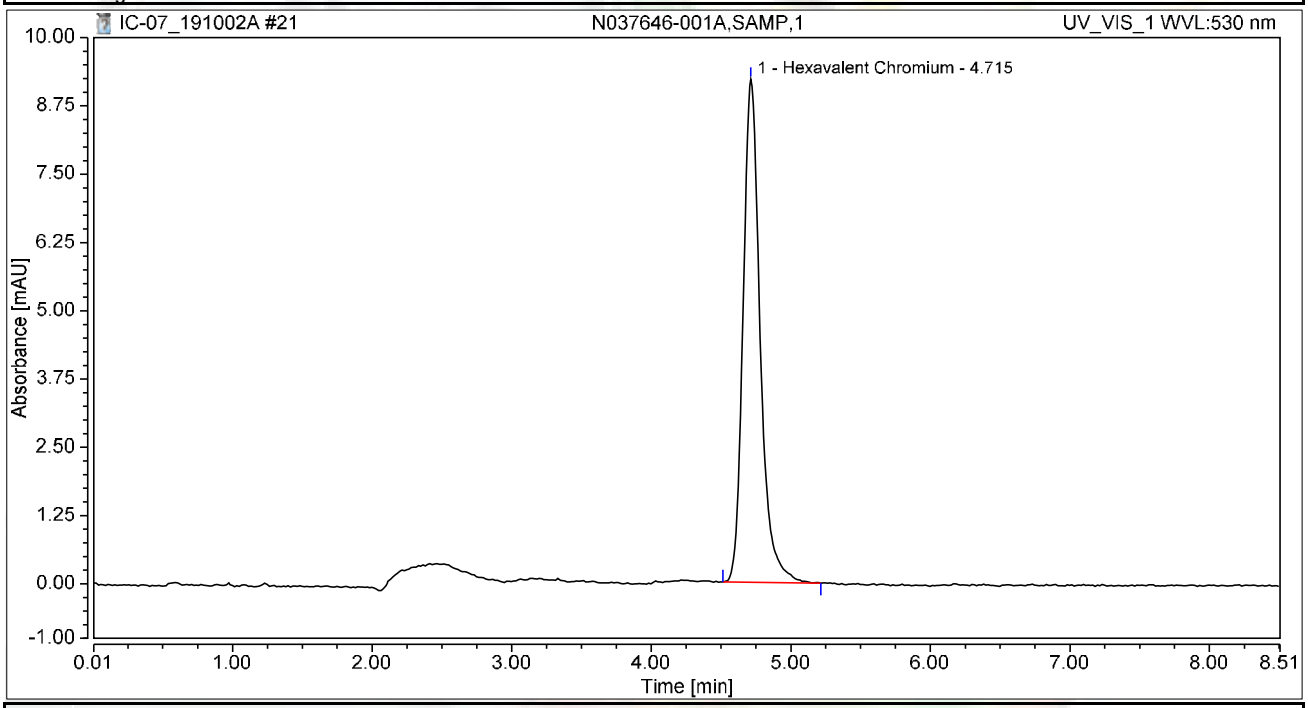
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

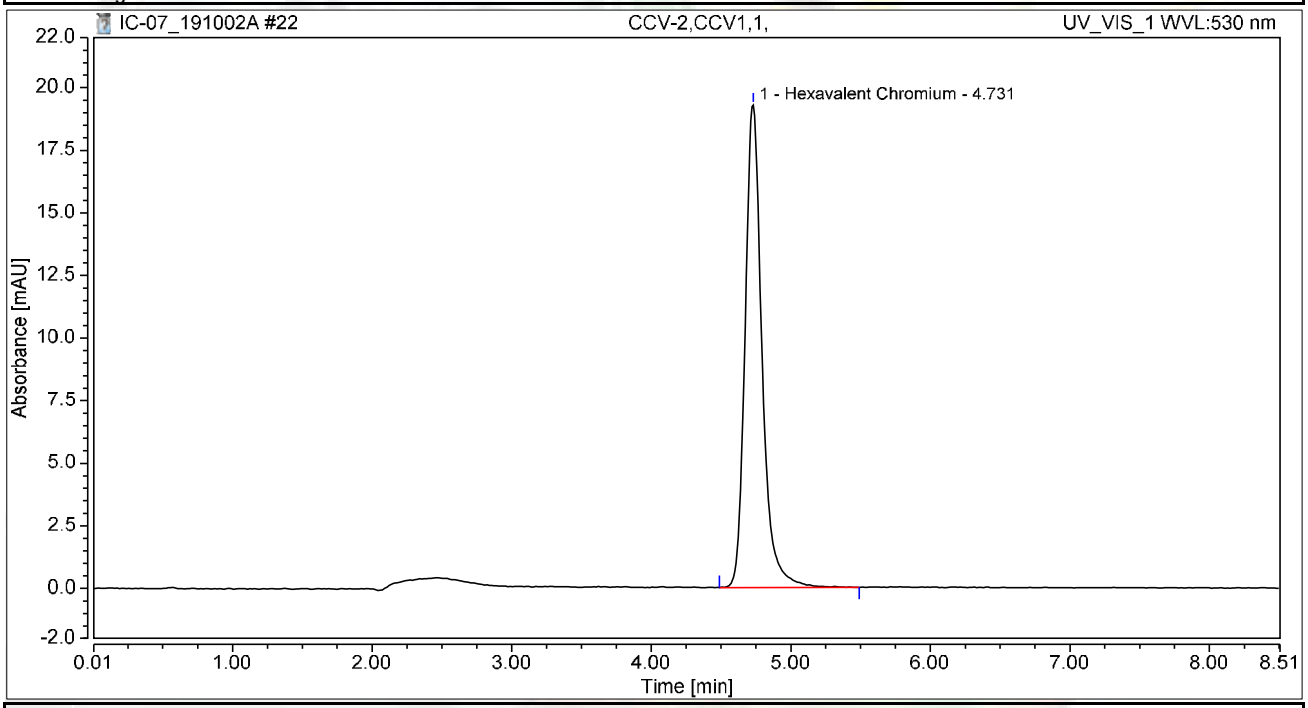
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.307	9.206	100.00	100.00	4.8128
Total:			**1.307**	**9.206**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

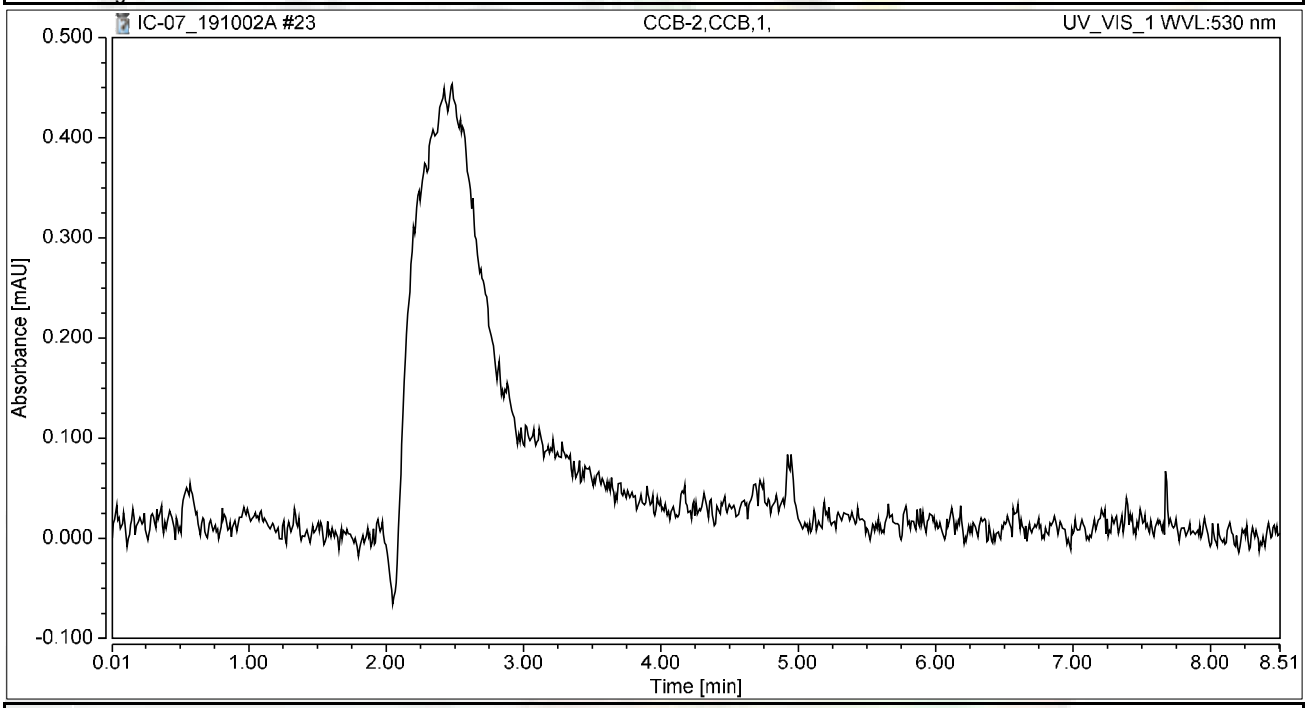
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.713	19.267	100.00	100.00	9.9871
Total:			**2.713**	**19.267**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

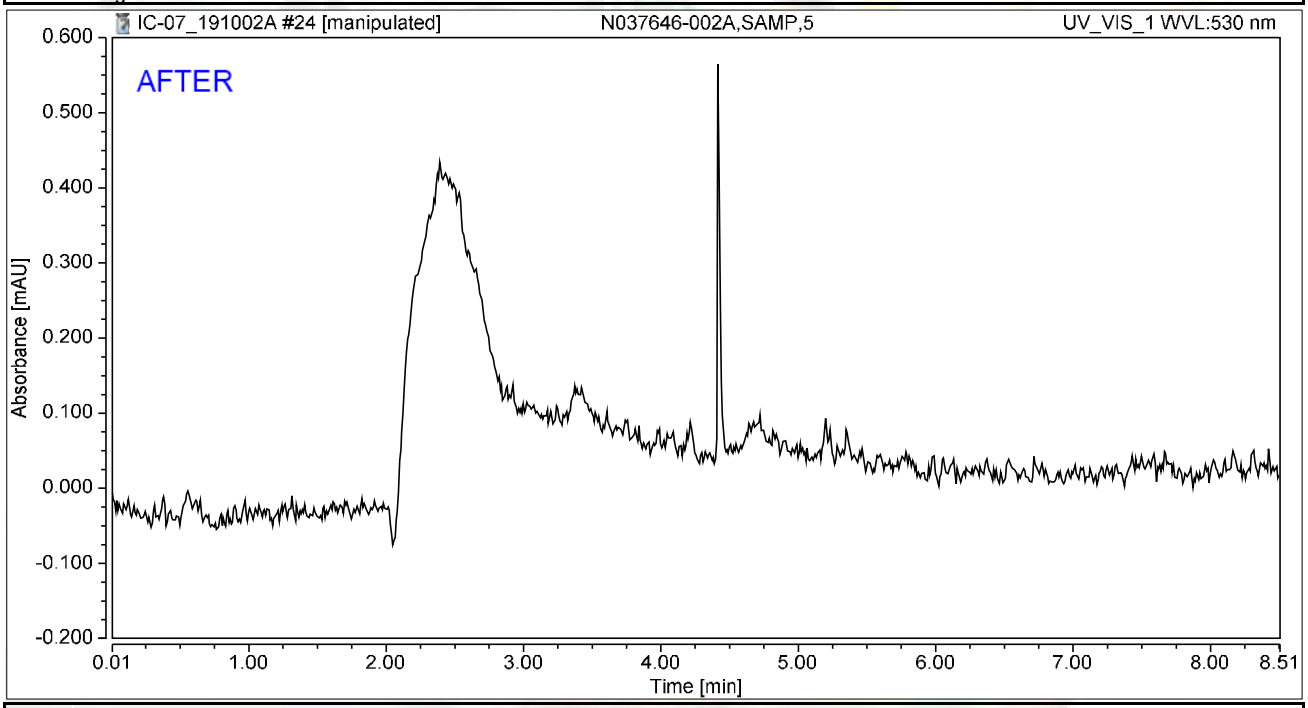
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

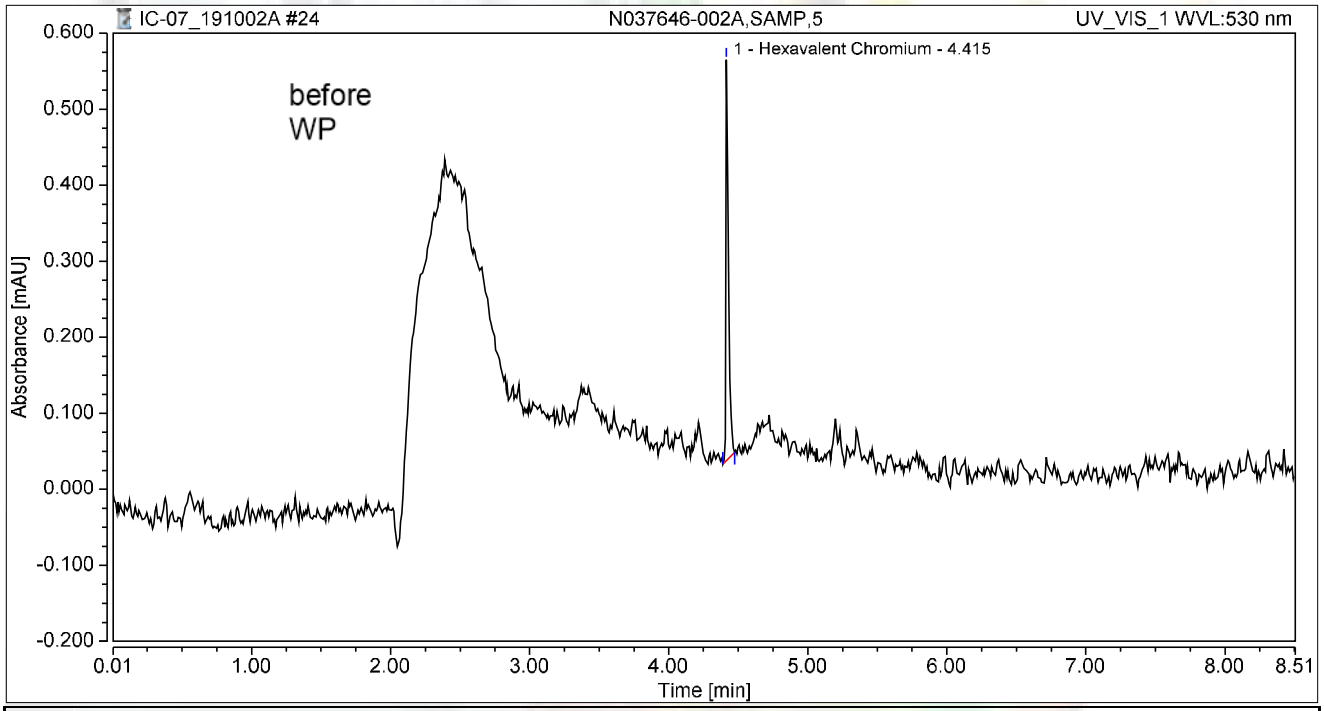
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

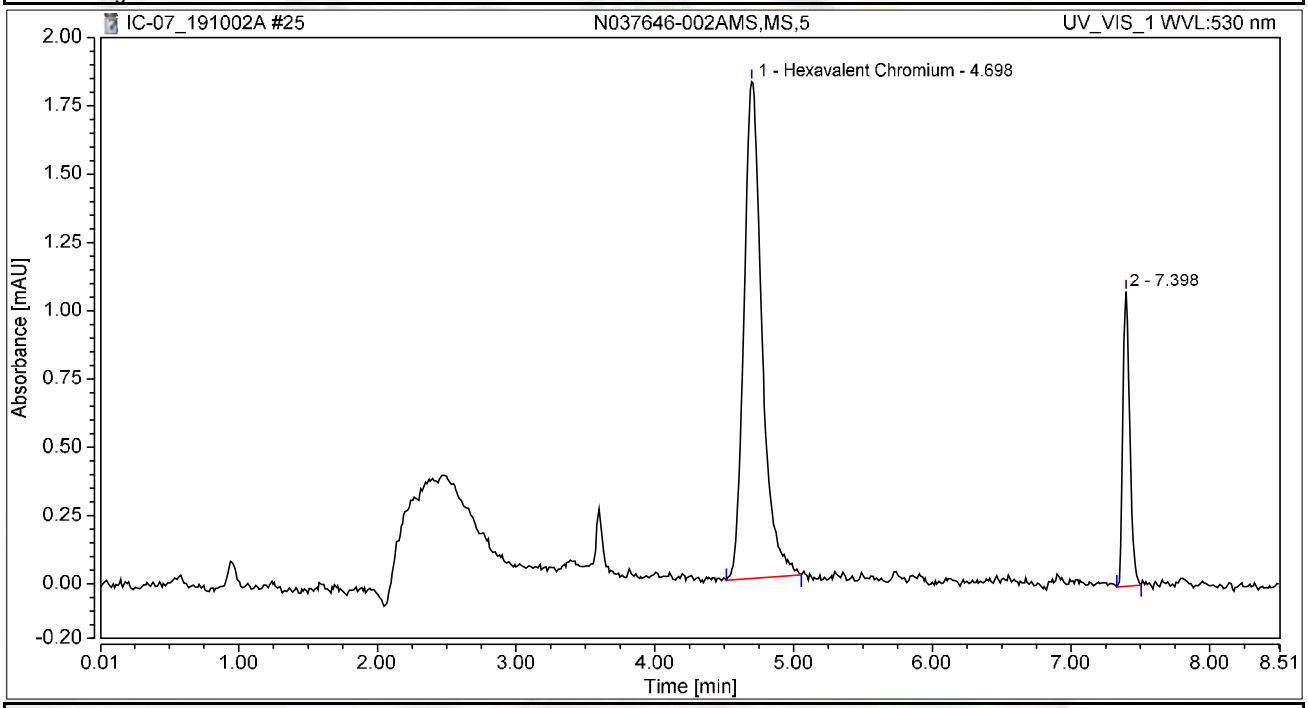
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.415	0.011	0.527	100.00	100.00	0.0411
Total:			**0.011**	**0.527**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

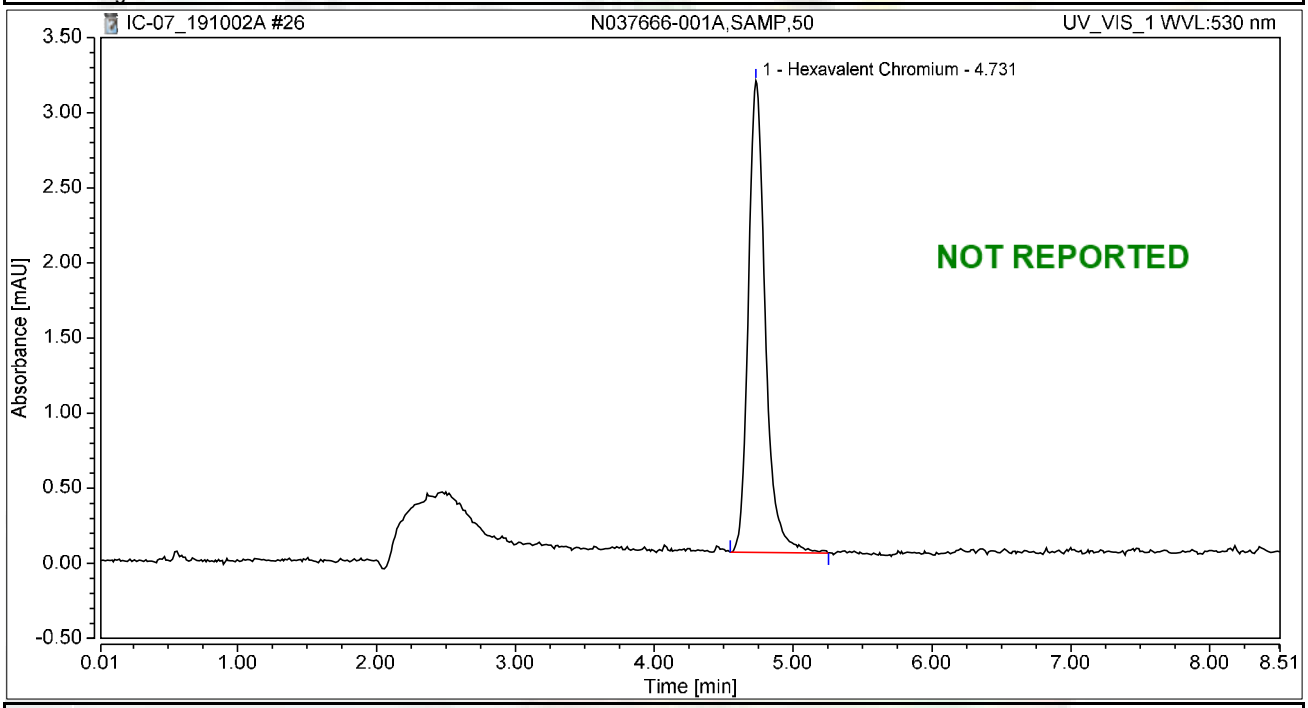
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.274	1.820	81.40	62.80	1.0106
2		7.398	0.063	1.078	18.60	37.20	n.a.
Total:			**0.337**	**2.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

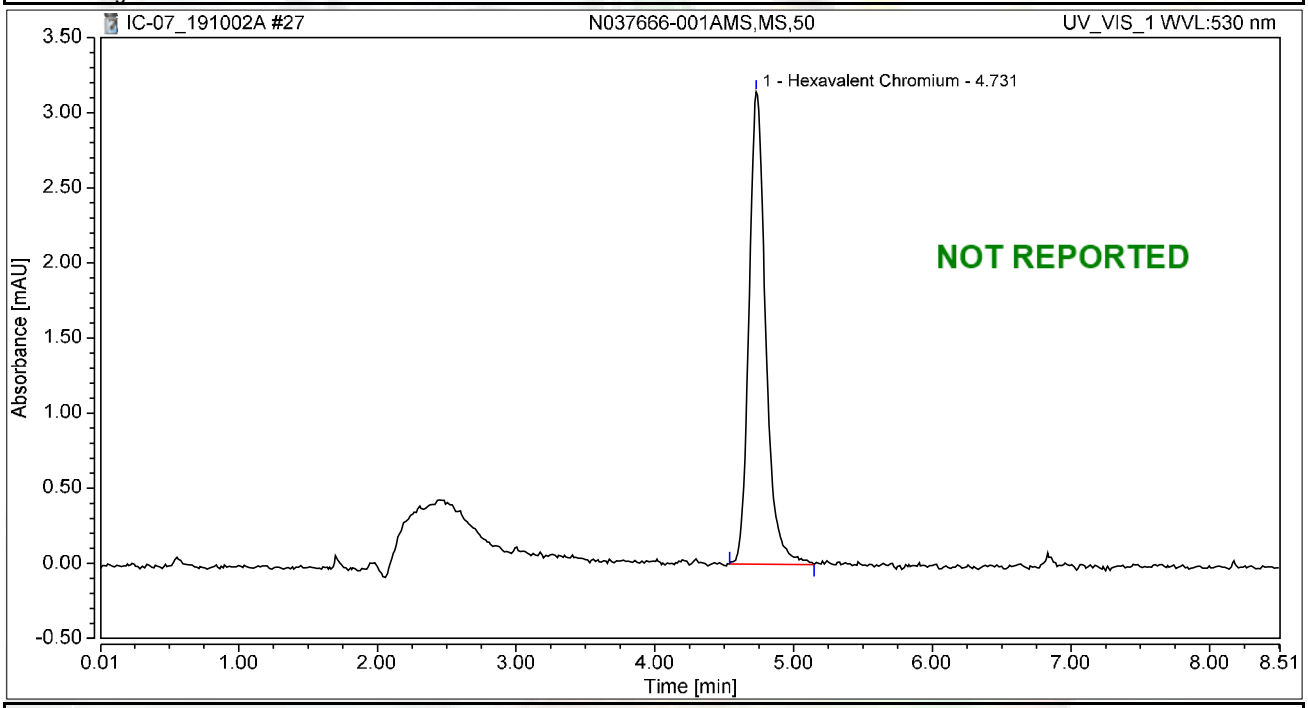
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.445	3.140	100.00	100.00	1.6398
Total:			**0.445**	**3.140**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

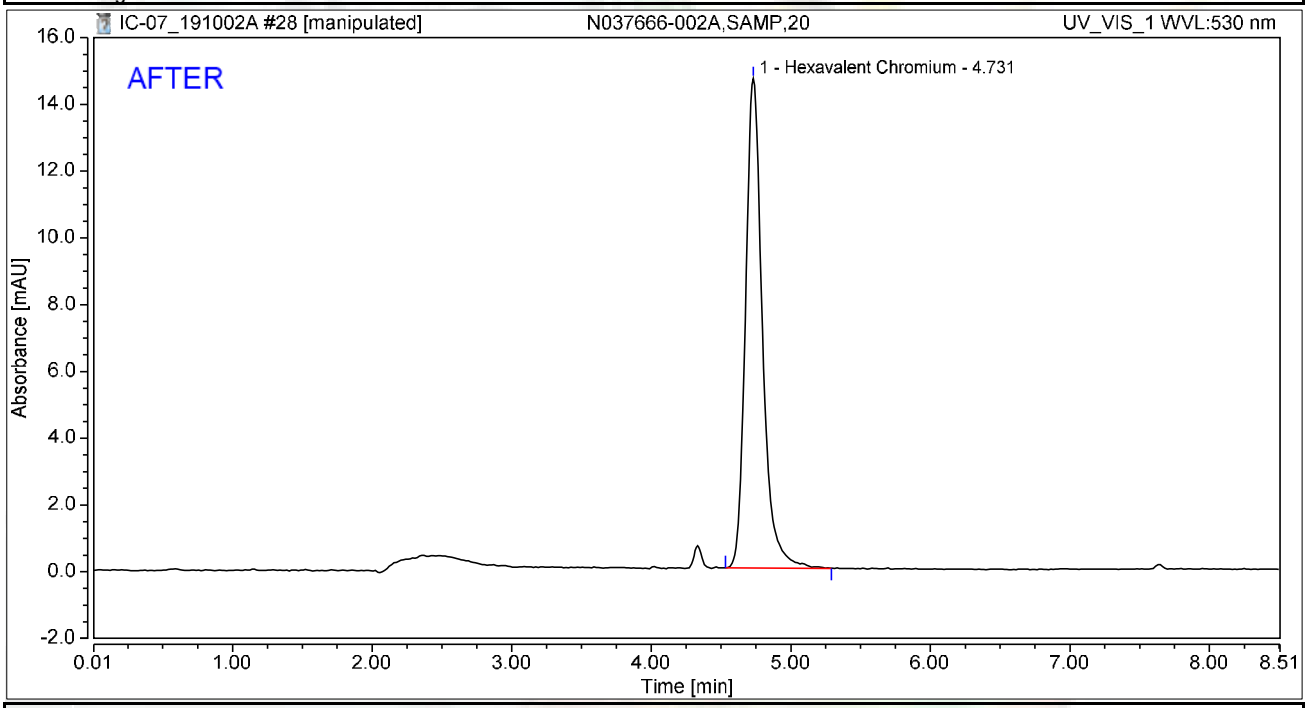
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.439	3.143	100.00	100.00	1.6171
Total:			**0.439**	**3.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.059	14.662	100.00	100.00	7.5806
Total:			**2.059**	**14.662**	**100.00**	**100.00**	

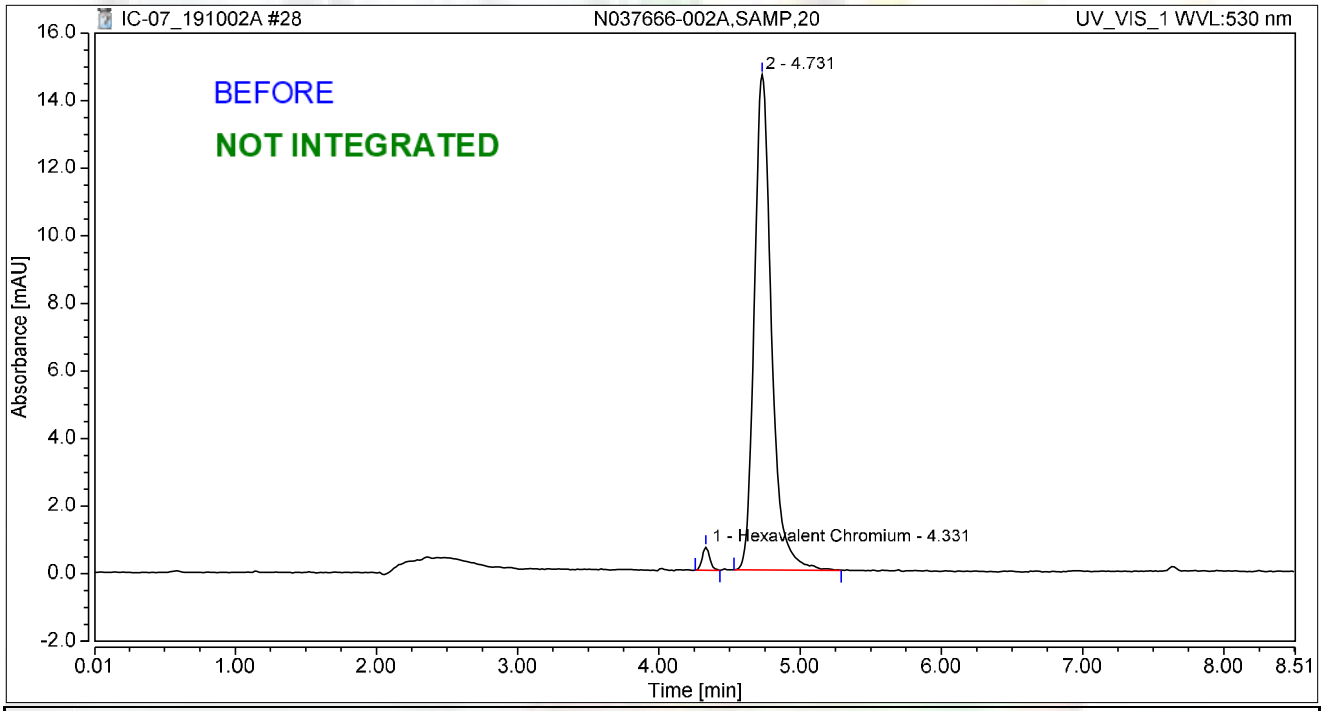
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

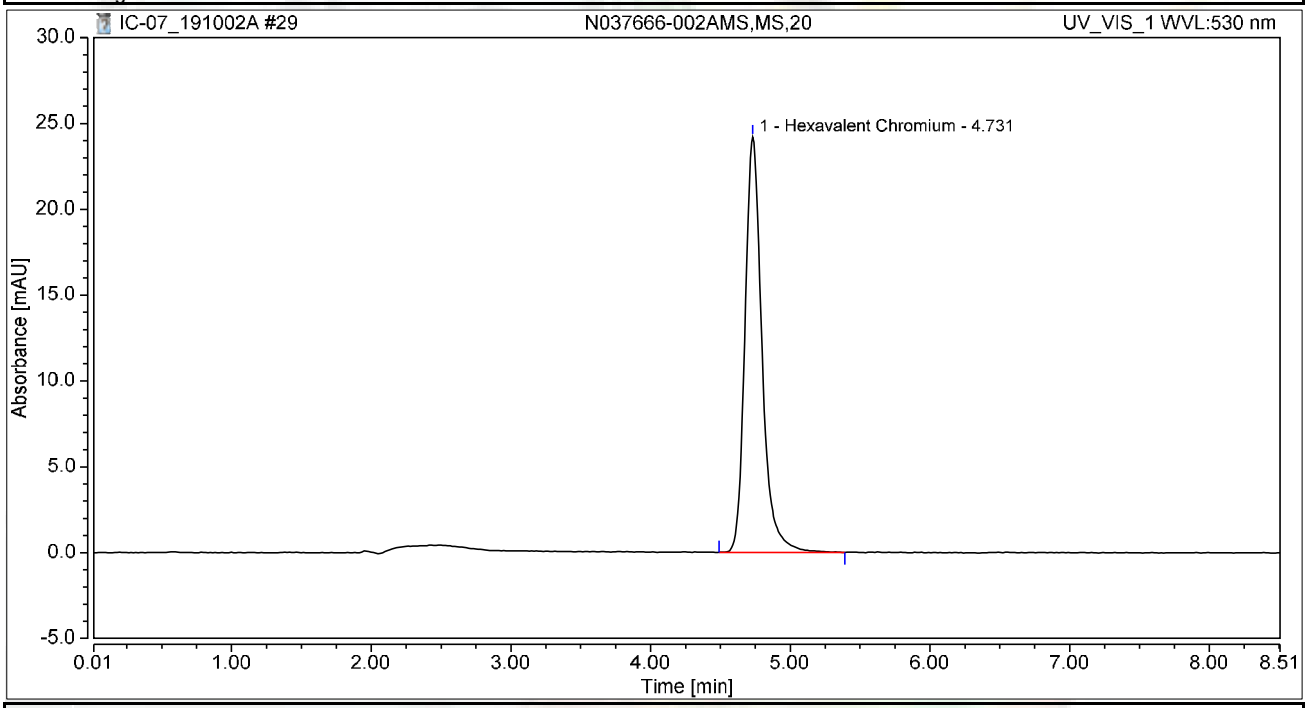
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.331	0.042	0.676	1.98	4.41	0.1530
2		4.731	2.059	14.662	98.02	95.59	n.a.
Total:			**2.101**	**15.338**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002AMS,MS,20**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

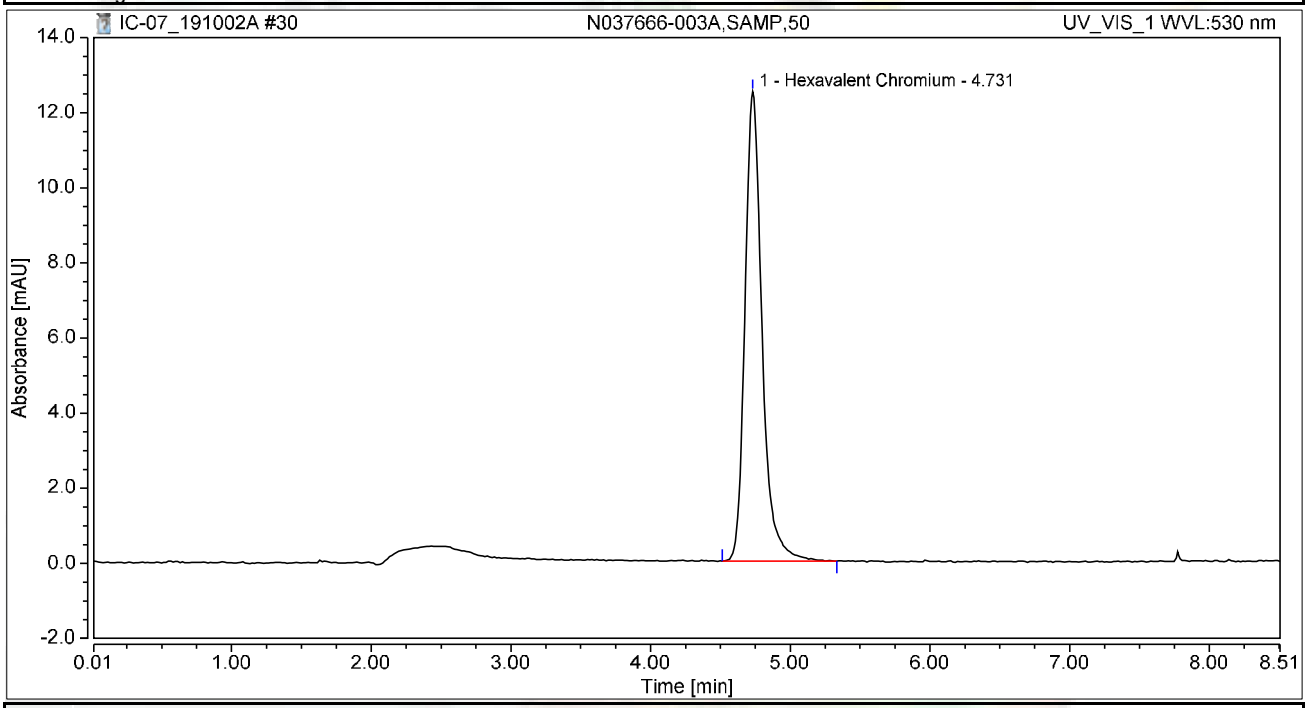
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.418	24.193	100.00	100.00	12.5838
Total:			**3.418**	**24.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-003A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

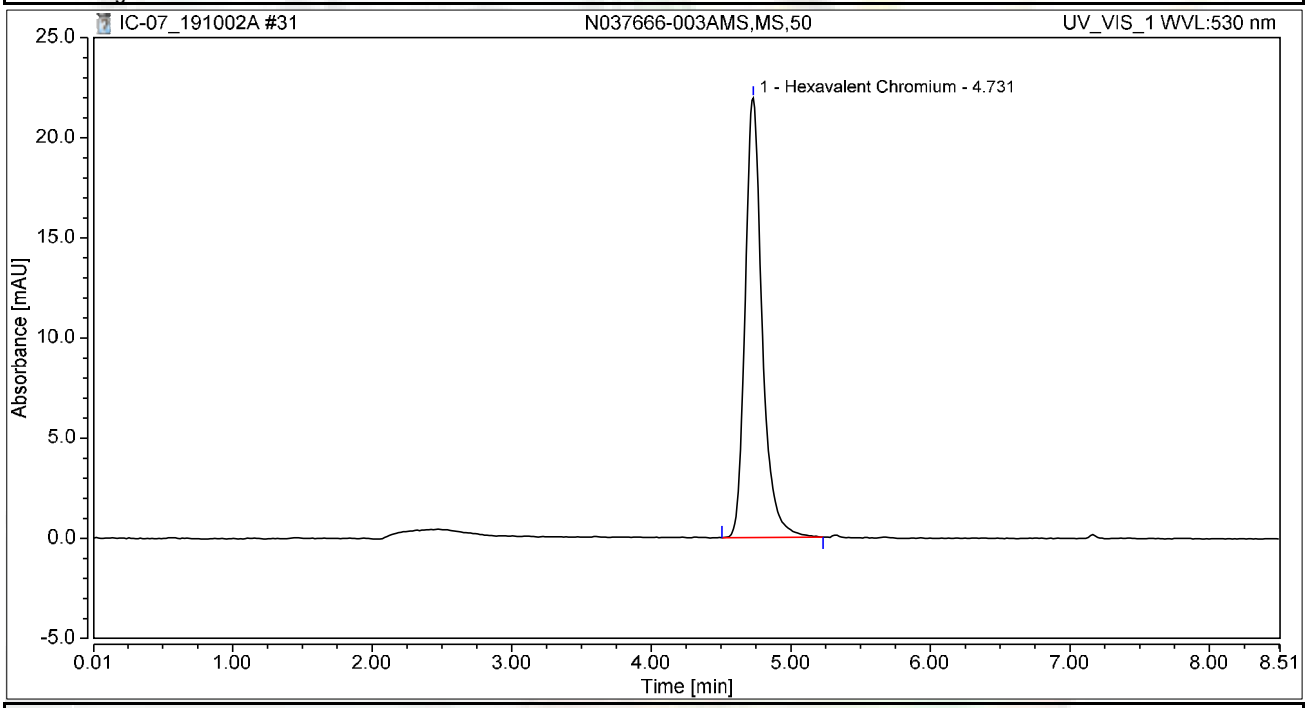
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.771	12.504	100.00	100.00	6.5195
Total:			**1.771**	**12.504**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-003AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

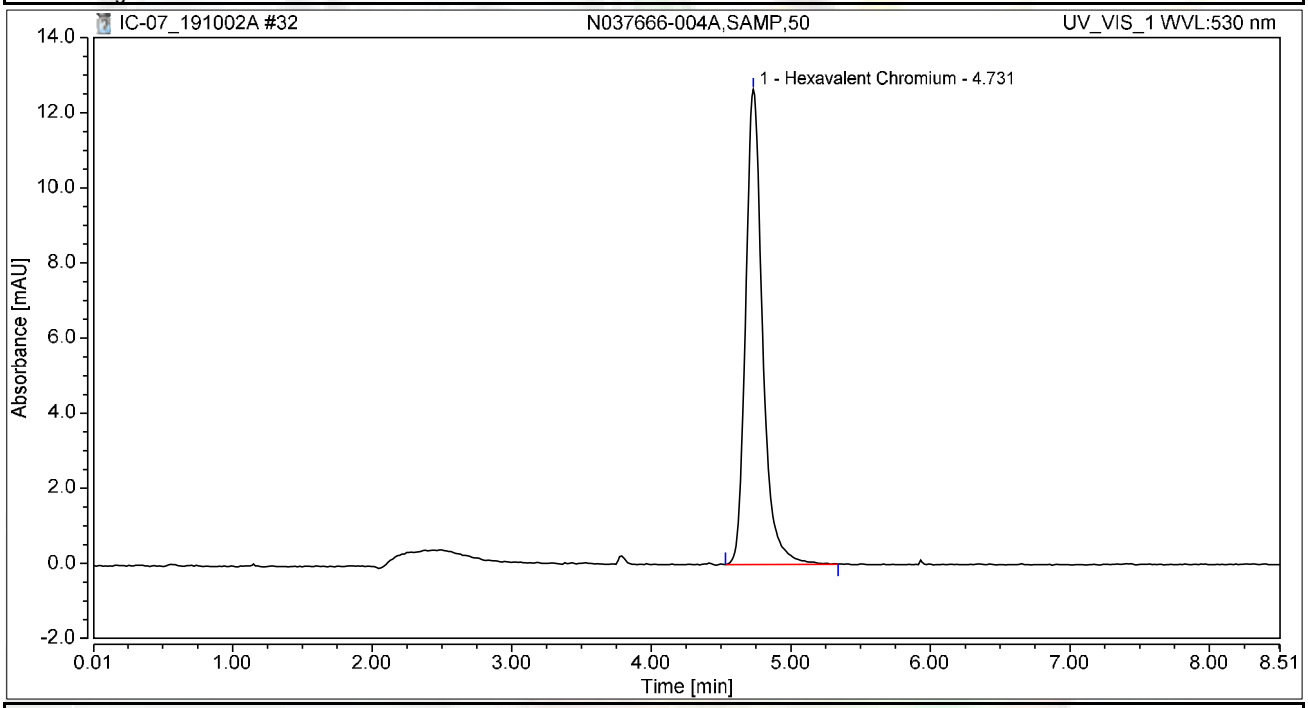
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.110	21.939	100.00	100.00	11.4508
Total:			**3.110**	**21.939**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-004A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

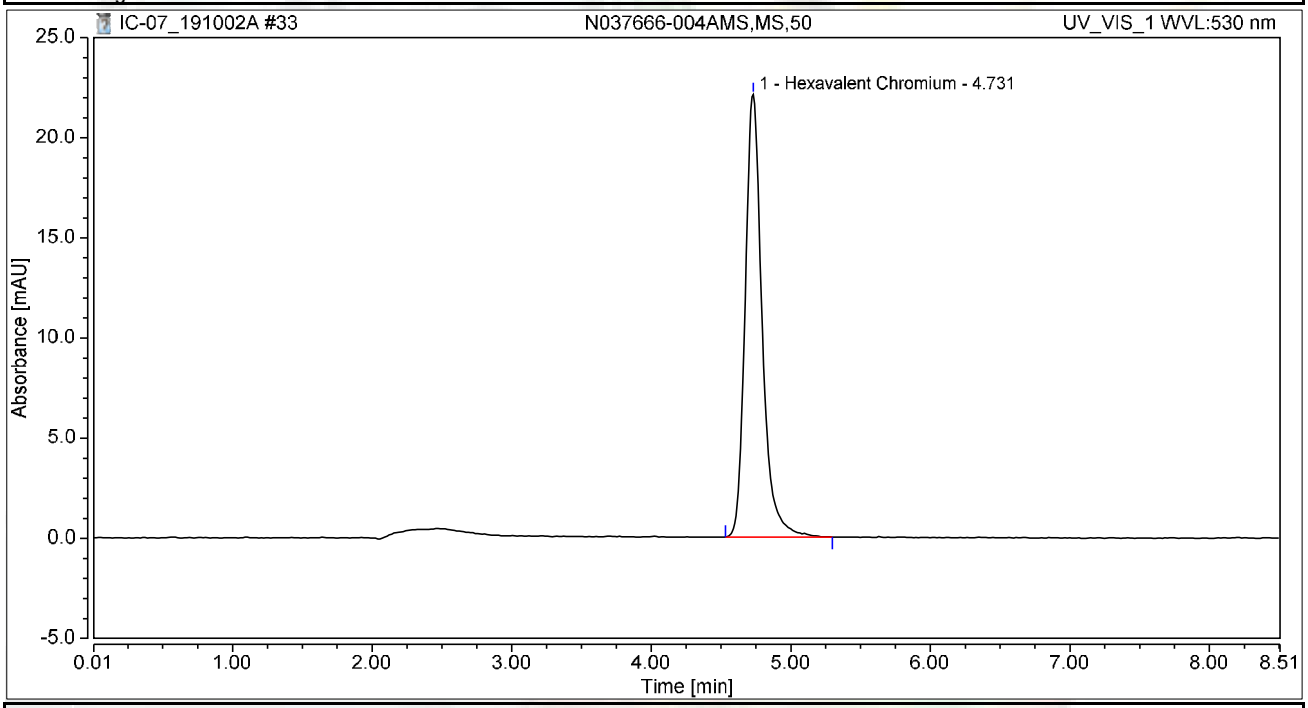
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.782	12.644	100.00	100.00	6.5603
Total:			**1.782**	**12.644**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-004AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

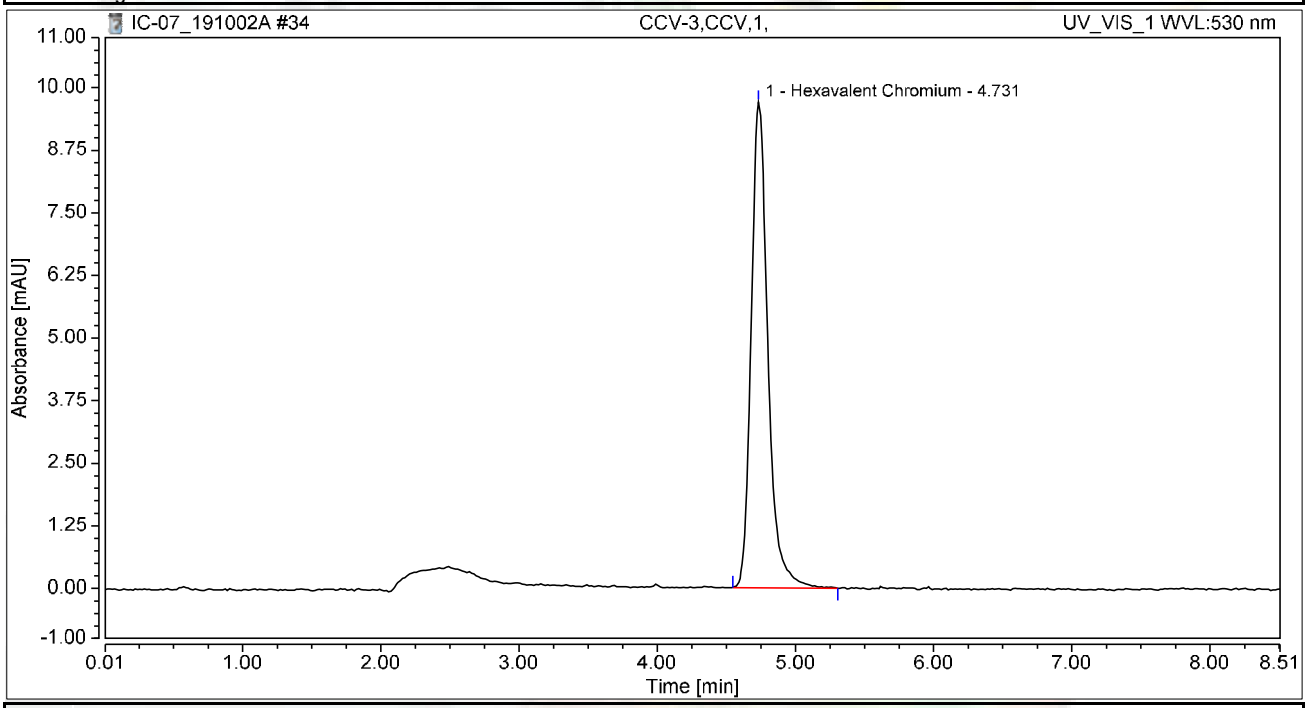
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.124	22.104	100.00	100.00	11.5007
Total:			**3.124**	**22.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

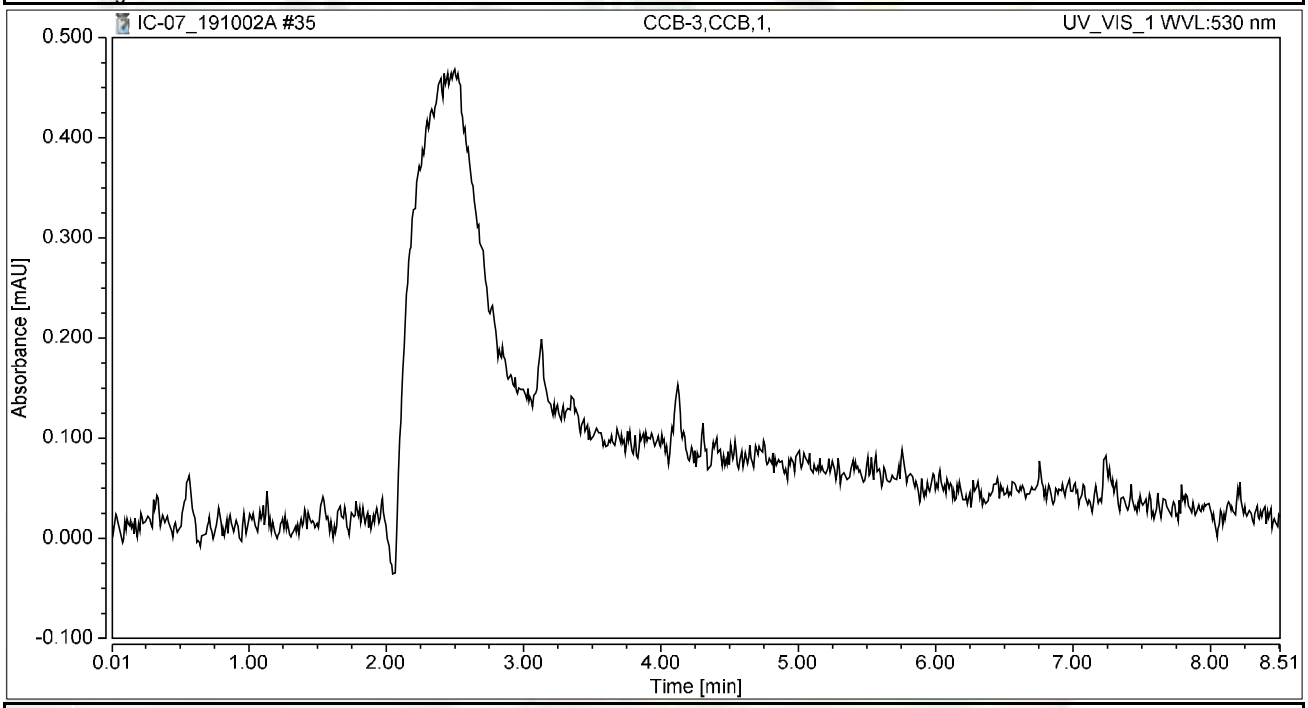
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.362	9.703	100.00	100.00	5.0157
Total:			**1.362**	**9.703**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

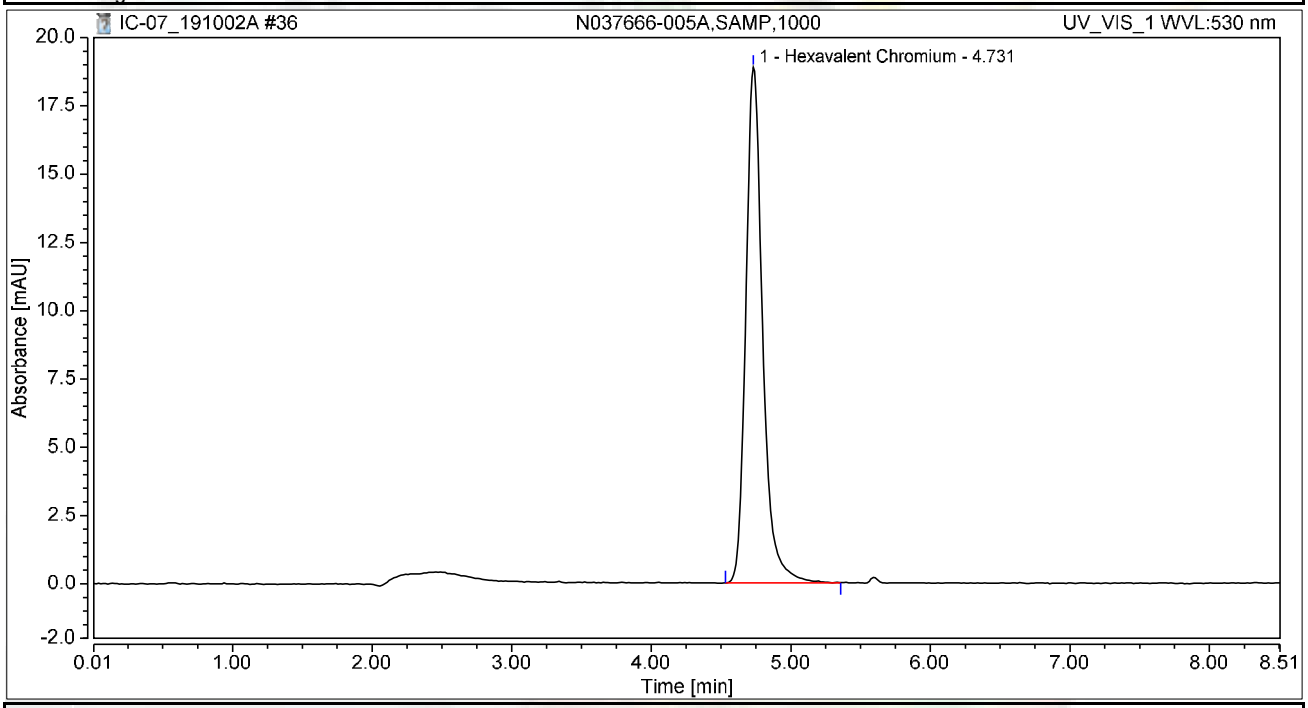
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-005A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

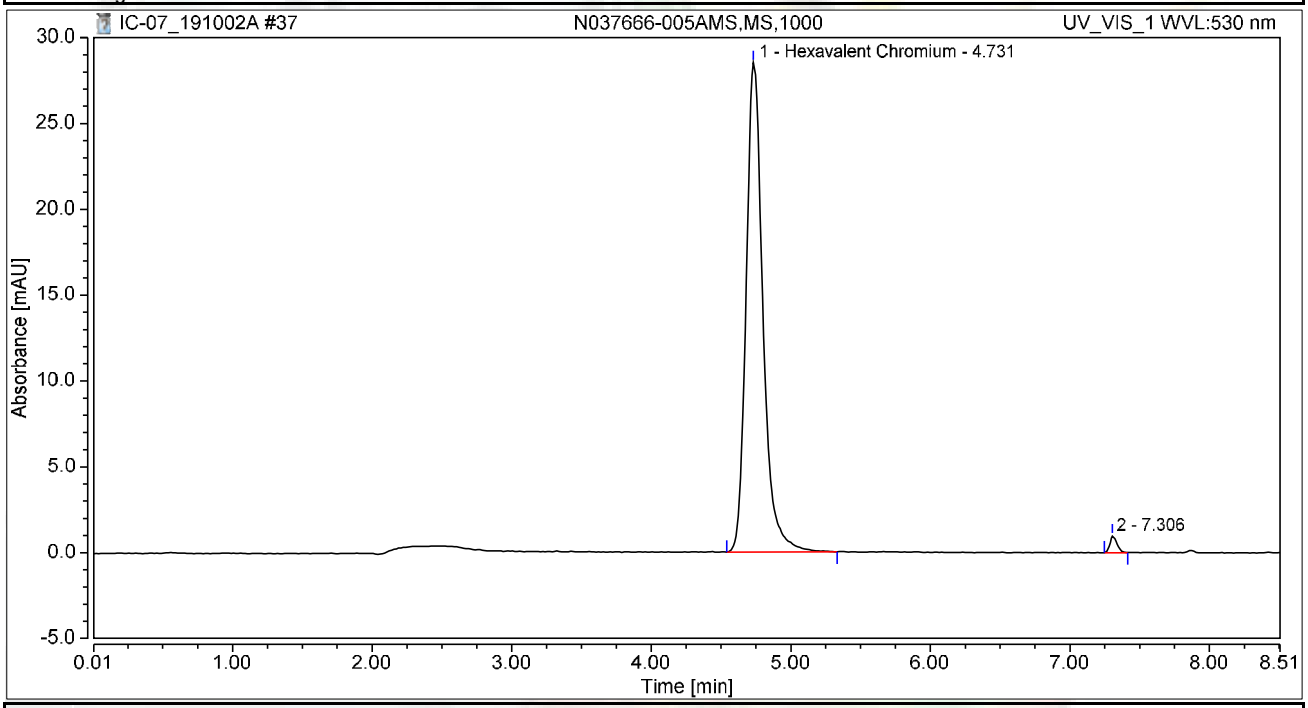
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.645	18.873	100.00	100.00	9.7364
Total:			**2.645**	**18.873**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-005AMS,MS,1000**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

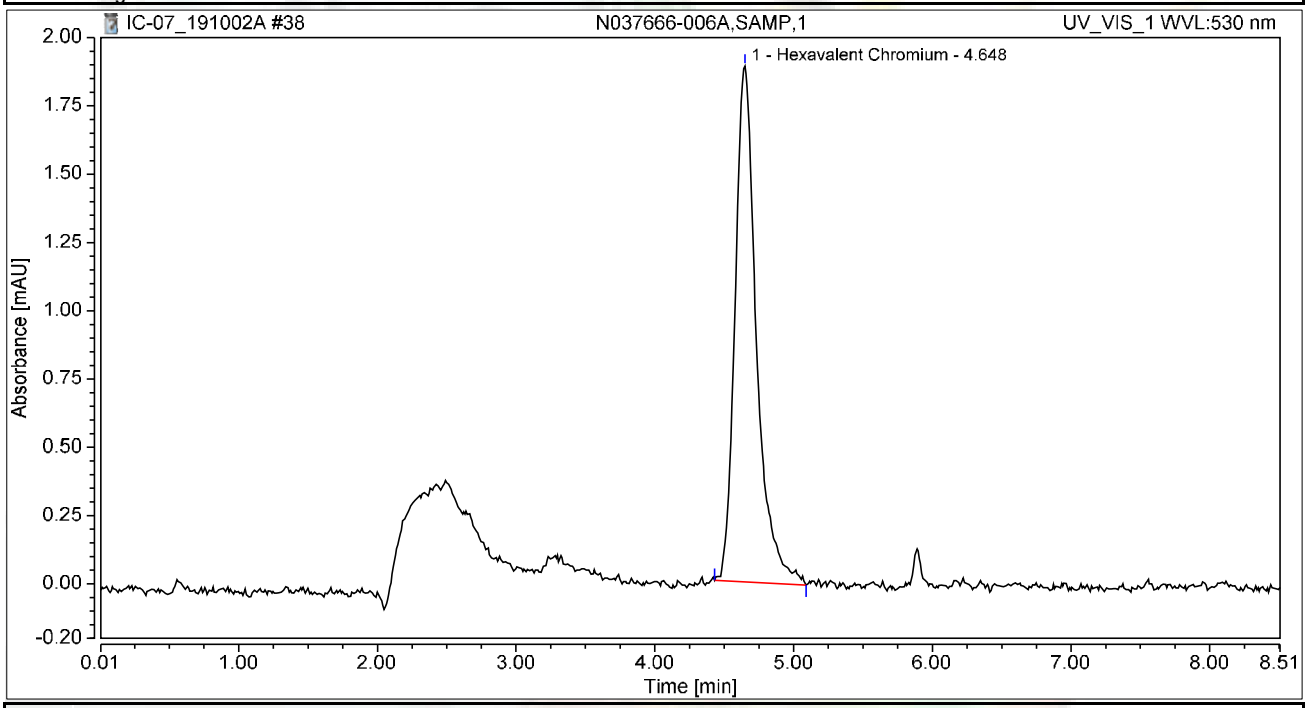
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.994	28.524	98.56	96.68	14.7051
2		7.306	0.058	0.980	1.44	3.32	n.a.
Total:			**4.053**	**29.504**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

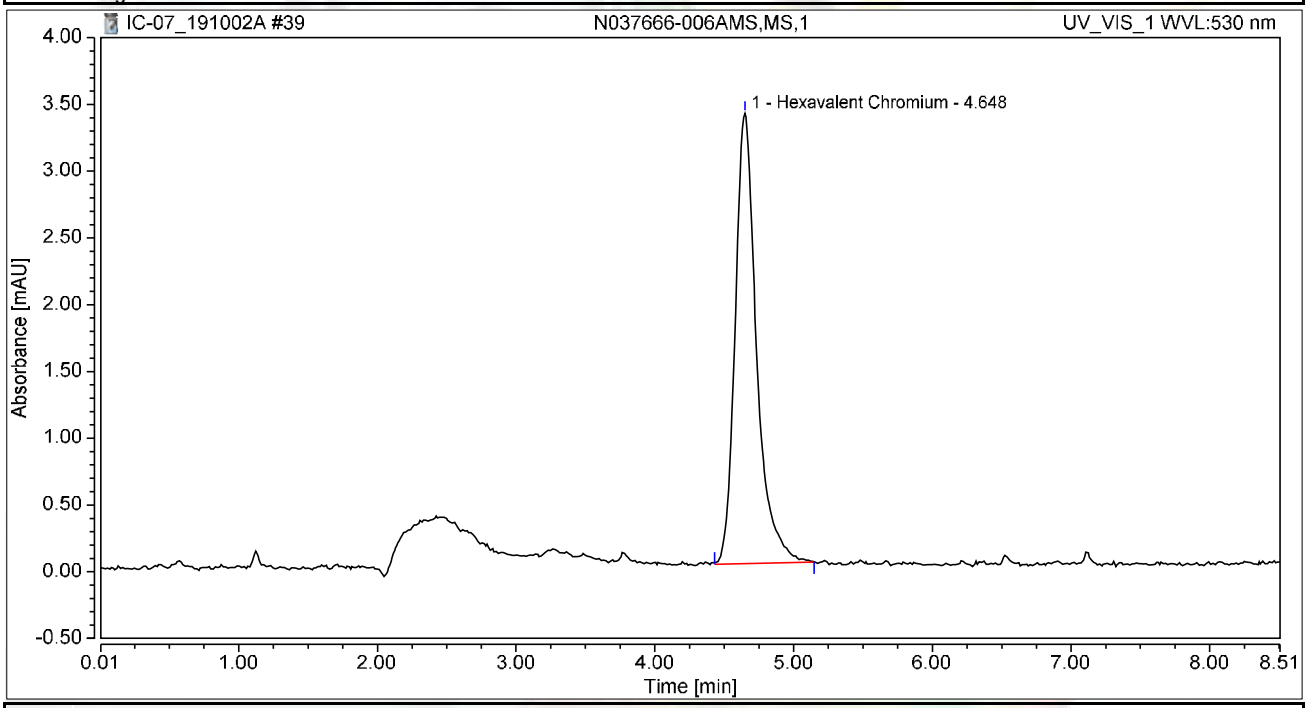
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.338	1.889	100.00	100.00	1.2452
Total:			**0.338**	**1.889**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

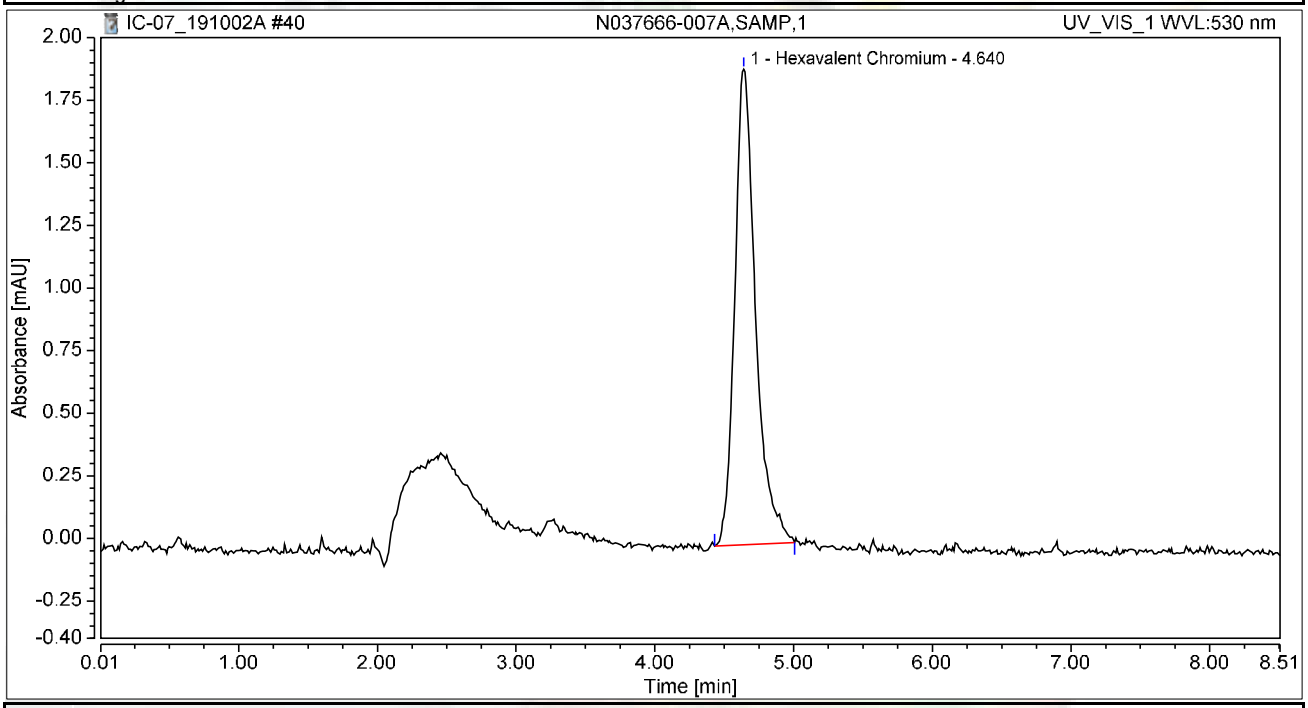
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.601	3.371	100.00	100.00	2.2141
Total:			**0.601**	**3.371**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

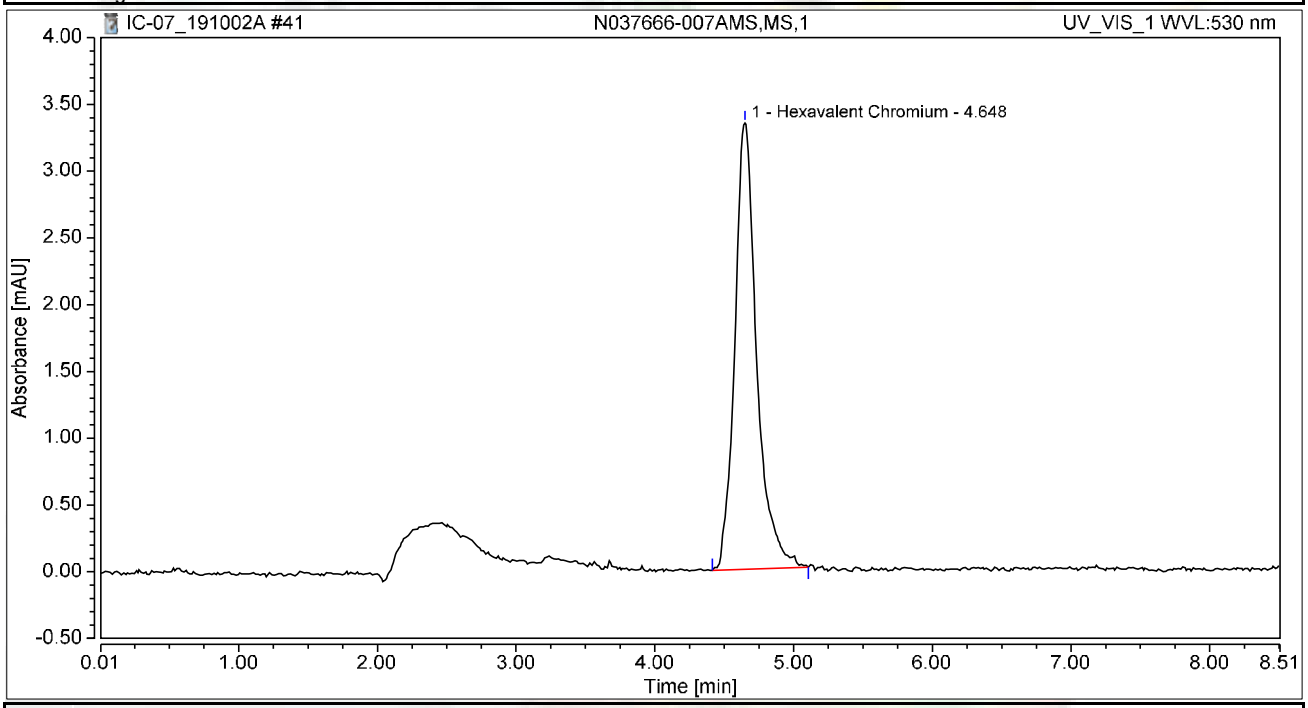
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.640	0.330	1.899	100.00	100.00	1.2148
Total:			**0.330**	**1.899**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

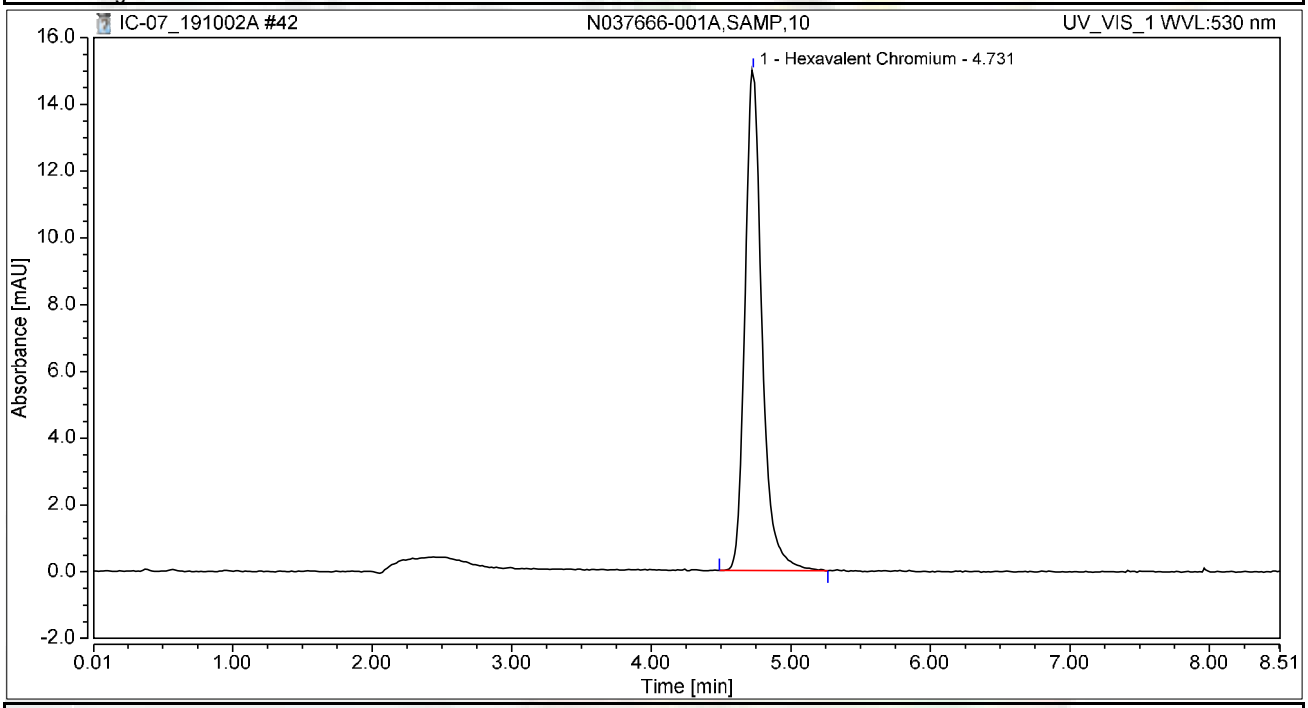
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.611	3.344	100.00	100.00	2.2490
Total:			**0.611**	**3.344**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

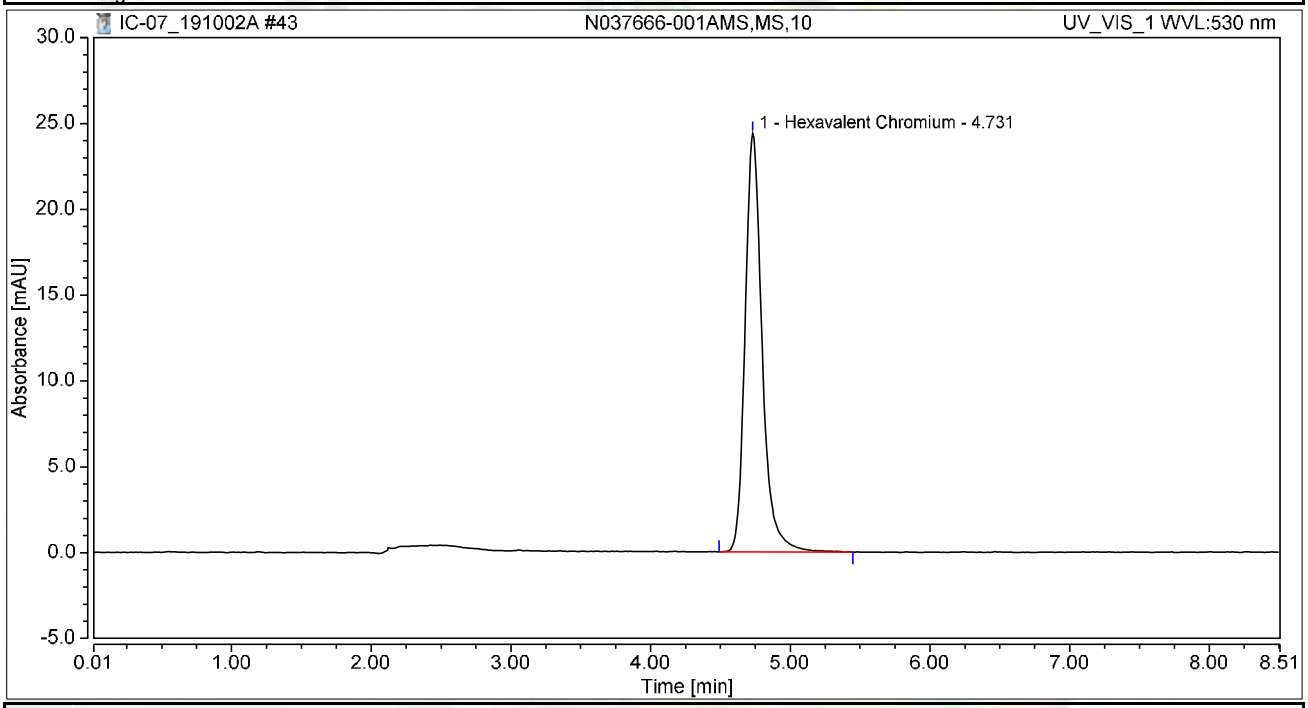
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.126	14.991	100.00	100.00	7.8284
Total:			**2.126**	**14.991**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

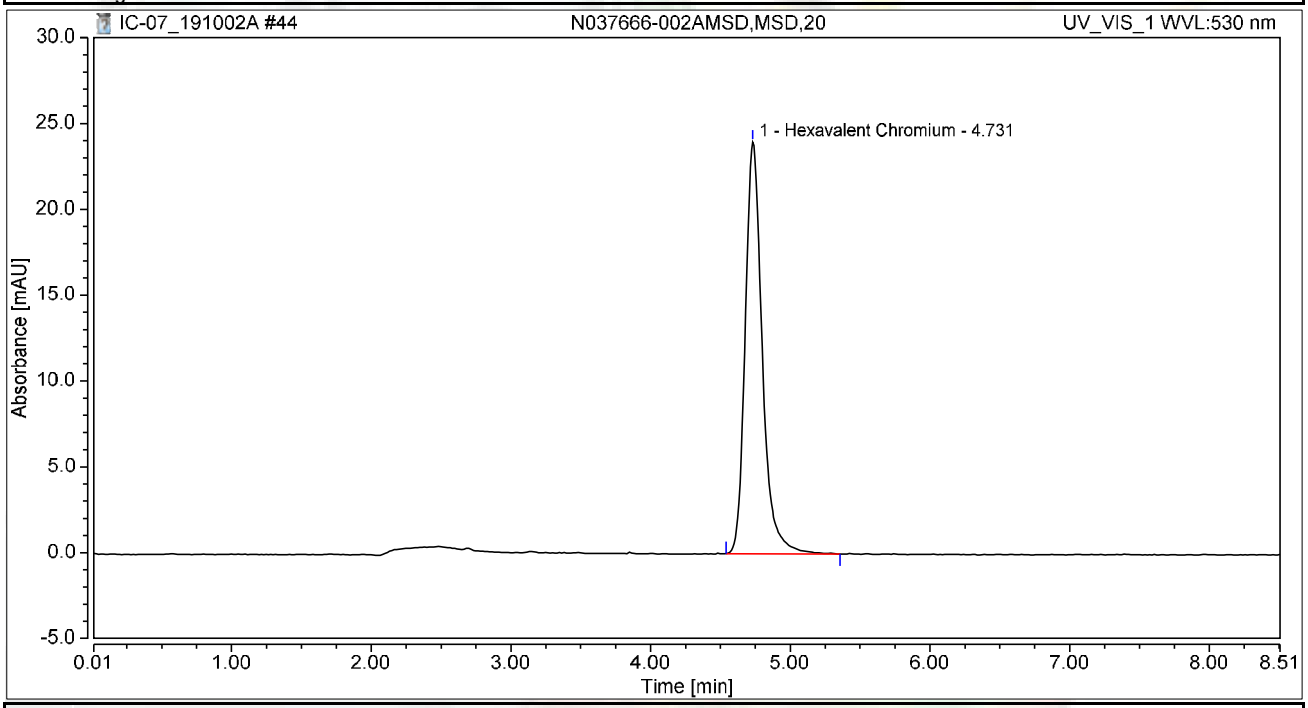
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.449	24.393	100.00	100.00	12.6961
Total:			**3.449**	**24.393**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002AMSD,MSD,20**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

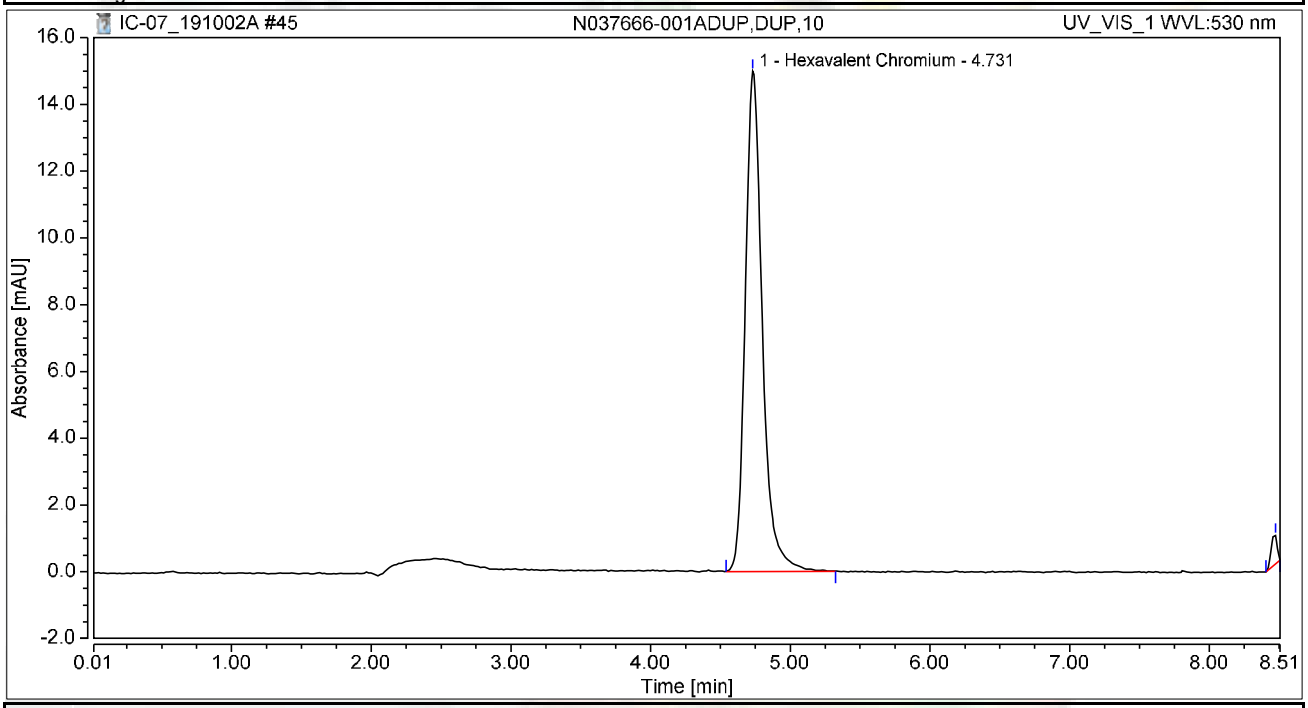
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.396	23.990	100.00	100.00	12.5037
Total:			**3.396**	**23.990**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001ADUP,DUP,10**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

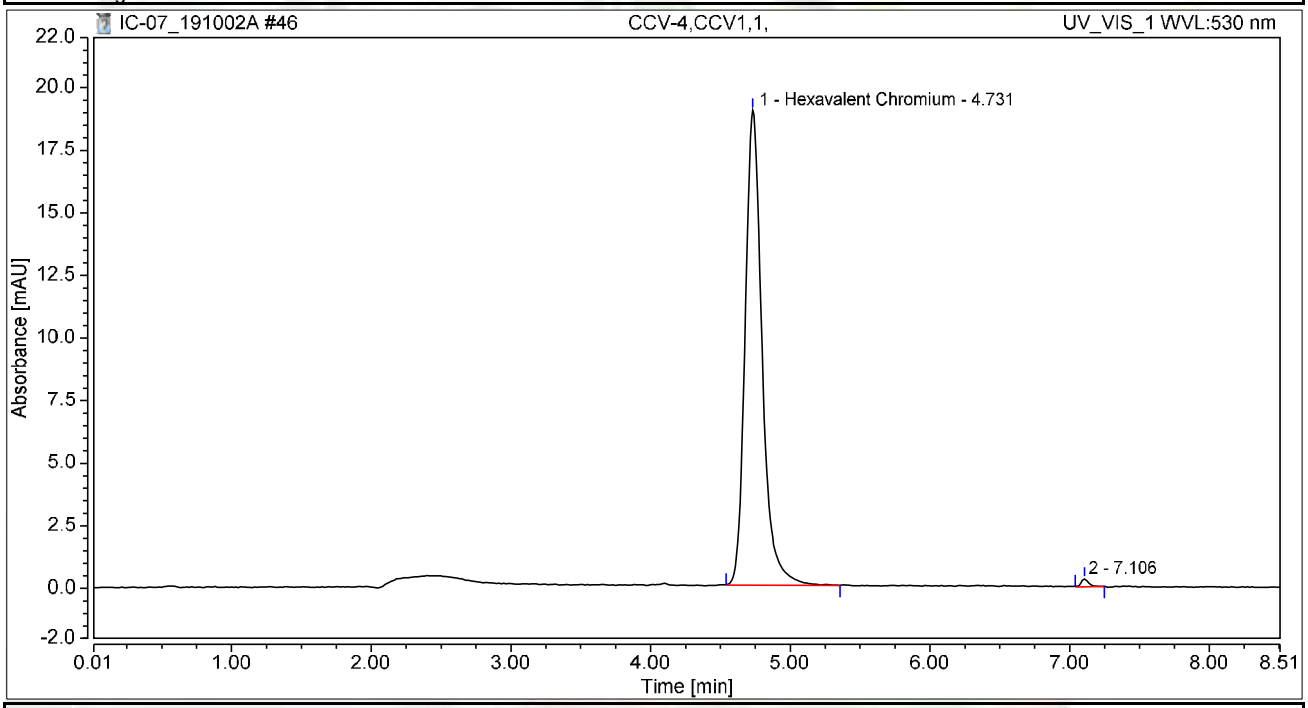
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.119	14.987	97.93	94.61	7.8017
2		8.473	0.045	0.853	2.07	5.39	n.a.
Total:			**2.164**	**15.840**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

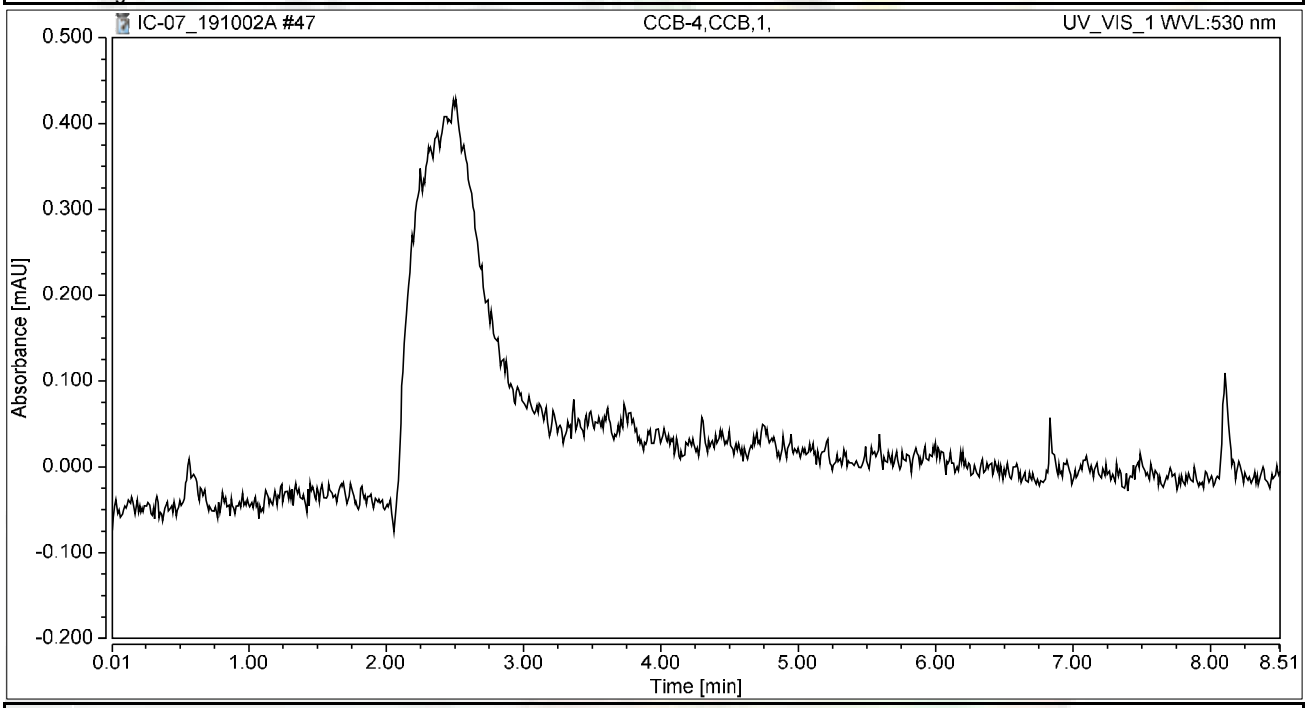
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.670	18.964	99.30	98.43	9.8302
2		7.106	0.019	0.303	0.70	1.57	n.a.
Total:			**2.689**	**19.267**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

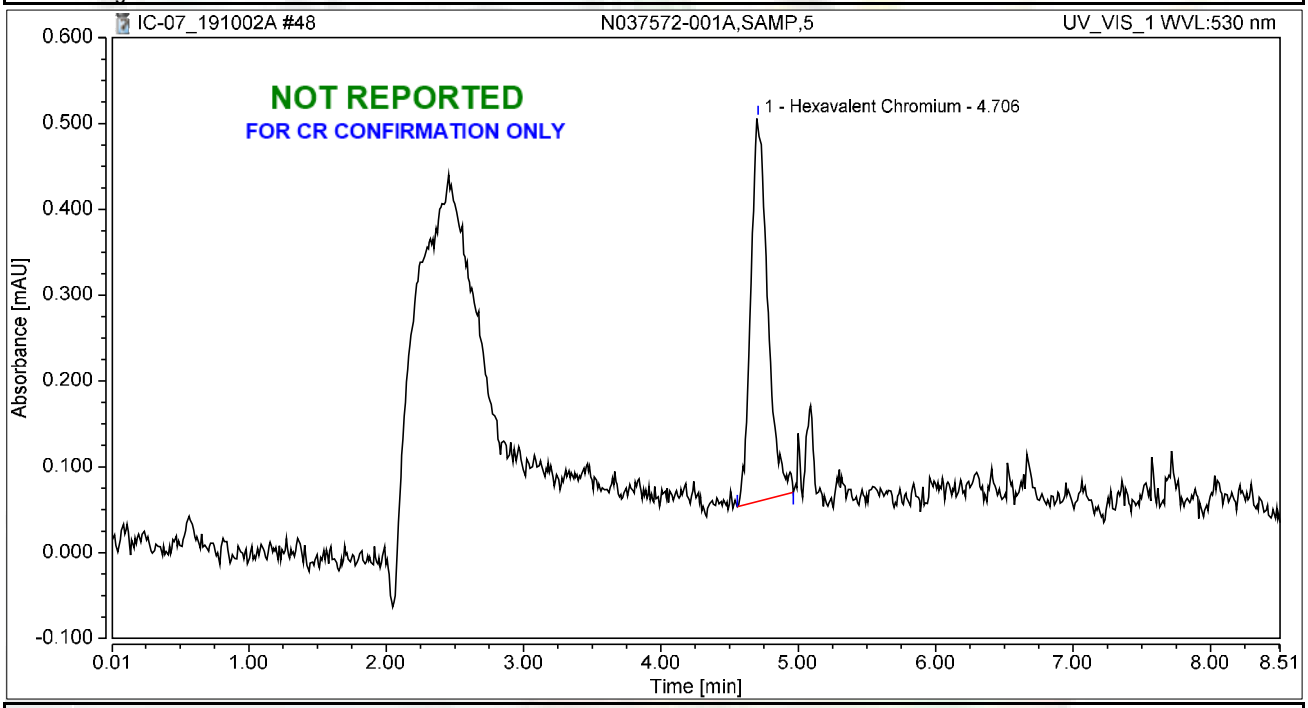
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037572-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

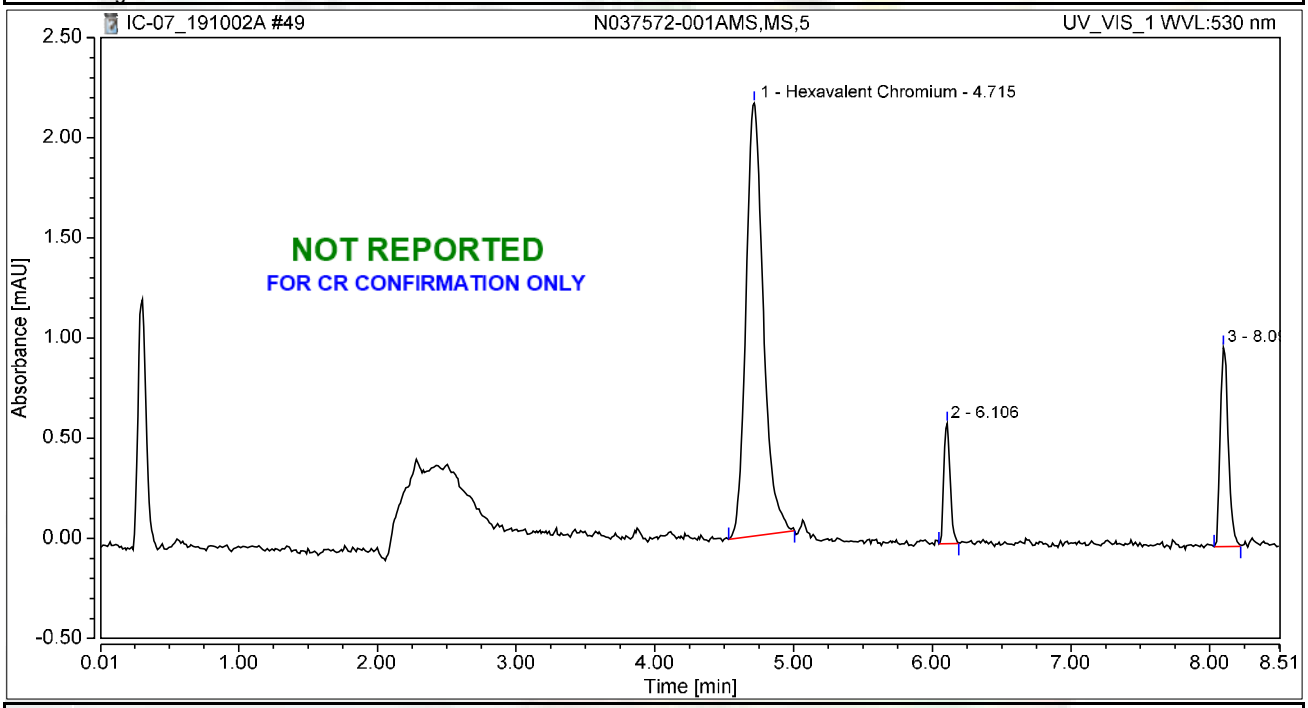
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.064	0.447	100.00	100.00	0.2360
Total:			**0.064**	**0.447**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037572-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

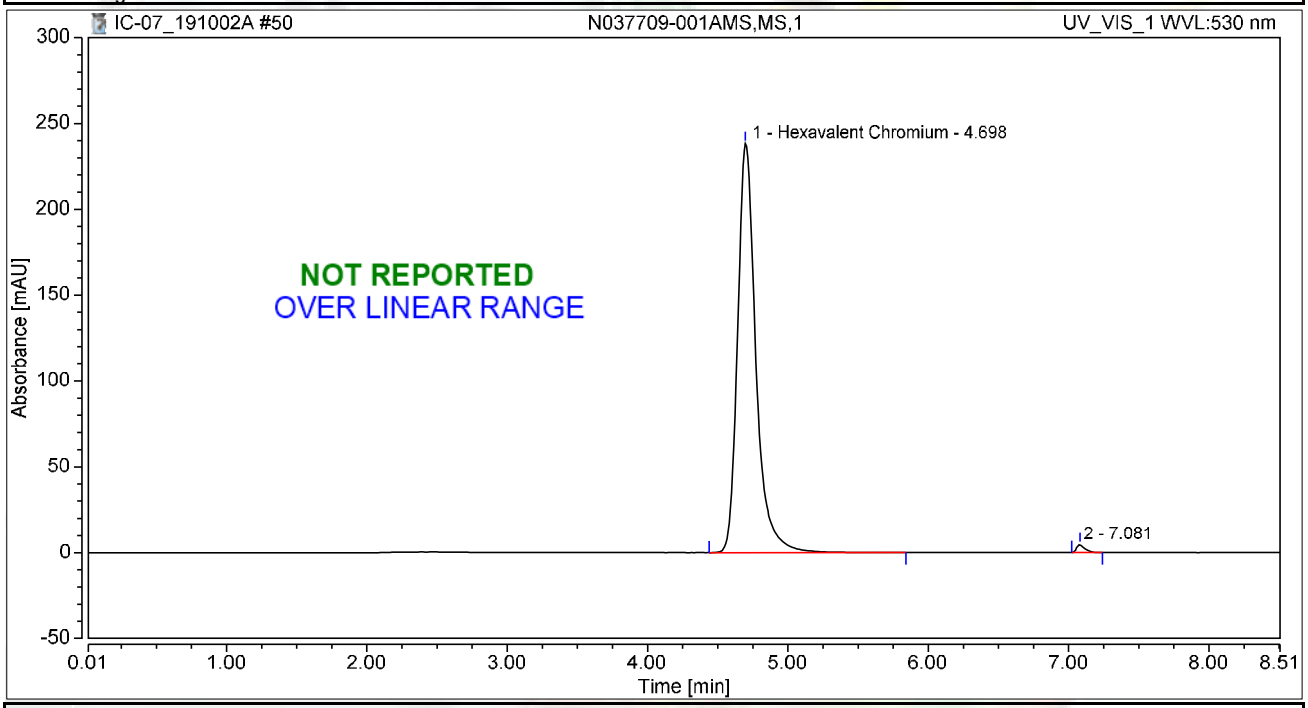
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.314	2.162	76.11	57.56	1.1557
2		6.106	0.031	0.600	7.64	15.97	n.a.
3		8.098	0.067	0.994	16.25	26.46	n.a.
Total:			**0.412**	**3.756**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

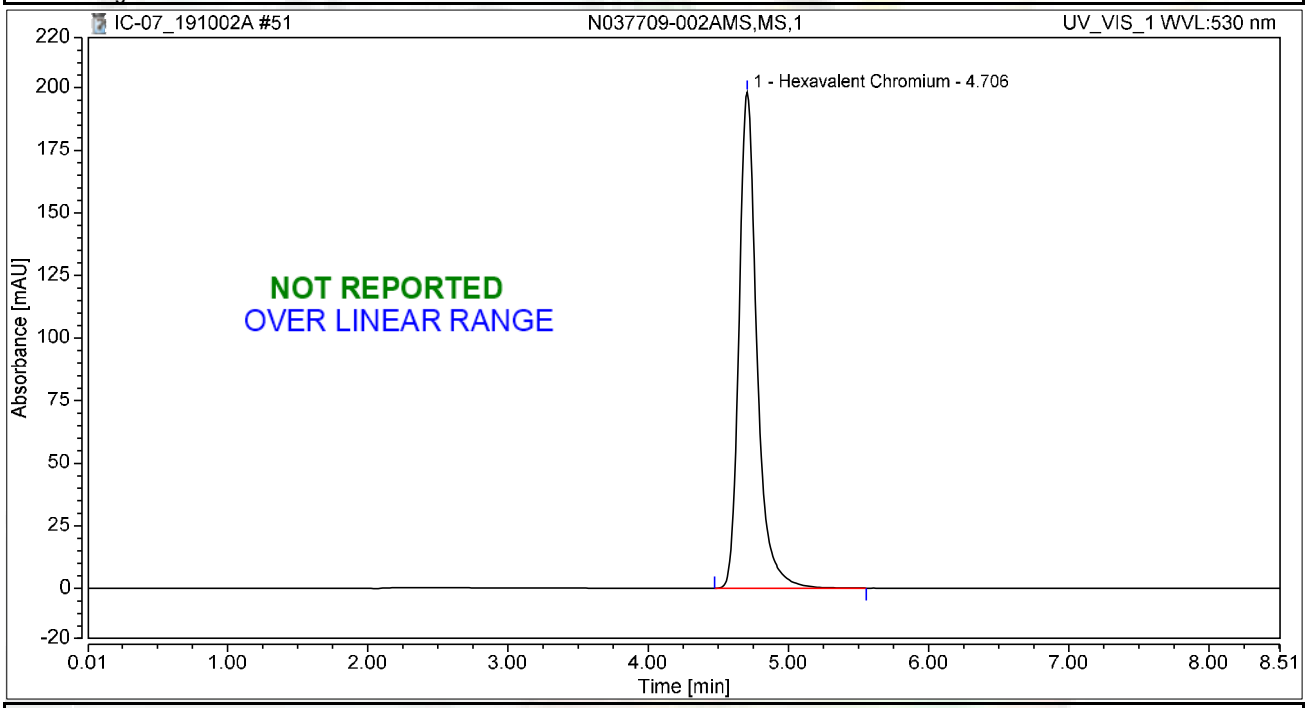
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	35.936	238.381	99.12	98.03	132.2985
2		7.081	0.317	4.790	0.88	1.97	n.a.
Total:			**36.253**	**243.171**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

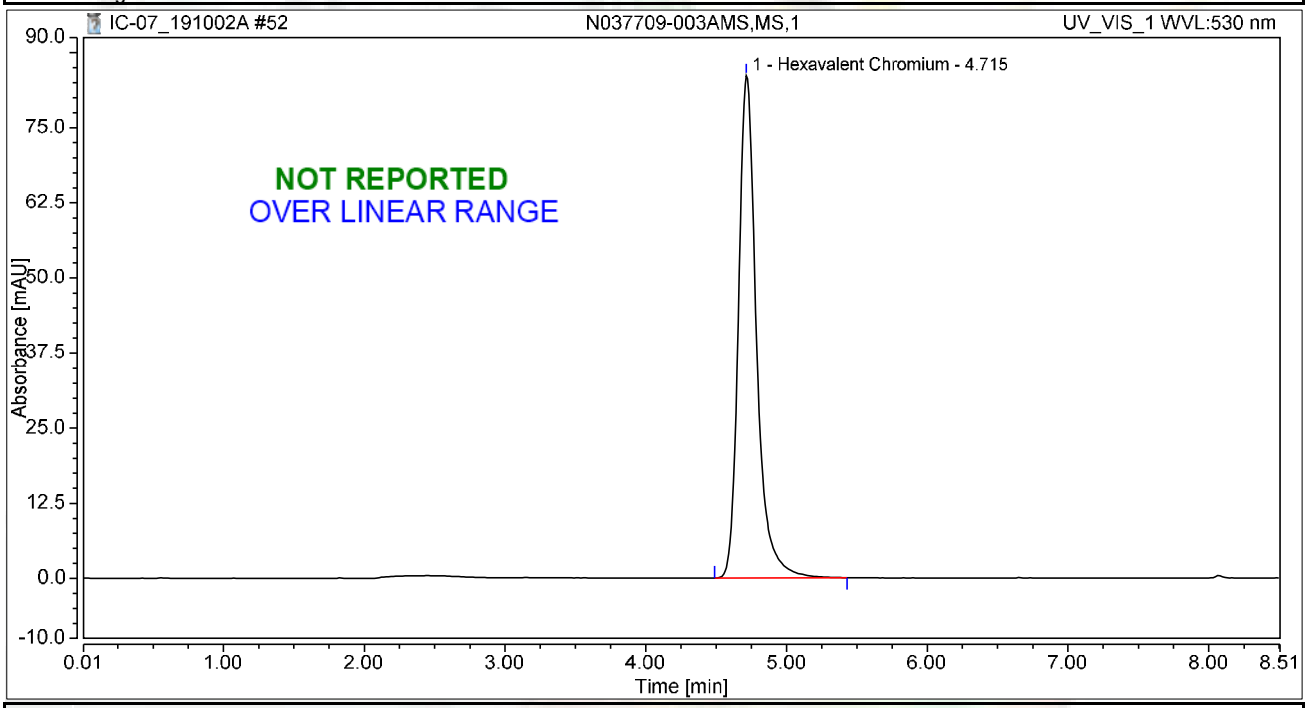
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	29.386	198.079	100.00	100.00	108.1862
Total:			**29.386**	**198.079**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**47**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

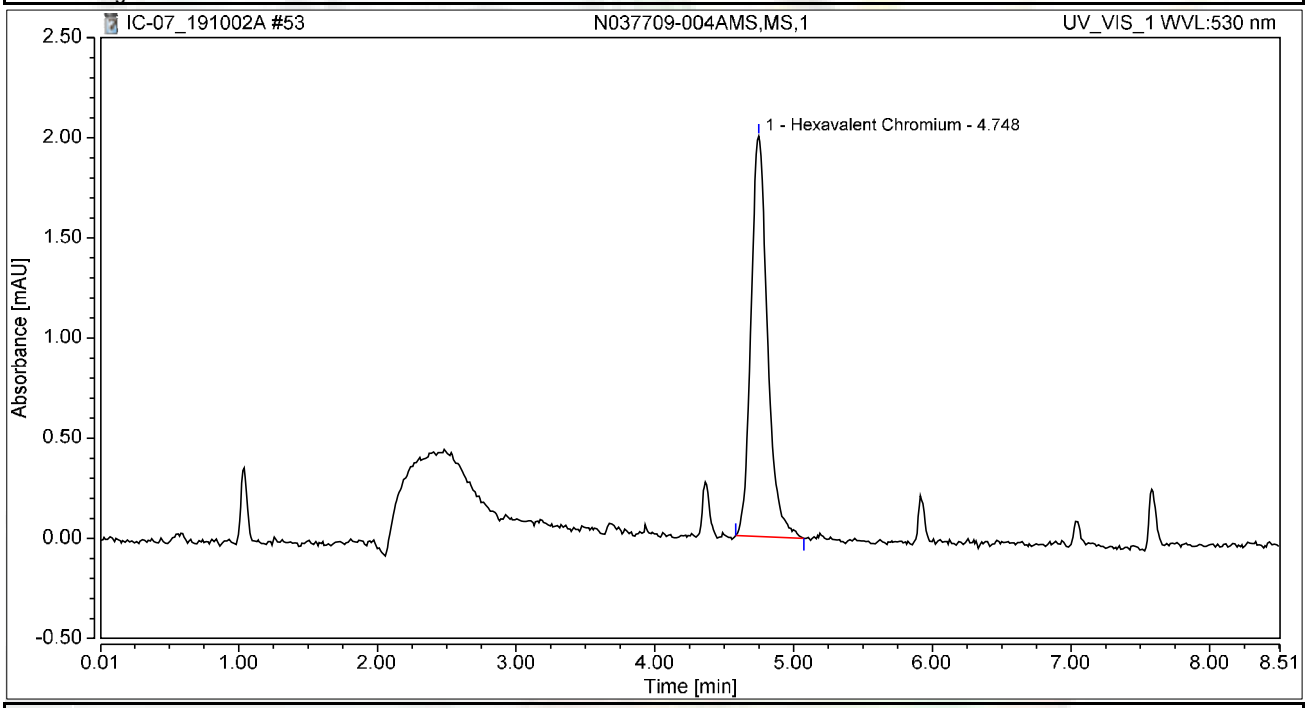
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	12.413	83.602	100.00	100.00	45.6977
Total:			**12.413**	**83.602**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**48**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

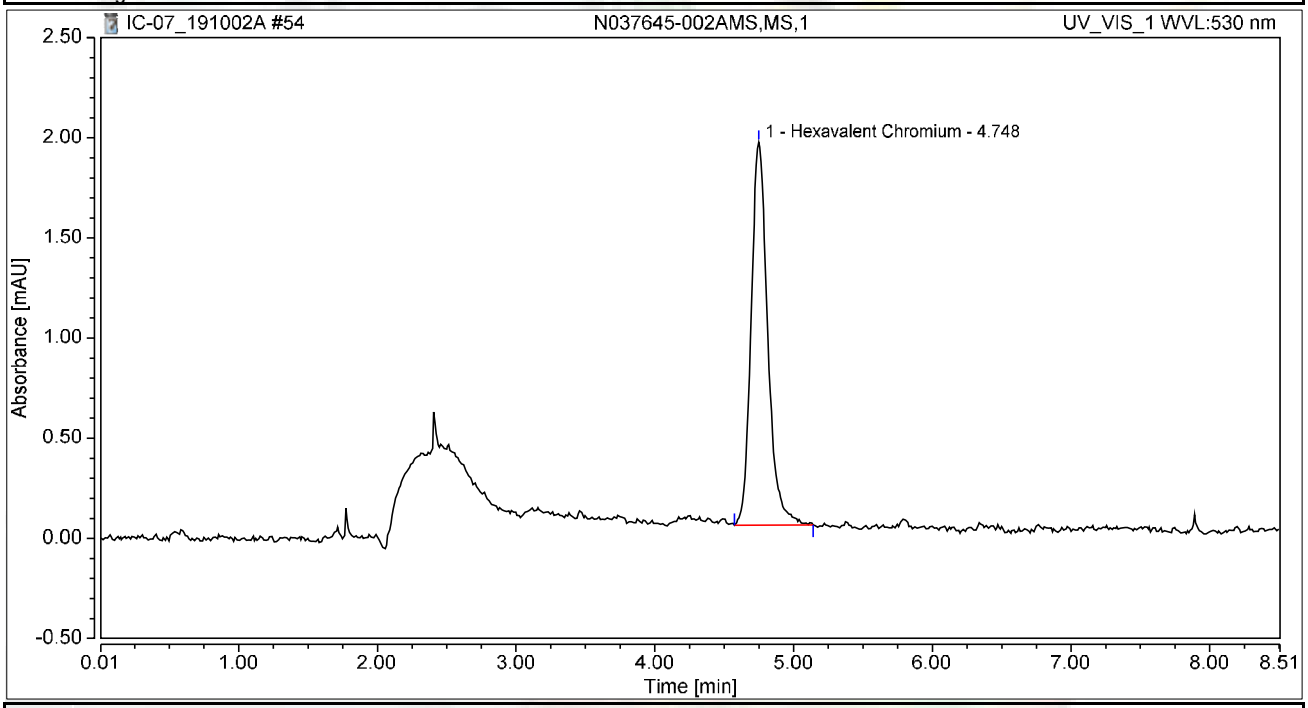
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.276	1.999	100.00	100.00	1.0151
Total:			**0.276**	**1.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**49**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

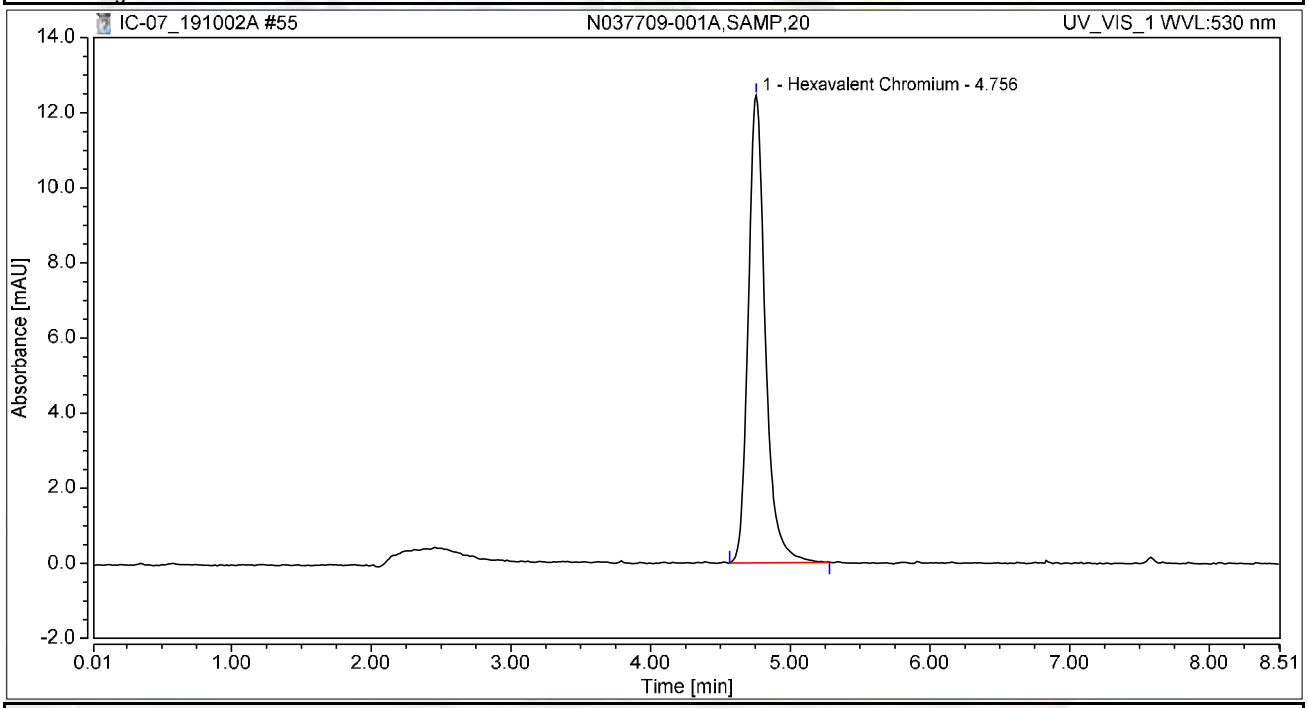
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.265	1.912	100.00	100.00	0.9756
Total:			**0.265**	**1.912**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

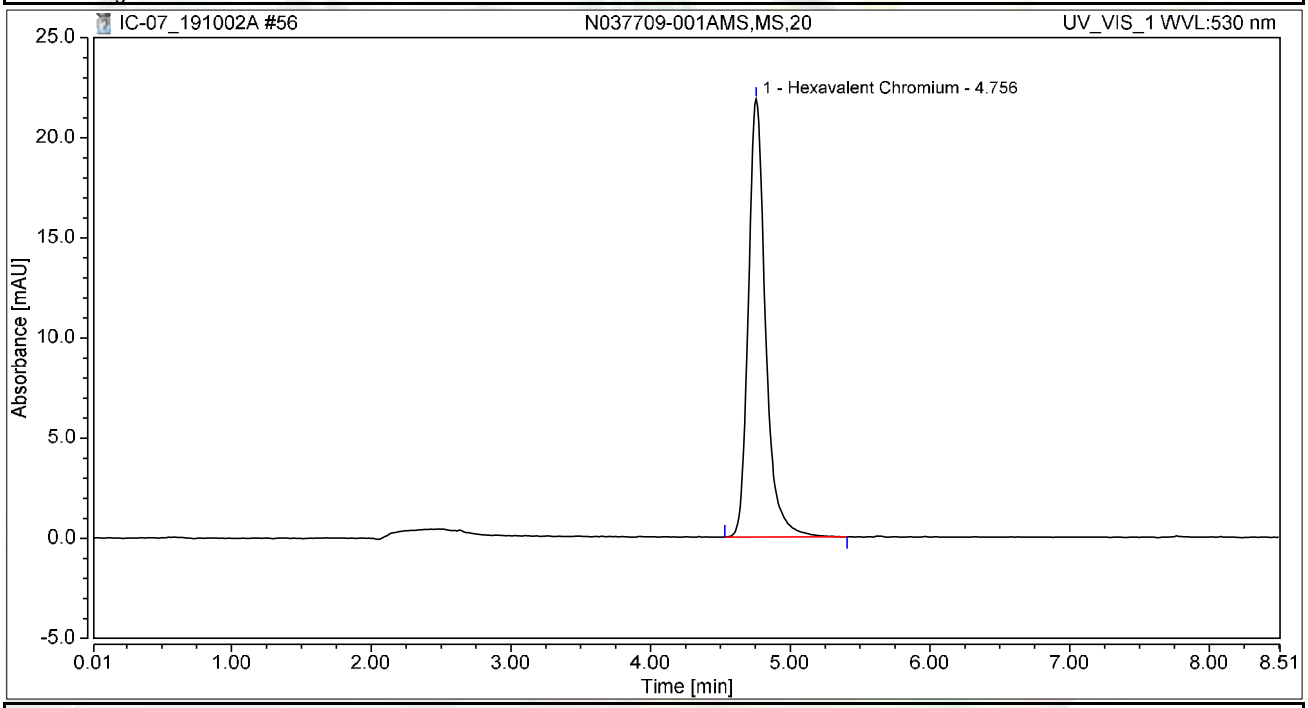
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	1.763	12.448	100.00	100.00	6.4923
Total:			**1.763**	**12.448**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001AMS,MS,20**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

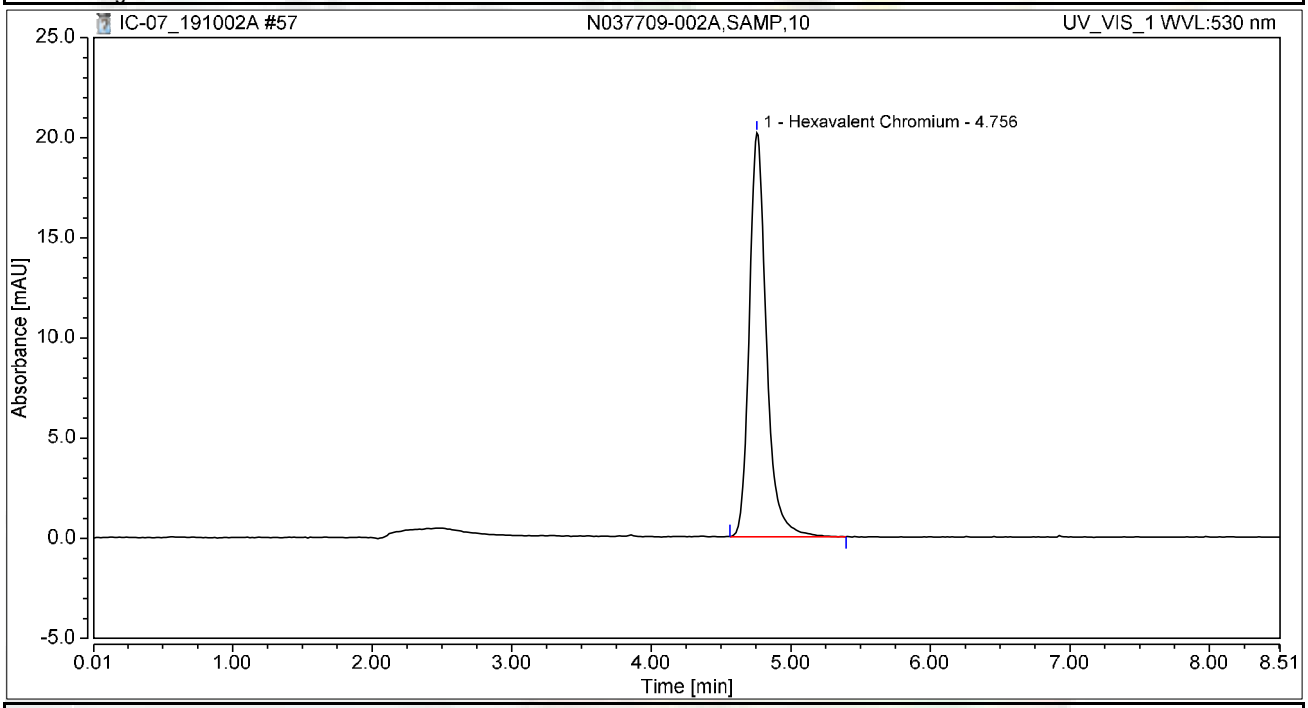
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.113	21.863	100.00	100.00	11.4610
Total:			**3.113**	**21.863**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

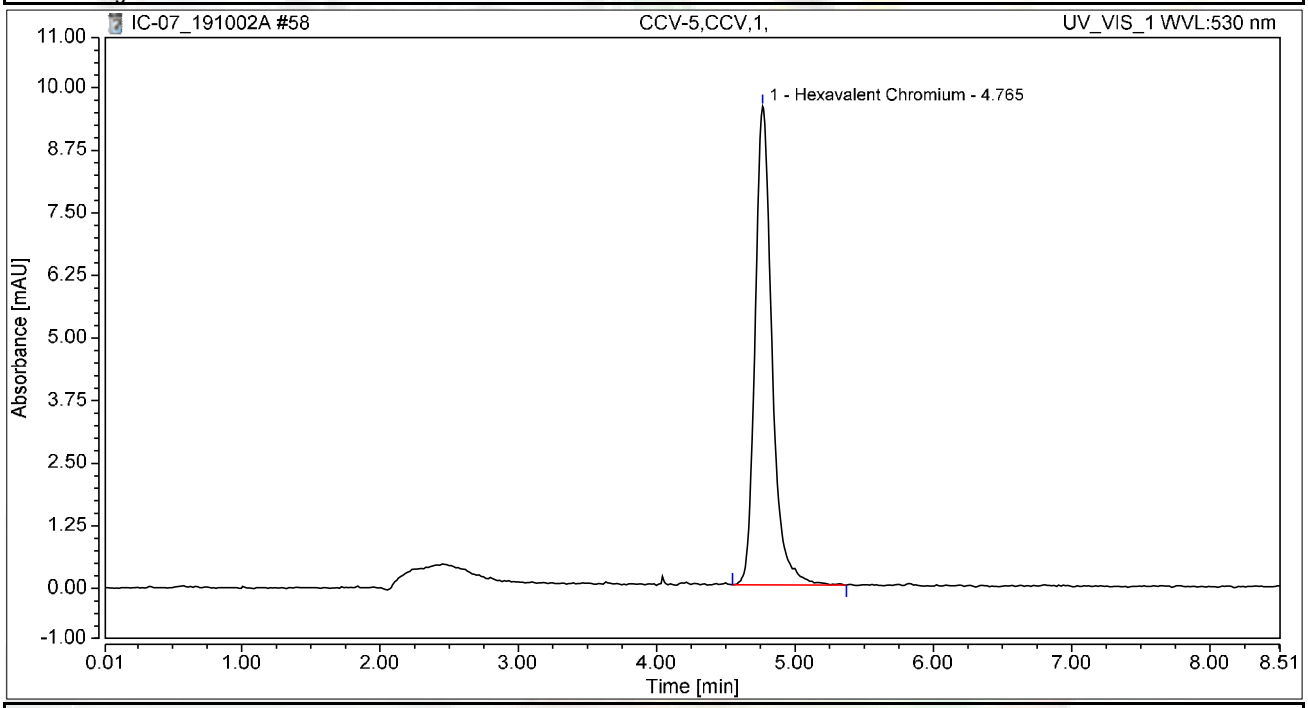
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	2.872	20.161	100.00	100.00	10.5727
Total:			**2.872**	**20.161**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

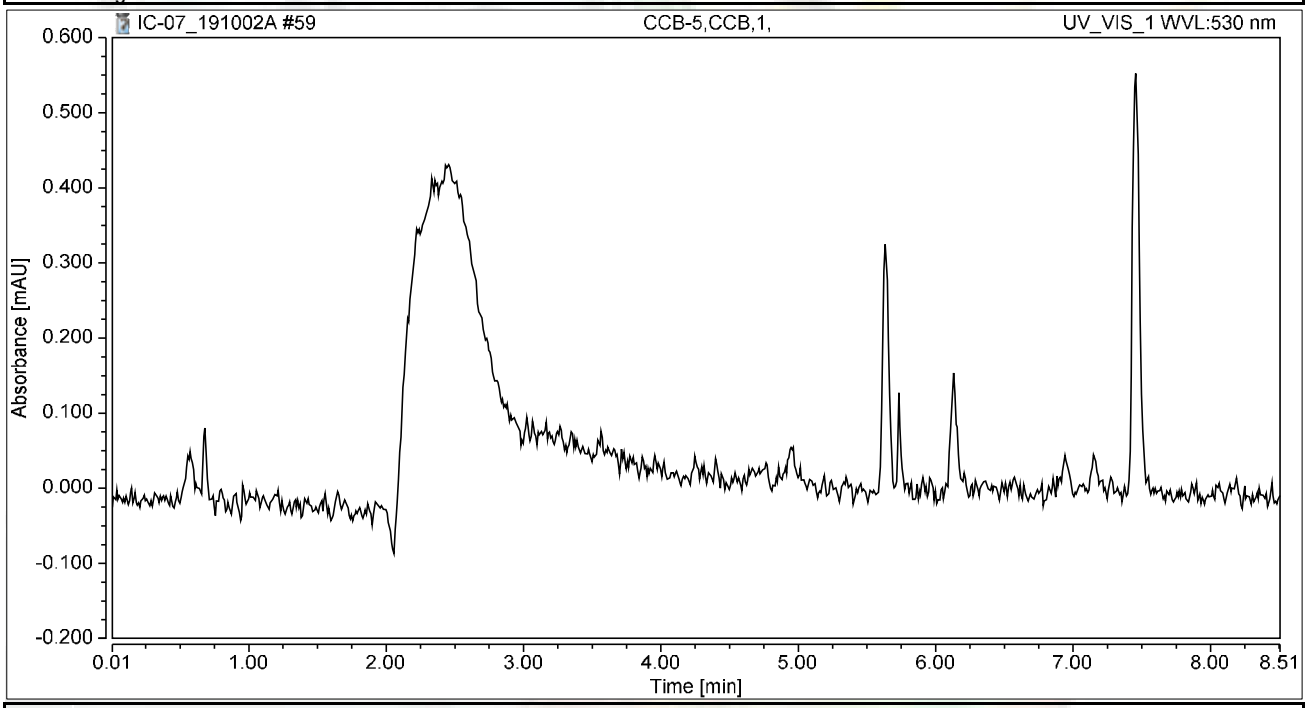
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.356	9.555	100.00	100.00	4.9922
Total:			**1.356**	**9.555**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

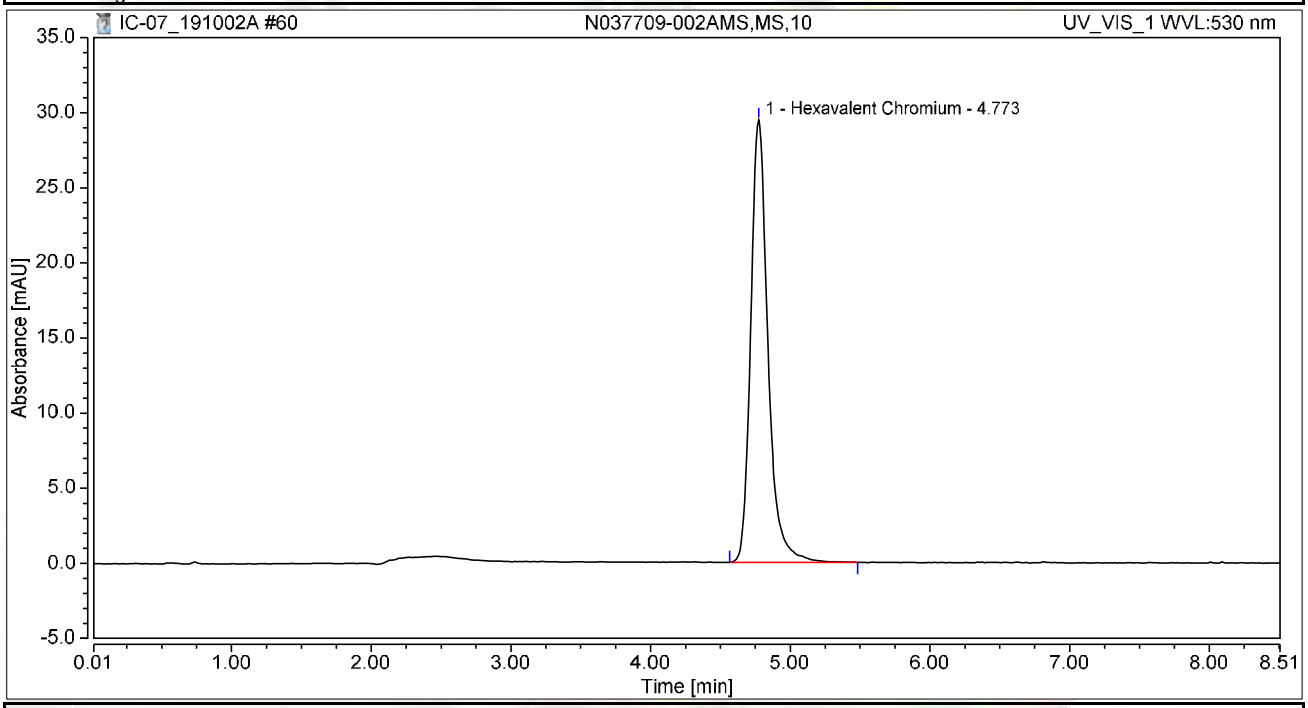
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

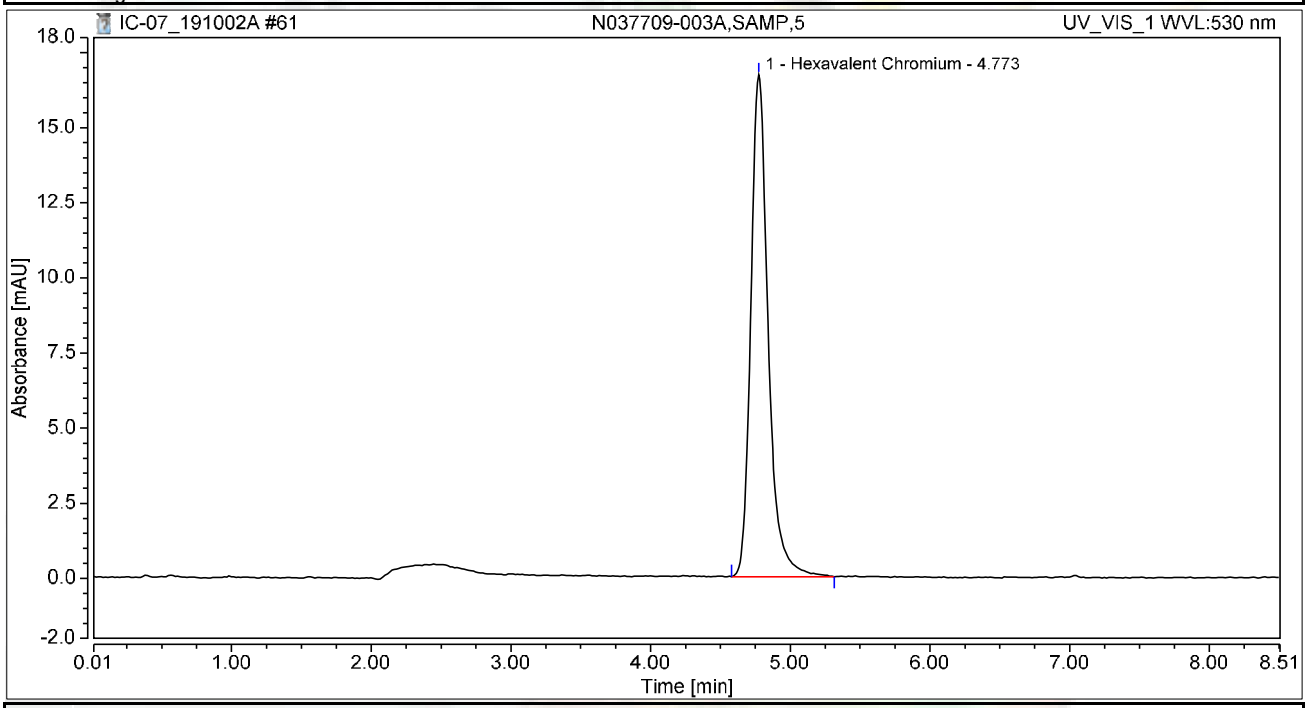
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	4.207	29.454	100.00	100.00	15.4886
Total:			**4.207**	**29.454**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

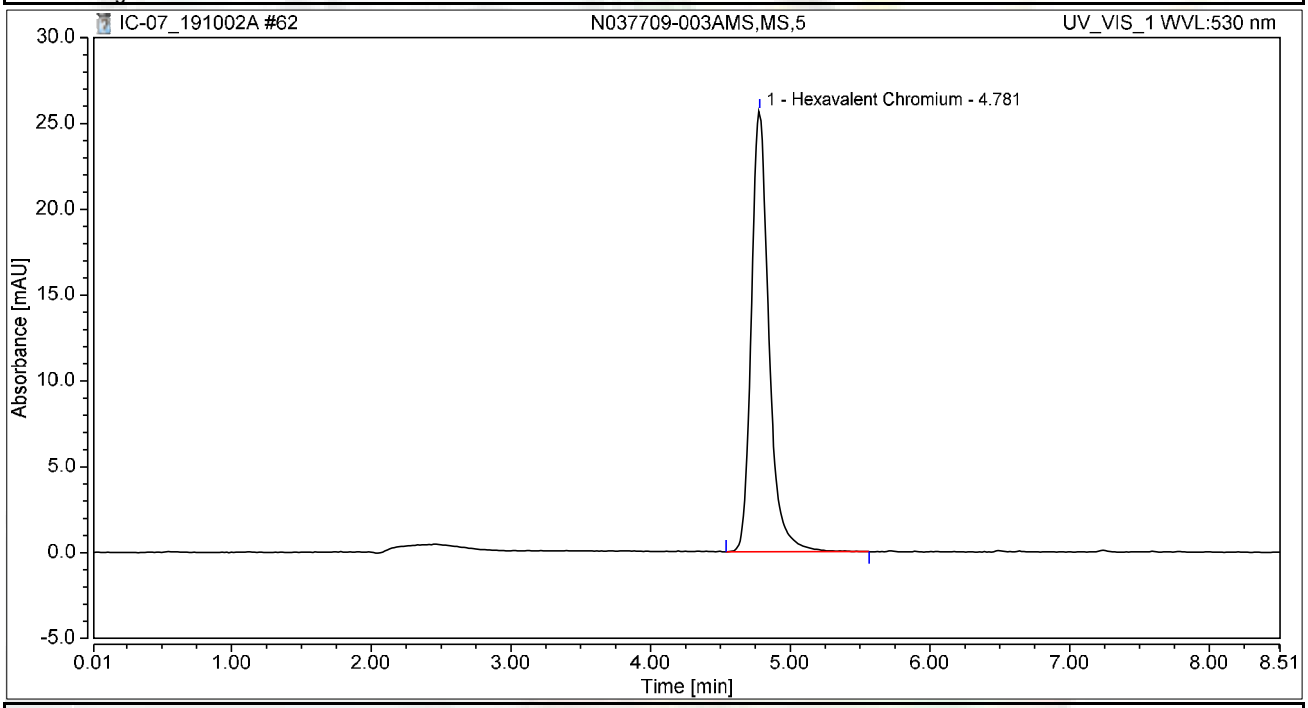
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	2.403	16.702	100.00	100.00	8.8486
Total:			**2.403**	**16.702**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

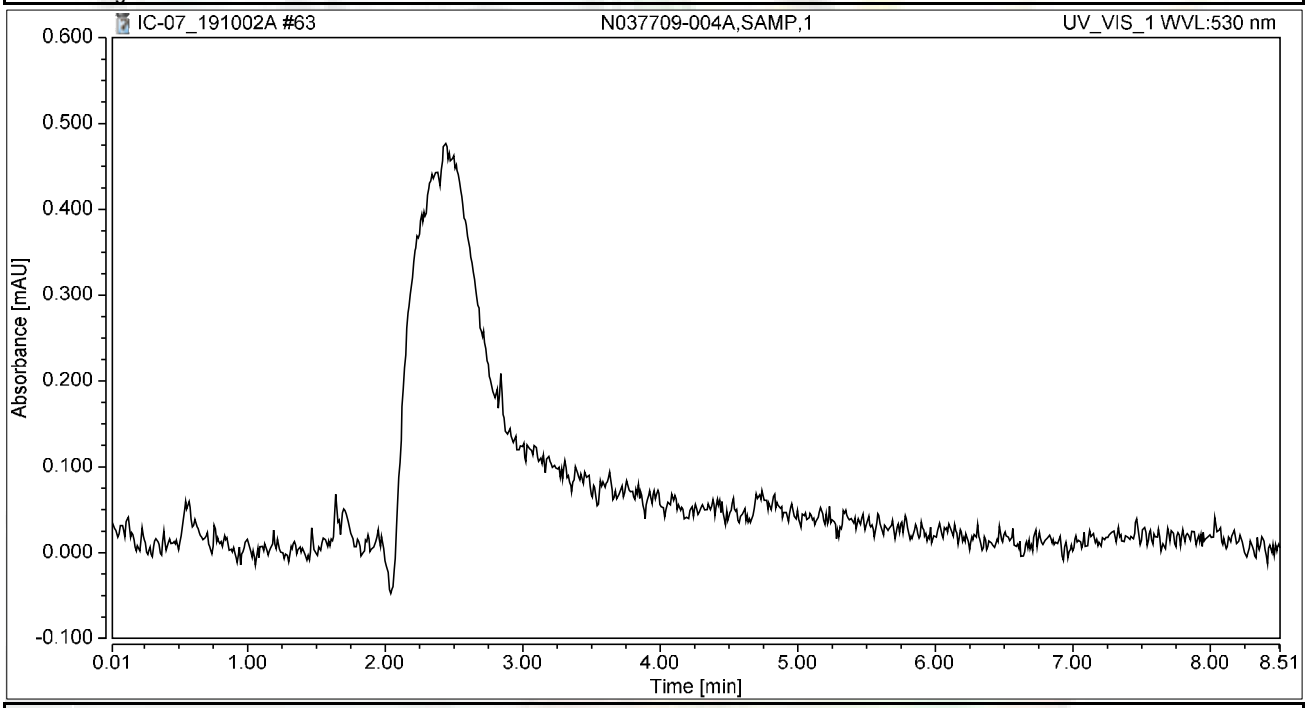
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.781	3.746	25.678	100.00	100.00	13.7899
Total:			**3.746**	**25.678**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

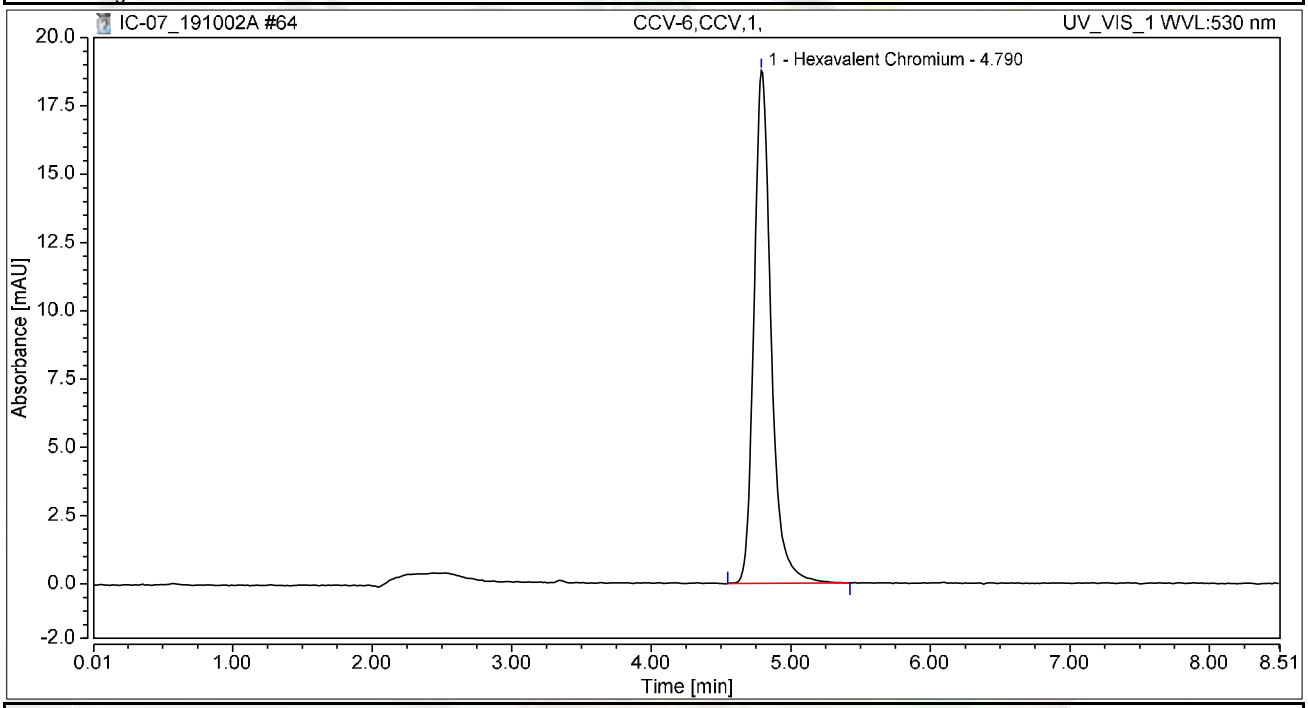
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

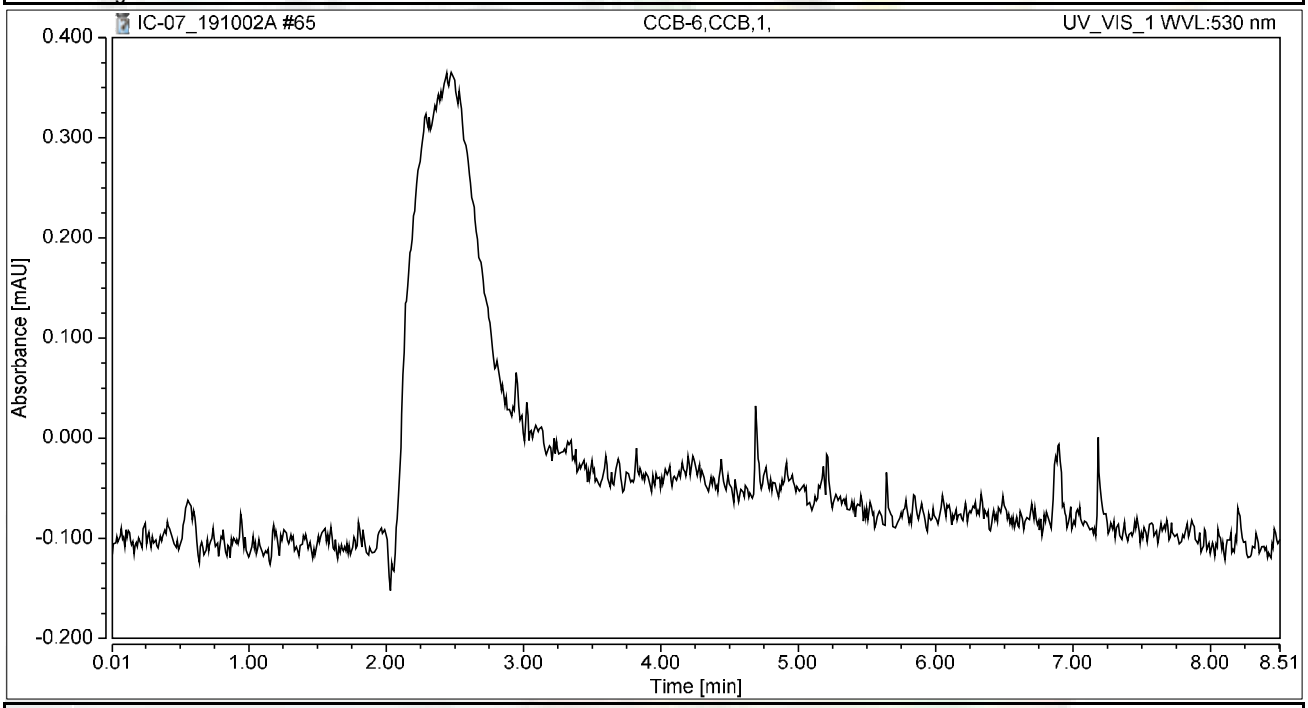
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	2.678	18.776	100.00	100.00	9.8588
Total:			**2.678**	**18.776**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

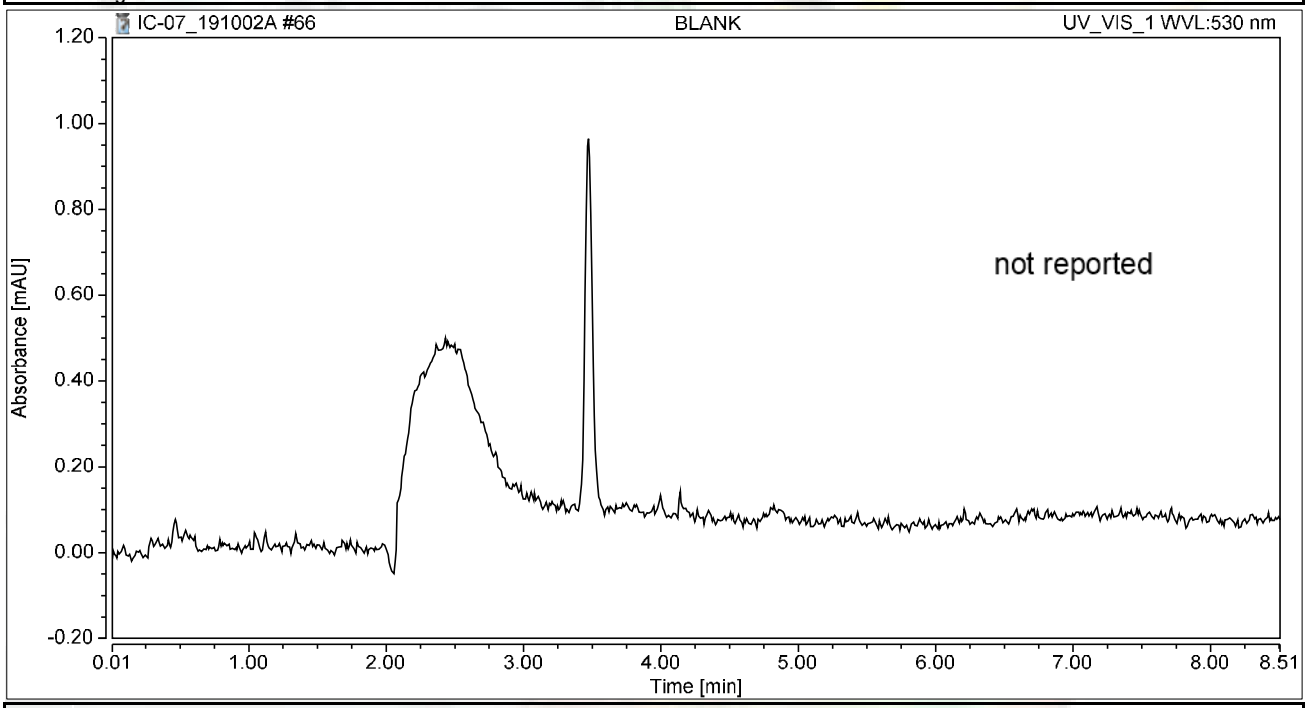
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136710 **Analyst:** MBC

ASSET #: N037646, 613, 648, 665 **Date Analyzed:** 9/30/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

RPD of Nitrate/Nitrite as N in N037646-002CDUP failed.

%Rec of Nitrate/Nitrite as N in MS/MSD failed, low bias. Possibly due to matrix interference.

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer MBC Date: 10/11/2019

2nd Level Reviewer NS 10/11/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037646-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N = 0.8778 * 5
= 4.389 mg/L

Reporting result in two significant figures,

Nitrate/Nitrite-N = 4.4 mg/L

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

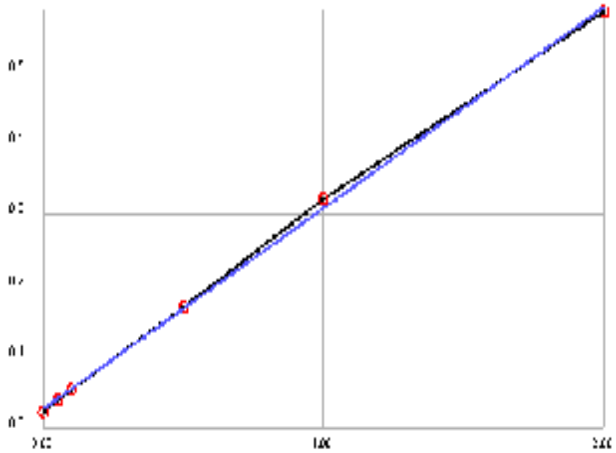
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2811x + 0.0267
Correlation	.999549

Calibrant	Energy	Set	Conc
1	0.0231	0.0000	-0.0130
2	0.0382	0.0500	0.0407
3	0.0535	0.1000	0.0952
4	0.1691	0.5000	0.5064
5	0.3201	1.0000	1.0436
6	0.5825	2.0000	1.9771

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **ICV**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.504	0.050	0.5000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **CCV**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523639**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.473	0.050	0.5000	0	94.6	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **CCV**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.473	0.050	0.5000	0	94.5	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **CCV**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.470	0.050	0.5000	0	94.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **ICB**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **CCB**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **CCB**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523656**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136710**
Client ID: **CCB**	Batch ID: **R136710**	TestNo: **SM4500-NO3**		Analysis Date: **9/30/2019**	SeqNo: **3523665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 09-30-2019 16:04
Time end: 09-30-2019 18:56

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:16:01	-0.0144		0.0227
2	<BLANK>	18:16:54	-0.0155		0.0224
3	<CAL1>	18:17:56	-0.0130	[0]	0.0231
4	<CAL2>	18:18:51	0.0407	[0.05]	0.0382
5	<CAL3>	18:19:45	0.0952	[0.1]	0.0535
6	<CAL4>	18:20:41	0.5064	[0.5]	0.1691
7	<CAL5>	18:21:42	1.0436	[1]	0.3201
8	<CAL6>	18:22:38	1.9771	[2]	0.5825
9	,BLANK,BLANK,1, NOT REPORTED	18:23:32	0.0322		0.0358
10	,ICV,ICV,1,	18:24:33	0.5043		0.1685
11	,ICB,ICB,1,	18:25:29	0.0251		0.0338
12	,MB-H2O,MBLK,1,	18:26:23	0.0347		0.0365
13	,LCS-H2O,LCS,1,	18:27:19	0.5555		0.1829
14	,N037646-002C,SAMP,1,	18:28:20	0.0706		0.0466
15	,N037646-~~001CDUP~~,DUP,1, 002CDUP	18:29:16	0.0518		0.0413
16	,N037613-011B,SAMP,20,	18:30:10	0.8942		0.2781
17	,N037613-011BMS,MS,20,	18:31:12	1.5022		0.4490
18	,N037613-011BMSD,MSD,20,	18:32:07	1.5224		0.4547
19	,N037646-001C,SAMP,5,	18:33:02	0.8778		0.2735
20	,N037648-001B,SAMP,1,	18:33:57	0.2254		0.0901
21	,BLANK, NOT REPORTED	18:34:59	-0.0201		0.0211
22	,CCV-1,CCV,1,	18:35:54	0.4730		0.1597
23	,CCB-1,CCB,1,	18:36:49	-0.0212		0.0208
24	,N037648-002B,SAMP,1,	18:37:50	0.3655		0.1295
25	,N037648-003B,SAMP,1,	18:38:46	1.2827		0.3873
26	,N037648-004B,SAMP,1,	18:39:40	0.1734		0.0755

10/11/2019

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N037648-005B,SAMP,10,	18:40:29	1.2659		0.3826
28	,N037648-006B,SAMP,1,	18:41:13	0.6224		0.2017
29	,N037648-007B,SAMP,1,	18:42:01	0.7209		0.2294
30	,N037648-008B,SAMP,1,	18:42:45	0.2488		0.0967
31	,N037648-009B,SAMP,5, NOT REPORTED	18:43:27	0.0375		0.0373
32	,N037648-010B,SAMP,5,	18:44:10	0.8735		0.2723
33	,BLANK, NOT REPORTED	18:44:58	-0.0123		0.0233
34	,CCV-2,CCV,1,	18:45:42	0.4726		0.1596
35	,CCB-2,CCB,1,	18:46:24	-0.0197		0.0212
36	,N037648-011B,SAMP,1,	18:47:13	0.2883		0.1078
37	,N037648-012B,SAMP,1,	18:47:57	0.6619		0.2128
38	,N037648-013B,SAMP,1,	18:48:39	0.2456		0.0958
39	,N037665-001B,SAMP,2,	18:49:22	1.2008		0.3643
40	,N037665-002B,SAMP,5,	18:50:10	0.5697		0.1869
41	,N037665-003B,SAMP,20,	18:50:54	0.5530		0.1822
42	,N037665-004B,SAMP,10,	18:51:36	0.9187		0.2850
43	,BLANK, NOT REPORTED	18:52:25	-0.0052		0.0253
44	,CCV-3,CCV,1,	18:53:09	0.4701		0.1589
45	,CCB-3,CCB,1,	18:53:51	0.0087		0.0292



Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/30/2019
Time Analyzed: 4:04 PM ; 6:56 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190913A
Color reagent: R190926D
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037646-002C		7.77							
N037613-011B		7.76							
N037646-001C		7.94							
N037648-001B		6.61							
N037648-002B		8.22							
N037648-003B		8.57							
N037648-004B		7.58							
N037648-005B		8.46							
N037648-006B		8.32							
N037648-007B		8.75							
N037648-008B		8.17							
N037648-009B		8.29							
N037648-010B		7.37							
N037648-011B		8.20							
N037648-012B		8.55							
N037648-013B		8.09							
N037665-001B		8.09							
N037665-002B		8							
N037665-003B		7.62							
N037665-004B		7.25							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75482
ASSET #: N037646
Instrument ID: ICPMS-02
Analyst: CEI
Method: DISSOLVED
Date Analyzed: 10/8/2019

[ ] EPA 6010B / 200.7 [ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8 [ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)		X			X	
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?		X			X	
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?		X			X	
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)		X			X	
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).		X			X	
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Mo in ICV failed, high bias. Samples are for rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75482
ASSET #: N037646
Instrument ID: ICPMS-02
Analyst: CEI
Method: DISSOLVED
Date Analyzed: 10/9/2019

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			~~X~~	X	
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Mo run
% Rec of Mo in N037645-001B-PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 10/15/2019
2nd Level Reviewer NS 10/15/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Molybdenum concentration, in ug/L , in the original sample as follows:

Molybdenum , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037646-001B** , the concentration in ug/L is calculated as follows:

Molybdenum , ug/L = 23.2055 * 1 *(25 / 25)

Molybdenum , ug/L = 23.2055

Reporting results in two significant figures,

Molybdenum, ug/L = 23

% RSD SUMMARY

PERCENT RSD SUMMARY: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.09	33.338	15	<PQL	0.11	1.956	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.49	10.762	15	PASS	0.57	0.483	15	PASS
Std3-5/50 ppb	ICAL	1	5.04	1.509	15	PASS	5.21	0.986	15	PASS
Std4-10/100 ppb	ICAL	1	10.24	2.301	15	PASS	10.38	1.319	15	PASS
Std5-20/200 ppb	ICAL	1	20.16	1.184	15	PASS	20.2	0.701	15	PASS
Std6-40/400 ppb	ICAL	1	40.87	1.737	15	PASS	40.46	2.631	15	PASS
Std7-100/1000 ppb	ICAL	1	100.66	1.211	15	PASS	100.07	1.322	15	PASS
Std8-200/2000 ppb	ICAL	1	199.47	0.745	15	PASS	199.83	0.069	15	PASS
ICV	ICV	1	10.69	1.759	15	PASS	107.61	0.723	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.03	40.507	15	<PQL
LLICV	CCV1	1	1.05	2.133	20	PASS	0.57	3.517	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.4	0.447	15	PASS	19.71	0.744	15	PASS
LLICV	CCV1	1	1	3.034	20	PASS	0.53	1.987	20	PASS
MB-75482	MBLK	1	<0.000	N/A	15	<PQL	0	16059.67	15	<PQL
LCS-75482	LCS	1	10.54	1.094	15	PASS	108.14	1.035	15	PASS
N037645-001B	SAMP	1	<0.000	N/A	15	<PQL	155.59	3.407	15	PASS
N037645-001B	SAMP	5	<0.000	N/A	15	<PQL	32.09	2.786	15	PASS
N037645-001B	SAMP	25	<0.000	N/A	15	<PQL	6.58	3.528	15	PASS
N037645-001B-PS	PS	1	10.06	0.471	15	PASS	398.56	0.697	15	PASS
N037645-001B-PS	PS	5	1.88	2.095	15	PASS	53.02	1.384	15	PASS
N037645-001B-MS	MS	1	9.92	1.215	15	PASS	394.27	0.947	15	PASS
N037645-001B-MS	MS	5	1.91	2.859	15	PASS	52.89	0.713	15	PASS
N037645-001B-MSD	MSD	1	9.93	2.915	15	PASS	395.83	0.608	15	PASS
CCV1	CCV	1	19.83	0.189	15	PASS	20.08	0.336	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N037645-001B-MSD	MSD	5	1.89	1.234	15	PASS	51.63	1.361	15	PASS
N037646-001B	SAMP	1	4.67	3.199	15	PASS	52.32	0.221	15	PASS
N037646-001B	SAMP	5	0.89	3.223	15	PASS	10.76	2.229	15	PASS
N037646-002B	SAMP	1	<0.000	N/A	15	<PQL	63.82	0.398	15	PASS
N037646-002B	SAMP	5	<0.000	N/A	15	<PQL	13.65	2.212	15	PASS
N037648-001D	SAMP	1	0.05	142.922	15	<PQL	328.91	1.928	15	PASS
N037648-001D	SAMP	5	<0.000	N/A	15	<PQL	68.93	1.273	15	PASS
N037648-002D	SAMP	1	<0.000	N/A	15	<PQL	327.02	0.524	15	PASS
N037648-002D	SAMP	5	<0.000	N/A	15	<PQL	69.43	0.507	15	PASS
N037648-003D	SAMP	1	<0.000	N/A	15	<PQL	2632.23	0.16	15	PASS
CCV2	CCV	1	19.58	0.465	15	PASS	21.08	0.551	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.11	5.479	15	PASS
N037648-003D	SAMP	5	<0.000	N/A	15	<PQL	567.08	3.466	15	PASS
N037648-004D	SAMP	1	<0.000	N/A	15	<PQL	269.16	0.157	15	PASS

PERCENT RSD SUMMARY: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037648-004D	SAMP	5	<0.000	N/A	15	<PQL	54.55	0.619	15	PASS
N037648-005D	SAMP	1	373.42	0.788	15	PASS	<0.000	N/A	15	<PQL
N037648-005D	SAMP	5	66.07	1.076	15	PASS	<0.000	N/A	15	<PQL
N037648-006D	SAMP	1	3.37	1.298	15	PASS	<0.000	N/A	15	<PQL
N037648-006D	SAMP	5	0.63	4.926	15	PASS	<0.000	N/A	15	<PQL
N037648-007D	SAMP	1	519.94	0.204	15	PASS	<0.000	N/A	15	<PQL
N037648-007D	SAMP	5	95.66	1.497	15	PASS	<0.000	N/A	15	<PQL
N037648-008D	SAMP	1	0.61	3.183	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	19.89	0.874	15	PASS	20.19	0.92	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.02	53.577	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.34	1.149	15	PASS	20.12	2.502	15	PASS
N037648-008D	SAMP	5	0.07	14.946	15	PASS	<0.000	N/A	15	<PQL
N037648-009D	SAMP	1	0.7	6.027	15	PASS	<0.000	N/A	15	<PQL
N037648-009D	SAMP	5	0.07	11.864	15	PASS	<0.000	N/A	15	<PQL
N037648-010D	SAMP	1	42.3	1.478	15	PASS	<0.000	N/A	15	<PQL
N037648-010D	SAMP	5	8.66	0.961	15	PASS	<0.000	N/A	15	<PQL
N037648-011D	SAMP	1	<0.000	N/A	15	<PQL	423.17	1.45	15	PASS
N037648-011D	SAMP	5	<0.000	N/A	15	<PQL	86.21	0.681	15	PASS
N037648-012D	SAMP	1	7.52	2.502	15	PASS	128.55	0.926	15	PASS
N037648-012D	SAMP	5	1.51	2.932	15	PASS	26.4	1.026	15	PASS
N037648-013D	SAMP	1	<0.000	N/A	15	<PQL	425.42	0.666	15	PASS
CCV4	CCV	1	19.9	0.877	15	PASS	20.57	1.064	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.01	198.773	15	<PQL
N037648-013D	SAMP	5	<0.000	N/A	15	<PQL	88.94	1.588	15	PASS
CCV5	CCV	1	20.06	1.161	15	PASS	20.73	1.499	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.09	28.385	15	<PQL
CCV6	CCV	1	20.05	0.688	15	PASS	21.25	1.157	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.3	2.728	15	PASS
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.1	2.014	15	PASS	20.31	0.857	15	PASS
CCV7	CCV	1	19.69	1.614	15	PASS	20.74	1.123	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.2	10.754	15	PASS
CCV8	CCV	1	19.36	0.173	15	PASS	20.51	2.047	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.1	22.495	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.81	1.099	15	PASS	20.09	0.702	15	PASS

PERCENT RSD SUMMARY: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]				
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment	
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL	
Std1-0.1/1 ppb	ICAL	1	0.1	52.457	15	NR!	0.17	43.367	15	<PQL	
Std2-0.5/5 ppb	ICAL	1	0.45	5.336	15	PASS	0.48	37.851	15	<PQL	
Std3-5/50 ppb	ICAL	1	4.96	1.871	15	PASS	5.43	7.913	15	PASS	
Std4-10/100 ppb	ICAL	1	10.36	1.287	15	PASS	9.92	8.89	15	PASS	
Std5-20/200 ppb	ICAL	1	20.32	1.181	15	PASS	19.37	2.892	15	PASS	
Std6-40/400 ppb	ICAL	1	39.34	2.206	15	PASS	40.44	1.787	15	PASS	
Std7-100/1000 ppb	ICAL	1	99.78	1.24	15	PASS	102.92	6.962	15	PASS	
Std8-200/2000 ppb	ICAL	1	200.2	1.723	15	PASS	198.51	2.479	15	PASS	
ICV	ICV	1	10.57	1.143	15	PASS	10.82	6.183	15	PASS	
ICB	ICB	1	0.05	54.234	15	<PQL	0.07	59.157	15	<PQL	
LLICV	CCV1	1	0.11	47.614	20	NR!	0.38	62.554	20	<PQL	
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.06	110.735	15	<PQL	
ICSAB1	ICSAB	1	20.89	2.514	15	PASS	20.23	2.877	15	PASS	
LLICV	CCV1	1	0.12	29.485	20	NR!	0.52	28.032	20	~~NR!~~	FAIL
MB-75482	MBLK	1	0.04	54.089	15	<PQL	0.04	113.476	15	<PQL	
LCS-75482	LCS	1	10.61	2.106	15	PASS	10.93	8.228	15	PASS	
N037645-001B	SAMP	1	3.85	3.033	15	PASS	1.13	19.253	15	NR!	
N037645-001B	SAMP	5	0.76	1.903	15	PASS	0.15	28.162	15	<PQL	
N037645-001B	SAMP	25	0.1	21.327	15	<PQL	0.03	255.814	15	<PQL	
N037645-001B-PS	PS	1	14.55	2.179	15	PASS	11.65	8.081	15	PASS	
N037645-001B-PS	PS	5	2.89	3.57	15	PASS	2.6	6.67	15	PASS	
N037645-001B-MS	MS	1	14.67	1.564	15	PASS	11.4	2.72	15	PASS	
N037645-001B-MS	MS	5	2.97	3.017	15	PASS	1.99	6.427	15	PASS	
N037645-001B-MSD	MSD	1	14.22	1.764	15	PASS	12.3	3.646	15	PASS	
CCV1	CCV	1	20.17	2.891	15	PASS	20.08	8.102	15	PASS	
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.02	152.987	15	<PQL	
N037645-001B-MSD	MSD	5	2.99	6.084	15	PASS	2.59	10.139	15	PASS	
N037646-001B	SAMP	1	5.45	1.972	15	PASS	4.72	11.901	15	PASS	
N037646-001B	SAMP	5	1.2	6.359	15	PASS	0.99	15.778	15	NR!	
N037646-002B	SAMP	1	3.55	5.615	15	PASS	0.09	156.576	15	<PQL	
N037646-002B	SAMP	5	0.67	0.35	15	PASS	<0.000	N/A	15	<PQL	
N037648-001D	SAMP	1	11.23	4.472	15	PASS	0.98	43.602	15	NR!	
N037648-001D	SAMP	5	2.26	2.45	15	PASS	0.3	58.663	15	<PQL	
N037648-002D	SAMP	1	2.4	4.082	15	PASS	0.09	90.117	15	<PQL	
N037648-002D	SAMP	5	0.45	13.039	15	PASS	<0.000	N/A	15	<PQL	
N037648-003D	SAMP	1	1.82	2.832	15	PASS	0.36	53.352	15	<PQL	
CCV2	CCV	1	19.9	0.765	15	PASS	20.77	6.464	15	PASS	
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.07	104.469	15	<PQL	
N037648-003D	SAMP	5	0.32	7.538	15	PASS	0.14	34.812	15	<PQL	
N037648-004D	SAMP	1	4.23	2.899	15	PASS	0.13	98.188	15	<PQL	

JRB 10/16/2019

PERCENT RSD SUMMARY: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037648-004D	SAMP	5	0.7	6.207	15	PASS	0.01	344.923	15	<PQL
N037648-005D	SAMP	1	1.1	6.792	15	PASS	7.65	7.205	15	PASS
N037648-005D	SAMP	5	0.23	13.028	15	PASS	1.4	25.351	15	NR!
N037648-006D	SAMP	1	3.72	3.979	15	PASS	0.73	11.65	15	PASS
N037648-006D	SAMP	5	0.69	1.967	15	PASS	0.1	38.675	15	<PQL
N037648-007D	SAMP	1	4.15	5.595	15	PASS	0.69	60.411	15	NR!
N037648-007D	SAMP	5	0.82	10.172	15	PASS	0.12	69.209	15	<PQL
N037648-008D	SAMP	1	5.56	1.043	15	PASS	0.32	50.999	15	<PQL
CCV3	CCV	1	19.59	0.801	15	PASS	19.66	5.383	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.01	342.814	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0	2165.078	15	<PQL
ICSAB2	ICSAB	1	20.25	1.461	15	PASS	20.51	5.034	15	PASS
N037648-008D	SAMP	5	1.22	10.209	15	PASS	0.17	15.129	15	<PQL
N037648-009D	SAMP	1	5.49	1.072	15	PASS	0.5	36.719	15	NR!
N037648-009D	SAMP	5	1.09	8.078	15	PASS	0.06	43.036	15	<PQL
N037648-010D	SAMP	1	0.55	8.625	15	PASS	2.92	5.282	15	PASS
N037648-010D	SAMP	5	0.07	26.302	15	<PQL	0.65	26.113	15	NR!
N037648-011D	SAMP	1	1.97	2.41	15	PASS	0.53	43.74	15	NR!
N037648-011D	SAMP	5	0.39	7.573	15	PASS	0.17	87.397	15	<PQL
N037648-012D	SAMP	1	3.91	2.189	15	PASS	0.79	31.058	15	NR!
N037648-012D	SAMP	5	0.83	5.083	15	PASS	0.13	107.229	15	<PQL
N037648-013D	SAMP	1	2.04	4.793	15	PASS	0.5	44.346	15	NR!
CCV4	CCV	1	19.31	2.043	15	PASS	19.27	2.374	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.04	114.203	15	<PQL
N037648-013D	SAMP	5	0.4	6.681	15	PASS	0.16	14.469	15	PASS
CCV5	CCV	1	19.69	2.961	15	PASS	20.28	6.193	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.04	148.465	15	<PQL
CCV6	CCV	1	19.66	0.518	15	PASS	19.5	4.267	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.03	249.656	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.05	110.519	15	<PQL
ICSAB3	ICSAB	1	20.36	2.924	15	PASS	21.06	2.28	15	PASS
CCV7	CCV	1	19.15	0.36	15	PASS	19.6	10.495	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.03	254.217	15	<PQL
CCV8	CCV	1	19.3	1.342	15	PASS	20.19	5.688	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.06	59.203	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	0.18	26.027	15	<PQL
ICSAB4	ICSAB	1	20.26	2.559	15	PASS	21.24	5.609	15	PASS

PERCENT RSD SUMMARY: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	1.922	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	4.944	15	PASS
Std3-5/50 ppb	ICAL	1	4.91	3.84	15	PASS
Std4-10/100 ppb	ICAL	1	9.99	0.814	15	PASS
Std5-20/200 ppb	ICAL	1	19.98	0.25	15	PASS
Std6-40/400 ppb	ICAL	1	39.89	0.825	15	PASS
Std7-100/1000 ppb	ICAL	1	99.86	0.688	15	PASS
Std8-200/2000 ppb	ICAL	1	200.1	0.274	15	PASS
ICV	ICV	1	11.04	2.16	15	PASS
ICB	ICB	1	0.22	6.999	15	PASS
LLICV	CCV1	1	0.58	6.202	20	PASS
ICSA1	ICSA	1	0.07	24.447	15	<PQL
ICSAB1	ICSAB	1	22.24	0.961	15	PASS
LLICV	CCV1	1	0.63	4.288	20	PASS
MB-75482	MBLK	1	0.04	14.66	15	PASS
LCS-75482	LCS	1	10.32	2.312	15	PASS
N037645-001B	SAMP	1	249.51	0.531	15	PASS
N037645-001B	SAMP	5	50.92	0.285	15	PASS
N037645-001B	SAMP	25	10.45	1.618	15	PASS
N037645-001B-PS	PS	1	260.17	0.575	15	PASS
N037645-001B-PS	PS	5	53.51	0.236	15	PASS
N037645-001B-MS	MS	1	257.8	0.123	15	PASS
N037645-001B-MS	MS	5	53.61	0.289	15	PASS
N037645-001B-MSD	MSD	1	256.4	0.632	15	PASS
CCV1	CCV	1	20.9	0.53	15	PASS
CCB1	CCB	1	0.27	6.161	15	PASS
N037645-001B-MSD	MSD	5	51.62	0.714	15	PASS
N037646-001B	SAMP	1	23.55	0.829	15	PASS
N037646-001B	SAMP	5	4.68	2.171	15	PASS
N037646-002B	SAMP	1	44.58	1.284	15	PASS
N037646-002B	SAMP	5	9.19	3.199	15	PASS
N037648-001D	SAMP	1	27.74	0.713	15	PASS
N037648-001D	SAMP	5	5.67	0.457	15	PASS
N037648-002D	SAMP	1	13.24	1.559	15	PASS
N037648-002D	SAMP	5	2.73	0.384	15	PASS
N037648-003D	SAMP	1	30.42	0.98	15	PASS
CCV2	CCV	1	20.52	0.73	15	PASS
CCB2	CCB	1	0.12	13.111	15	PASS
N037648-003D	SAMP	5	6.25	2.539	15	PASS
N037648-004D	SAMP	1	145.94	0.521	15	PASS

PERCENT RSD SUMMARY: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N037648-004D	SAMP	5	28.93	0.74	15	PASS
N037648-005D	SAMP	1	2.75	4.814	15	PASS
N037648-005D	SAMP	5	0.62	6.503	15	PASS
N037648-006D	SAMP	1	32.96	0.947	15	PASS
N037648-006D	SAMP	5	6.65	0.947	15	PASS
N037648-007D	SAMP	1	45.27	0.779	15	PASS
N037648-007D	SAMP	5	9.17	0.935	15	PASS
N037648-008D	SAMP	1	62.33	0.321	15	PASS
CCV3	CCV	1	20.33	0.938	15	PASS
CCB3	CCB	1	0.16	4.38	15	PASS
ICSA2	ICSA	1	0.06	9.501	15	PASS
ICSAB2	ICSAB	1	22.15	1.435	15	PASS
N037648-008D	SAMP	5	12.47	2.728	15	PASS
N037648-009D	SAMP	1	60.43	0.295	15	PASS
N037648-009D	SAMP	5	12.36	0.625	15	PASS
N037648-010D	SAMP	1	3.1	2.762	15	PASS
N037648-010D	SAMP	5	0.66	3.883	15	PASS
N037648-011D	SAMP	1	25.57	0.841	15	PASS
N037648-011D	SAMP	5	5.16	3.472	15	PASS
N037648-012D	SAMP	1	47.24	0.311	15	PASS
N037648-012D	SAMP	5	9.36	0.843	15	PASS
N037648-013D	SAMP	1	26.11	1.244	15	PASS
CCV4	CCV	1	20.22	0.35	15	PASS
CCB4	CCB	1	0.13	12.989	15	PASS
N037648-013D	SAMP	5	5.26	1.245	15	PASS
CCV5	CCV	1	20.36	1.137	15	PASS
CCB5	CCB	1	0.1	6.091	15	PASS
CCV6	CCV	1	20.19	0.519	15	PASS
CCB6	CCB	1	0.11	20.956	15	<PQL
ICSA3	ICSA	1	0.06	19.523	15	<PQL
ICSAB3	ICSAB	1	22.46	0.64	15	PASS
CCV7	CCV	1	20.14	2.357	15	PASS
CCB7	CCB	1	0.1	26.167	15	<PQL
CCV8	CCV	1	20.3	0.58	15	PASS
CCB8	CCB	1	0.12	9.94	15	PASS
ICSA4	ICSA	1	0.07	13.188	15	PASS
ICSAB4	ICSAB	1	22.45	0.351	15	PASS

PERCENT RSD SUMMARY: 191010B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	25.519	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.49	7.784	15	PASS
Std3-5/50 ppb	ICAL	1	4.85	2.471	15	PASS
Std4-10/100 ppb	ICAL	1	9.89	2.7	15	PASS
Std5-20/200 ppb	ICAL	1	19.88	0.763	15	PASS
Std6-40/400 ppb	ICAL	1	39.96	0.531	15	PASS
Std7-100/1000 ppb	ICAL	1	98.83	0.451	15	PASS
Std8-200/2000 ppb	ICAL	1	200.61	0.645	15	PASS
ICV	ICV	1	10.44	0.521	15	PASS
ICB	ICB	1	0.15	17.162	15	<PQL
LLICV	CCV1	1	0.63	11.038	20	PASS
ICSA1	ICSA	1	0.06	20.932	15	<PQL
ICSAB1	ICSAB	1	22.23	0.748	15	PASS
LLICV	CCV1	1	0.46	5.697	20	PASS
MB-75482	MBLK	1	0.04	57.13	15	<PQL
LCS-75482	LCS	1	10.24	2.48	15	PASS
N037645-001B	SAMP	1	247.49	0.103	15	PASS
N037645-001B	SAMP	5	51.92	0.517	15	PASS
N037645-001B-PS	PS	1	261.19	0.317	15	PASS
N037645-001B-MS	MS	1	257.22	0.511	15	PASS
N037645-001B-MSD	MSD	1	252.84	0.419	15	PASS
N037645-001B	SAMP	25	10.81	0.721	15	PASS
N037645-001B-PS	PS	5	53.15	1.071	15	PASS
N037645-001B-MS	MS	5	52.12	1.034	15	PASS
CCV1	CCV	1	19.87	0.799	15	PASS
CCB1	CCB	1	0.17	20.454	15	<PQL
N037645-001B-MSD	MSD	5	51.01	0.221	15	PASS
N037646-001B	SAMP	1	23.21	1.82	15	PASS
N037646-002B	SAMP	1	44.9	0.757	15	PASS
N037648-001D	SAMP	1	27.54	0.889	15	PASS
N037648-002D	SAMP	1	13.22	0.18	15	PASS
N037648-003D	SAMP	1	30.18	1.799	15	PASS
N037648-003D	SAMP	25	1.39	4.304	15	PASS
N037648-004D	SAMP	1	144.85	0.861	15	PASS
N037648-005D	SAMP	1	2.99	3.054	15	PASS
N037648-006D	SAMP	1	32.04	0.087	15	PASS
CCV2	CCV	1	20.19	2.499	15	PASS
CCB2	CCB	1	0.18	3.26	15	PASS
N037648-007D	SAMP	1	44.32	0.227	15	PASS
N037648-008D	SAMP	1	61.75	0.841	15	PASS

PERCENT RSD SUMMARY: 191010B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N037648-009D	SAMP	1	60.08	1.316	15	PASS
N037648-010D	SAMP	1	3.37	3.081	15	PASS
N037648-011D	SAMP	1	25.79	0.113	15	PASS
N037648-012D	SAMP	1	46.69	1.179	15	PASS
N037648-013D	SAMP	1	26.35	0.318	15	PASS
N037645-001B	SAMP	1	247.35	0.541	15	PASS
N037648-001D	SAMP	1	28.12	1.002	15	PASS
N037648-007D	SAMP	1	45.37	1.125	15	PASS
CCV3	CCV	1	20.5	1.649	15	PASS
CCB3	CCB	1	0.33	8.142	15	PASS
ICSA2	ICSA	1	0.04	47.735	15	<PQL
ICSAB2	ICSAB	1	21.97	1.375	15	PASS
N037648-011D	SAMP	1	25.81	1.354	15	PASS
N037648-001D	SAMP	1	27.37	1.85	15	PASS
CCV4	CCV	1	20.5	1.144	15	PASS
CCB4	CCB	1	0.19	15.302	15	<PQL
ICSA3	ICSA	1	0.07	15.386	15	<PQL
ICSAB3	ICSAB	1	22.19	1.075	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191008B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1008001.D	RINSE	RINSE	1	10/08/19 1:36 PM
B1008002.D	Cal Blank	IBLK	1	10/08/19 1:41 PM
B1008003.D	Std1-0.1/1 ppb	ICAL	1	10/08/19 1:46 PM
B1008004.D	Std2-0.5/5 ppb	ICAL	1	10/08/19 1:51 PM
B1008005.D	Std3-5/50 ppb	ICAL	1	10/08/19 1:57 PM
B1008006.D	Std4-10/100 ppb	ICAL	1	10/08/19 2:02 PM
B1008007.D	Std5-20/200 ppb	ICAL	1	10/08/19 2:07 PM
B1008008.D	Std6-40/400 ppb	ICAL	1	10/08/19 2:12 PM
B1008009.D	Std7-100/1000 ppb	ICAL	1	10/08/19 2:17 PM
B1008010.D	Std8-200/2000 ppb	ICAL	1	10/08/19 2:22 PM
B1008011.D	ICV	ICV	1	10/08/19 2:27 PM
B1008012.D	ICB	ICB	1	10/08/19 2:32 PM
B1008013.D	LLICV	CCV1	1	10/08/19 2:37 PM
B1008014.D	ICSA1	ICSA	1	10/08/19 2:43 PM
B1008015.D	ICSAB1	ICSAB	1	10/08/19 2:47 PM
B1008016.D	LLICV	CCV1	1	10/08/19 2:52 PM
B1008017.D	MB-75482	MBLK	1	10/08/19 2:57 PM
B1008018.D	LCS-75482	LCS	1	10/08/19 3:02 PM
B1008019.D	N037645-001B	SAMP	1	10/08/19 3:07 PM
B1008020.D	N037645-001B	SAMP	5	10/08/19 3:12 PM
B1008021.D	N037645-001B	SAMP	25	10/08/19 3:17 PM
B1008022.D	N037645-001B-PS	PS	1	10/08/19 3:22 PM
B1008023.D	N037645-001B-PS	PS	5	10/08/19 3:27 PM
B1008024.D	N037645-001B-MS	MS	1	10/08/19 3:32 PM
B1008025.D	N037645-001B-MS	MS	5	10/08/19 3:38 PM
B1008026.D	N037645-001B-MSD	MSD	1	10/08/19 3:43 PM
B1008027.D	CCV1	CCV	1	10/08/19 3:48 PM
B1008028.D	CCB1	CCB	1	10/08/19 3:53 PM
B1008029.D	N037645-001B-MSD	MSD	5	10/08/19 3:58 PM
B1008030.D	N037646-001B	SAMP	1	10/08/19 4:03 PM
B1008031.D	N037646-001B	SAMP	5	10/08/19 4:08 PM
B1008032.D	N037646-002B	SAMP	1	10/08/19 4:13 PM
B1008033.D	N037646-002B	SAMP	5	10/08/19 4:18 PM
B1008034.D	N037648-001D	SAMP	1	10/08/19 4:23 PM
B1008035.D	N037648-001D	SAMP	5	10/08/19 4:28 PM
B1008036.D	N037648-002D	SAMP	1	10/08/19 4:33 PM
B1008037.D	N037648-002D	SAMP	5	10/08/19 4:38 PM
B1008038.D	N037648-003D	SAMP	1	10/08/19 4:43 PM
B1008039.D	CCV2	CCV	1	10/08/19 4:49 PM
B1008040.D	CCB2	CCB	1	10/08/19 4:54 PM
B1008041.D	N037648-003D	SAMP	5	10/08/19 4:59 PM
B1008042.D	N037648-004D	SAMP	1	10/08/19 5:04 PM

INJECTION LOG: 191008B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1008043.D	N037648-004D	SAMP	5	10/08/19 5:09 PM
B1008044.D	N037648-005D	SAMP	1	10/08/19 5:14 PM
B1008045.D	N037648-005D	SAMP	5	10/08/19 5:19 PM
B1008046.D	N037648-006D	SAMP	1	10/08/19 5:24 PM
B1008047.D	N037648-006D	SAMP	5	10/08/19 5:29 PM
B1008048.D	N037648-007D	SAMP	1	10/08/19 5:34 PM
B1008049.D	N037648-007D	SAMP	5	10/08/19 5:39 PM
B1008050.D	N037648-008D	SAMP	1	10/08/19 5:44 PM
B1008051.D	CCV3	CCV	1	10/08/19 5:49 PM
B1008052.D	CCB3	CCB	1	10/08/19 5:54 PM
B1008053.D	ICSA2	ICSA	1	10/08/19 6:00 PM
B1008054.D	ICSAB2	ICSAB	1	10/08/19 6:04 PM
B1008055.D	N037648-008D	SAMP	5	10/08/19 6:09 PM
B1008056.D	N037648-009D	SAMP	1	10/08/19 6:14 PM
B1008057.D	N037648-009D	SAMP	5	10/08/19 6:19 PM
B1008058.D	N037648-010D	SAMP	1	10/08/19 6:24 PM
B1008059.D	N037648-010D	SAMP	5	10/08/19 6:29 PM
B1008060.D	N037648-011D	SAMP	1	10/08/19 6:34 PM
B1008061.D	N037648-011D	SAMP	5	10/08/19 6:39 PM
B1008062.D	N037648-012D	SAMP	1	10/08/19 6:44 PM
B1008063.D	N037648-012D	SAMP	5	10/08/19 6:49 PM
B1008064.D	N037648-013D	SAMP	1	10/08/19 6:55 PM
B1008065.D	CCV4	CCV	1	10/08/19 7:00 PM
B1008066.D	CCB4	CCB	1	10/08/19 7:05 PM
B1008067.D	N037648-013D	SAMP	5	10/08/19 7:10 PM
B1008068.D	MB-75481	MBLK	1	10/08/19 7:15 PM
B1008069.D	LCS-75481	LCS	1	10/08/19 7:20 PM
B1008070.D	N037648-001E	SAMP	1	10/08/19 7:25 PM
B1008071.D	N037648-001E	SAMP	5	10/08/19 7:30 PM
B1008072.D	N037648-001E	SAMP	25	10/08/19 7:35 PM
B1008073.D	N037648-001E-PS	PS	1	10/08/19 7:40 PM
B1008074.D	N037648-001E-PS	PS	5	10/08/19 7:45 PM
B1008075.D	N037648-001E-MS	MS	1	10/08/19 7:50 PM
B1008076.D	N037648-001E-MS	MS	5	10/08/19 7:56 PM
B1008077.D	CCV5	CCV	1	10/08/19 8:01 PM
B1008078.D	CCB5	CCB	1	10/08/19 8:06 PM
B1008079.D	N037648-001E-MSD	MSD	1	10/08/19 8:11 PM
B1008080.D	N037648-001E-MSD	MSD	5	10/08/19 8:16 PM
B1008081.D	N037648-002E	SAMP	1	10/08/19 8:21 PM
B1008082.D	N037648-002E	SAMP	5	10/08/19 8:26 PM
B1008083.D	N037648-003E	SAMP	1	10/08/19 8:31 PM
B1008084.D	N037648-003E	SAMP	5	10/08/19 8:36 PM

INJECTION LOG: 191008B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1008085.D	N037648-004E	SAMP	1	10/08/19 8:41 PM
B1008086.D	N037648-004E	SAMP	5	10/08/19 8:46 PM
B1008087.D	N037648-005E	SAMP	1	10/08/19 8:51 PM
B1008088.D	N037648-005E	SAMP	5	10/08/19 8:56 PM
B1008089.D	CCV6	CCV	1	10/08/19 9:01 PM
B1008090.D	CCB6	CCB	1	10/08/19 9:07 PM
B1008091.D	ICSA3	ICSA	1	10/08/19 9:12 PM
B1008092.D	ICSAB3	ICSAB	1	10/08/19 9:16 PM
B1008093.D	N037648-006E	SAMP	1	10/08/19 9:21 PM
B1008094.D	N037648-006E	SAMP	5	10/08/19 9:26 PM
B1008095.D	N037648-007E	SAMP	1	10/08/19 9:31 PM
B1008096.D	N037648-007E	SAMP	5	10/08/19 9:36 PM
B1008097.D	N037648-008E	SAMP	1	10/08/19 9:41 PM
B1008098.D	N037648-008E	SAMP	5	10/08/19 9:46 PM
B1008099.D	N037648-009E	SAMP	1	10/08/19 9:51 PM
B1008100.D	N037648-009E	SAMP	5	10/08/19 9:57 PM
B1008101.D	N037648-010E	SAMP	1	10/08/19 10:02 PM
B1008102.D	N037648-010E	SAMP	5	10/08/19 10:07 PM
B1008103.D	CCV7	CCV	1	10/08/19 10:12 PM
B1008104.D	CCB7	CCB	1	10/08/19 10:17 PM
B1008105.D	N037648-011E	SAMP	1	10/08/19 10:22 PM
B1008106.D	N037648-011E	SAMP	5	10/08/19 10:27 PM
B1008107.D	N037648-012E	SAMP	1	10/08/19 10:32 PM
B1008108.D	N037648-012E	SAMP	5	10/08/19 10:37 PM
B1008109.D	N037648-013E	SAMP	1	10/08/19 10:42 PM
B1008110.D	N037648-013E	SAMP	5	10/08/19 10:47 PM
B1008111.D	CCV8	CCV	1	10/08/19 10:53 PM
B1008112.D	CCB8	CCB	1	10/08/19 10:58 PM
B1008113.D	ICSA4	ICSA	1	10/08/19 11:03 PM
B1008114.D	ICSAB4	ICSAB	1	10/08/19 11:07 PM

INJECTION LOG: 191010B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1010001.D	RINSE	RINSE	1	10/10/19 12:54 PM
B1010002.D	Cal Blank	IBLK	1	10/10/19 1:00 PM
B1010003.D	Std1-0.1/1 ppb	ICAL	1	10/10/19 1:05 PM
B1010004.D	Std2-0.5/5 ppb	ICAL	1	10/10/19 1:10 PM
B1010005.D	Std3-5/50 ppb	ICAL	1	10/10/19 1:15 PM
B1010006.D	Std4-10/100 ppb	ICAL	1	10/10/19 1:20 PM
B1010007.D	Std5-20/200 ppb	ICAL	1	10/10/19 1:25 PM
B1010008.D	Std6-40/400 ppb	ICAL	1	10/10/19 1:30 PM
B1010009.D	Std7-100/1000 ppb	ICAL	1	10/10/19 1:36 PM
B1010010.D	Std8-200/2000 ppb	ICAL	1	10/10/19 1:41 PM
B1010011.D	ICV	ICV	1	10/10/19 1:52 PM
B1010012.D	ICB	ICB	1	10/10/19 1:57 PM
B1010013.D	LLICV	CCV1	1	10/10/19 2:02 PM
B1010014.D	ICSA1	ICSA	1	10/10/19 2:06 PM
B1010015.D	ICSAB1	ICSAB	1	10/10/19 2:11 PM
B1010016.D	LLICV	CCV1	1	10/10/19 2:17 PM
B1010017.D	MB-75482	MBLK	1	10/10/19 2:21 PM
B1010018.D	LCS-75482	LCS	1	10/10/19 2:26 PM
B1010019.D	N037645-001B	SAMP	1	10/10/19 2:32 PM
B1010020.D	N037645-001B	SAMP	5	10/10/19 2:37 PM
B1010021.D	N037645-001B-PS	PS	1	10/10/19 2:42 PM
B1010022.D	N037645-001B-MS	MS	1	10/10/19 2:47 PM
B1010023.D	N037645-001B-MSD	MSD	1	10/10/19 2:52 PM
B1010024.D	N037645-001B	SAMP	25	10/10/19 2:57 PM
B1010025.D	N037645-001B-PS	PS	5	10/10/19 3:02 PM
B1010026.D	N037645-001B-MS	MS	5	10/10/19 3:08 PM
B1010027.D	CCV1	CCV	1	10/10/19 3:13 PM
B1010028.D	CCB1	CCB	1	10/10/19 3:18 PM
B1010029.D	N037645-001B-MSD	MSD	5	10/10/19 3:23 PM
B1010030.D	N037646-001B	SAMP	1	10/10/19 3:28 PM
B1010031.D	N037646-002B	SAMP	1	10/10/19 3:33 PM
B1010032.D	N037648-001D	SAMP	1	10/10/19 3:39 PM
B1010033.D	N037648-002D	SAMP	1	10/10/19 3:44 PM
B1010034.D	N037648-003D	SAMP	1	10/10/19 3:49 PM
B1010035.D	N037648-003D	SAMP	25	10/10/19 3:54 PM
B1010036.D	N037648-004D	SAMP	1	10/10/19 3:59 PM
B1010037.D	N037648-005D	SAMP	1	10/10/19 4:04 PM
B1010038.D	N037648-006D	SAMP	1	10/10/19 4:09 PM
B1010039.D	CCV2	CCV	1	10/10/19 4:14 PM
B1010040.D	CCB2	CCB	1	10/10/19 4:19 PM
B1010041.D	N037648-007D	SAMP	1	10/10/19 4:23 PM
B1010042.D	N037648-008D	SAMP	1	10/10/19 4:30 PM

INJECTION LOG: 191010B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1010043.D	N037648-009D	SAMP	1	10/10/19 4:35 PM
B1010044.D	N037648-010D	SAMP	1	10/10/19 4:40 PM
B1010045.D	N037648-011D	SAMP	1	10/10/19 4:46 PM
B1010046.D	N037648-012D	SAMP	1	10/10/19 4:51 PM
B1010047.D	N037648-013D	SAMP	1	10/10/19 4:56 PM
B1010048.D	N037645-001B	SAMP	1	10/10/19 5:01 PM
B1010049.D	N037648-001D	SAMP	1	10/10/19 5:06 PM
B1010050.D	N037648-007D	SAMP	1	10/10/19 5:11 PM
B1010051.D	CCV3	CCV	1	10/10/19 5:16 PM
B1010052.D	CCB3	CCB	1	10/10/19 5:20 PM
B1010053.D	ICSA2	ICSA	1	10/10/19 5:27 PM
B1010054.D	ICSAB2	ICSAB	1	10/10/19 5:31 PM
B1010055.D	N037648-011D	SAMP	1	10/10/19 5:36 PM
B1010056.D	N037648-001D	SAMP	1	10/10/19 5:41 PM
B1010057.D	MB-75481	MBLK	1	10/10/19 5:46 PM
B1010058.D	LCS-75481	LCS	1	10/10/19 5:51 PM
B1010059.D	N037648-001E	SAMP	1	10/10/19 5:56 PM
B1010060.D	N037648-001E	SAMP	5	10/10/19 6:01 PM
B1010061.D	N037648-001E-PS	PS	1	10/10/19 6:06 PM
B1010062.D	N037648-001E-MS	MS	1	10/10/19 6:11 PM
B1010063.D	N037648-001E-MSD	MSD	1	10/10/19 6:16 PM
B1010064.D	N037648-002E	SAMP	1	10/10/19 6:22 PM
B1010065.D	CCV4	CCV	1	10/10/19 6:28 PM
B1010066.D	CCB4	CCB	1	10/10/19 6:33 PM
B1010067.D	ICSA3	ICSA	1	10/10/19 6:38 PM
B1010068.D	ICSAB3	ICSAB	1	10/10/19 6:42 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/26/2019 3:00:00 P**
Prep End Date: **9/26/2019 7:15:00 P**
Prep Batch **75482** Prep Code: **3010_W_MSDI**

Reviewed/ Date: JRB 10/16/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.0**	**02-22**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75482	Aqueous		25	☐	25	1.000		
MB-75482	Aqueous		25	☐	25	1.000		
N037645-001B	Groundwater	<2	25	☐	25	1.000		
N037645-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037645-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037646-001B	Groundwater	<2	25	☐	25	1.000		
N037646-002B	Groundwater	<2	25	☐	25	1.000		
N037648-001D	Groundwater	<2	25	☐	25	1.000		
N037648-002D	Groundwater	<2	25	☐	25	1.000		
N037648-003D	Groundwater	<2	25	☐	25	1.000		
N037648-004D	Groundwater	<2	25	☐	25	1.000		
N037648-005D	Groundwater	<2	25	☐	25	1.000		
N037648-006D	Groundwater	<2	25	☐	25	1.000		
N037648-007D	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/26/2019 3:00:00 P**
Prep End Date: **9/26/2019 7:15:00 P**
Reviewed/ Date: JRB 10/16/2019
Initials/ Date: for
Prep Batch **75482** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.0**	**02-22**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
N037648-008D	Groundwater	<2	25	☐	25	1.000		
N037648-009D	Groundwater	<2	25	☐	25	1.000		
N037648-010D	Groundwater	<2	25	☐	25	1.000		
N037648-011D	Groundwater	<2	25	☐	25	1.000		
N037648-012D	Groundwater	<2	25	☐	25	1.000		
N037648-013D	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 8 Oct 2019 09:24:20 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	116619.00	0.00	
24 Mg	269452.00	0.00	
25 Mg	35359.10	0.00	
26 Mg	40750.30	0.00	
59 Co	307028.00	0.00	
115 In	431442.00	0.00	
206 Pb	120431.00	0.00	
207 Pb	104935.00	0.00	
208 Pb	257024.00	0.00	

RSD (%)

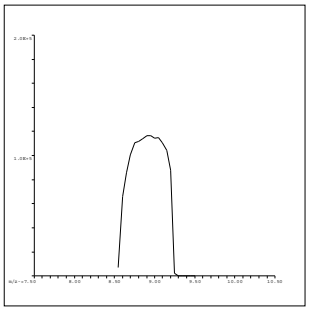
Element	Actual	Required	Flag
9 Be	1.19	5.00	
24 Mg	1.64	5.00	
25 Mg	1.14	5.00	
26 Mg	1.10	5.00	
59 Co	0.69	5.00	
115 In	1.39	5.00	
206 Pb	1.35	5.00	
207 Pb	1.39	5.00	
208 Pb	1.04	5.00	

Ion Ratio

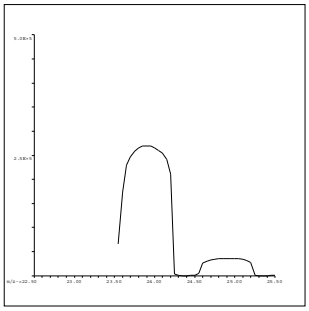
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

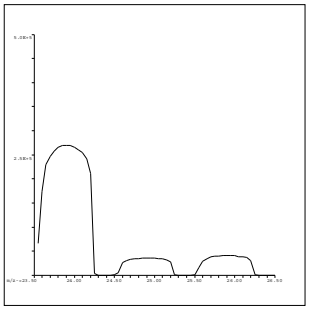
Element	Actual	Required	Flag



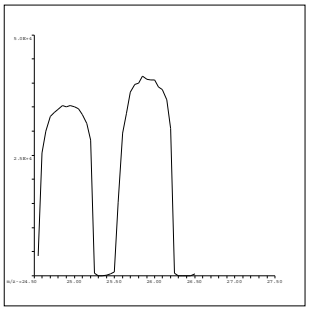
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



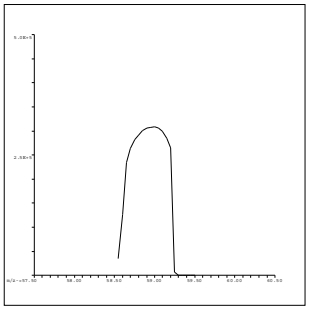
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



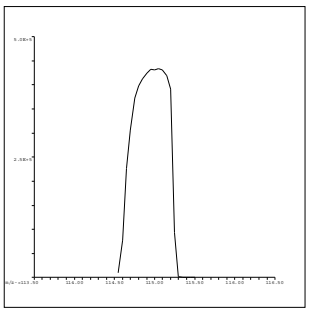
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



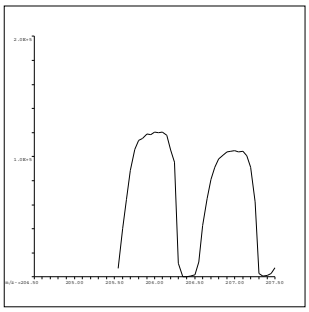
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



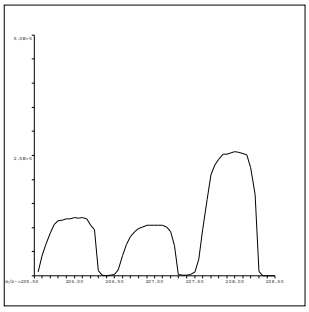
59 Co
Mass Calib.
Actual: 58.95
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



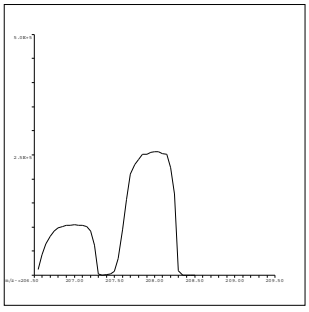
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 10 Oct 2019 12:19:14 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	105653.00	0.00	
24 Mg	223726.00	0.00	
25 Mg	29095.20	0.00	
26 Mg	33194.70	0.00	
59 Co	192679.00	0.00	
115 In	259460.00	0.00	
206 Pb	84623.80	0.00	
207 Pb	72998.40	0.00	
208 Pb	183149.00	0.00	

RSD (%)

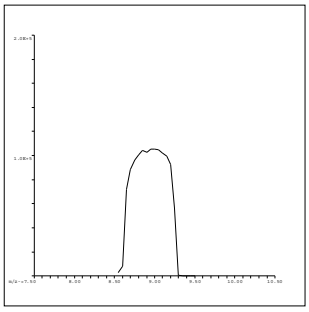
Element	Actual	Required	Flag
9 Be	1.35	5.00	
24 Mg	0.45	5.00	
25 Mg	1.61	5.00	
26 Mg	0.81	5.00	
59 Co	1.52	5.00	
115 In	0.79	5.00	
206 Pb	1.28	5.00	
207 Pb	1.40	5.00	
208 Pb	0.88	5.00	

Ion Ratio

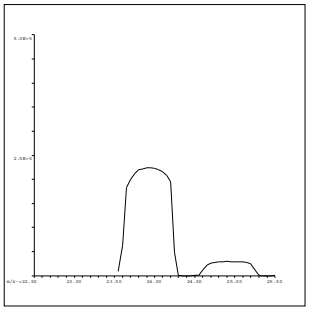
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

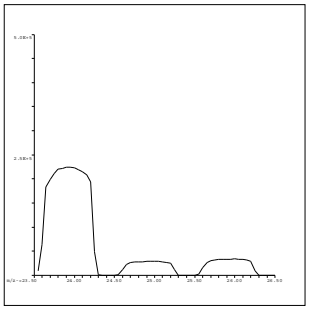
Element	Actual	Required	Flag



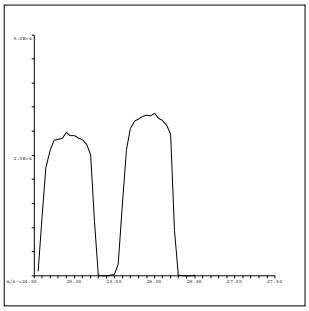
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



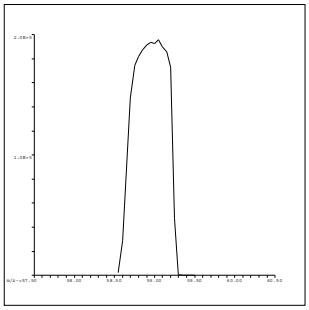
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



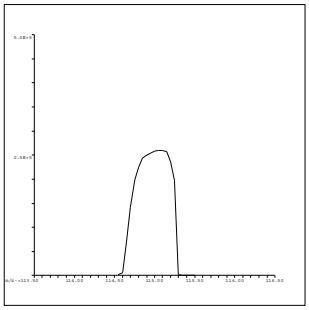
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



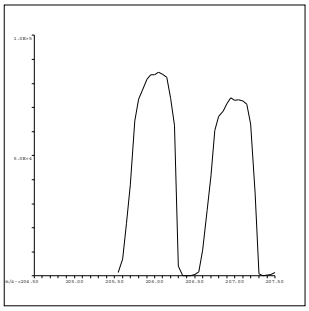
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



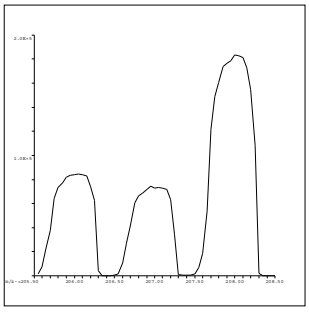
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



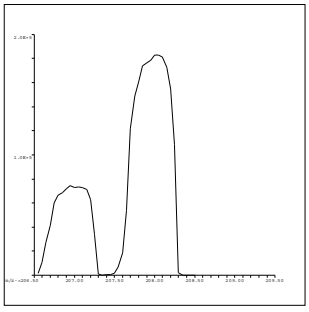
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191008B

Instrument ID: ICPMS-02

Analyte	Data File	B1008002.D	B1008003.D	B1008004.D	B1008005.D	B1008006.D	B1008007.D	B1008008.D	B1008009.D	B1008010.D	
	Acq. Date-Time	10/08/2019 01:41 PM	10/08/2019 01:46 PM	10/08/2019 01:51 PM	10/08/2019 01:57 PM	10/08/2019 02:02 PM	10/08/2019 02:07 PM	10/08/2019 02:12 PM	10/08/2019 02:17 PM	10/08/2019 02:22 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	73131.2		73323.3	73575.4	72286	72382.8	71342.5	70870.3	70370.5	
55 Mn [2]	CPS	65.1		1478.9	12917	25221.4	49102.1	96818.1	237935.1	471725.1	1.0000
52 Cr [2]	CPS	1054.1		3384.6	25192.6	49193	96027.1	190741.4	465264.6	914484.7	1.0000
72 Ge (ISTD) [1]	CPS	24337.8		24725.2	24542.6	24592.8	24279	23795	23140.5	23345.4	
78 Se [1]	CPS	1.1		44.4	485.6	889	1711.3	3500.5	8653.8	16850.6	0.9998
72 Ge (ISTD) [2]	CPS	42693.8	43711.8	43218.3	42901.8	41769.1	41886.1	42238.2	41466.1	40895.7	
75 As [2]	CPS	95.6	166.7	401.8	3396.4	6809.5	13311.4	25883.8	64321.1	127169.5	1.0000
103 Rh (ISTD) [2]	CPS	994406.9		1009566.5	1012145.2	1003227.6	993954.4	994840.6	976518.1	973471.8	
95 Mo [2]	CPS	27.8		1307.9	12628.9	25443.2	50388.3	100678.3	247375.6	494092	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 191010B

Instrument ID: ICPMS-02

Analyte	Data File	B1010002.D	B1010004.D	B1010005.D	B1010006.D	B1010007.D	B1010008.D	B1010009.D	B1010010.D	
	Acq. Date-Time	10/10/2019 01:00 PM	10/10/2019 01:10 PM	10/10/2019 01:15 PM	10/10/2019 01:20 PM	10/10/2019 01:25 PM	10/10/2019 01:30 PM	10/10/2019 01:36 PM	10/10/2019 01:41 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
103 Rh (ISTD) [2]	CPS	595765	622824.9	618241.5	621097.4	628251	627072.1	616473.9	616329.6	
95 Mo [2]	CPS	45.6	812.3	7557.7	15429.1	31314.8	62775.8	152590.2	309611.3	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136857**
Client ID: **ICV** Batch ID: **R136857** TestNo: **EPA 6020** Analysis Date: **10/8/2019** SeqNo: **3531148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.570	0.10	10.00	0	106	90	110				
Manganese	107.611	0.50	100.0	0	108	90	110				
Selenium	10.819	0.50	10.00	0	108	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136857**
Client ID: **ZZZZZZ** Batch ID: **R136857** TestNo: **EPA 6020** Analysis Date: **10/8/2019** SeqNo: **3531150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.114	0.10	0.1000	0	114	80	120				
Manganese	0.568	0.50	0.5000	0	114	80	120				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136857**
Client ID: **ZZZZZZ** Batch ID: **R136857** TestNo: **EPA 6020** Analysis Date: **10/8/2019** SeqNo: **3531153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.516	0.50	0.5000	0	103	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136857**
Client ID: **CCV** Batch ID: **R136857** TestNo: **EPA 6020** Analysis Date: **10/8/2019** SeqNo: **3531164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.174	0.10	20.00	0	101	90	110				
Manganese	20.082	0.50	20.00	0	100	90	110				
Selenium	20.075	0.50	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.897	0.10	20.00	0	99.5	90	110				
Manganese	21.075	0.50	20.00	0	105	90	110				
Selenium	20.766	0.50	20.00	0	104	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.586	0.10	20.00	0	97.9	90	110				
Manganese	20.188	0.50	20.00	0	101	90	110				
Selenium	19.662	0.50	20.00	0	98.3	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.314	0.10	20.00	0	96.6	90	110				
Manganese	20.572	0.50	20.00	0	103	90	110				
Selenium	19.274	0.50	20.00	0	96.4	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.687	0.10	20.00	0	98.4	90	110				
Manganese	20.726	0.50	20.00	0	104	90	110				
Selenium	20.285	0.50	20.00	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.658	0.10	20.00	0	98.3	90	110				
Manganese	21.253	0.50	20.00	0	106	90	110				
Selenium	19.504	0.50	20.00	0	97.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICV**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.255	0.50	100.0	0	107	90	110				
Molybdenum	10.444	0.50	10.00	0	104	90	110				
Selenium	10.510	0.50	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ZZZZZZ**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.521	0.50	0.5000	0	104	80	120				
Selenium	0.460	0.50	0.5000	0	92.1	80	120				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ZZZZZZ**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	0.456	0.50	0.5000	0	91.3	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **CCV**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.323	0.50	20.00	0	102	90	110				
Molybdenum	19.873	0.50	20.00	0	99.4	90	110				
Selenium	18.692	0.50	20.00	0	93.5	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **CCV**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136922**
Client ID: **CCV** Batch ID: **R136922** TestNo: **EPA 6020** Analysis Date: **10/10/2019** SeqNo: **3534335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.324	0.50	20.00	0	102	90	110				
Molybdenum	20.194	0.50	20.00	0	101	90	110				
Selenium	21.041	0.50	20.00	0	105	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136922**
Client ID: **CCV** Batch ID: **R136922** TestNo: **EPA 6020** Analysis Date: **10/10/2019** SeqNo: **3534347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.171	0.50	20.00	0	101	90	110				
Molybdenum	20.504	0.50	20.00	0	103	90	110				
Selenium	20.222	0.50	20.00	0	101	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136922**
Client ID: **CCV** Batch ID: **R136922** TestNo: **EPA 6020** Analysis Date: **10/10/2019** SeqNo: **3534361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.460	0.50	20.00	0	102	90	110				
Molybdenum	20.496	0.50	20.00	0	102	90	110				
Selenium	18.348	0.50	20.00	0	91.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.691	1.0	10.00	0	107	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ZZZZZZ**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.053	1.0	1.000	0	105	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.834	1.0	20.00	0	99.2	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.582	1.0	20.00	0	97.9	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.890	1.0	20.00	0	99.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.900	1.0	20.00	0	99.5	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.061	1.0	20.00	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCV**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.045	1.0	20.00	0	100	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136857**
Client ID: **CCB** Batch ID: **R136857** TestNo: **EPA 6020** Analysis Date: **10/8/2019** SeqNo: **3531203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136857**
Client ID: **CCB** Batch ID: **R136857** TestNo: **EPA 6020** Analysis Date: **10/8/2019** SeqNo: **3531215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136857**
Client ID: **CCB** Batch ID: **R136857** TestNo: **EPA 6020** Analysis Date: **10/8/2019** SeqNo: **3531227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	0.298	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detect of Mn in CCB6 is > 1/2 RL. However, samples are >5x the CCB detection and were closed by CCV2/CCB2.

JRB 10/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **CCB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **CCB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **CCB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.329	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detect of Mo in CCB3 is > 1/2 RL. However, samples are >5x the CCB detection and were closed by CCV2/CCB2.

JRB 10/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **CCB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531269**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **CCB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSA**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSAB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.887	0.10	20.00	0	104	80	120				
Manganese	19.708	0.50	20.00	0	98.5	80	120				
Selenium	20.225	0.50	20.00	0	101	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSA**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSAB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531191**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.248	0.10	20.00	0	101	80	120				
Manganese	20.116	0.50	20.00	0	101	80	120				
Selenium	20.508	0.50	20.00	0	103	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSA**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSAB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.356	0.10	20.00	0	102	80	120				
Manganese	20.307	0.50	20.00	0	102	80	120				
Selenium	21.061	0.50	20.00	0	105	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICSA**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICSAB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.798	0.50	20.00	0	94.0	80	120				
Molybdenum	22.226	0.50	20.00	0	111	80	120				
Selenium	19.483	0.50	20.00	0	97.4	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICSA**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICSAB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.395	0.50	20.00	0	97.0	80	120				
Molybdenum	21.970	0.50	20.00	0	110	80	120				
Selenium	21.352	0.50	20.00	0	107	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICSA**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136922**
Client ID: **ICSAB**	Batch ID: **R136922**	TestNo: **EPA 6020**		Analysis Date: **10/10/2019**	SeqNo: **3534364**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.243	0.50	20.00	0	96.2	80	120				
Molybdenum	22.185	0.50	20.00	0	111	80	120				
Selenium	21.598	0.50	20.00	0	108	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSA**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSAB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.397	1.0	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSA**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSAB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.343	1.0	20.00	0	102	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSA**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136857**
Client ID: **ICSAB**	Batch ID: **R136857**	TestNo: **EPA 6020**		Analysis Date: **10/8/2019**	SeqNo: **3531333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.099	1.0	20.00	0	100	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	73131.2	73131.2	100	PASS	70-125	42693.8	42693.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	75489.4	73131.2	103.22	PASS	70-125	43711.8	42693.8	102.38	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	73323.3	73131.2	100.26	PASS	70-125	43218.3	42693.8	101.23	PASS	70-125
Std3-5/50 ppb	ICAL	1	73575.4	73131.2	100.61	PASS	70-125	42901.8	42693.8	100.49	PASS	70-125
Std4-10/100 ppb	ICAL	1	72286	73131.2	98.84	PASS	70-125	41769.1	42693.8	97.83	PASS	70-125
Std5-20/200 ppb	ICAL	1	72382.8	73131.2	98.98	PASS	70-125	41886.1	42693.8	98.11	PASS	70-125
Std6-40/400 ppb	ICAL	1	71342.5	73131.2	97.55	PASS	70-125	42238.2	42693.8	98.93	PASS	70-125
Std7-100/1000 ppb	ICAL	1	70870.3	73131.2	96.91	PASS	70-125	41466.1	42693.8	97.12	PASS	70-125
Std8-200/2000 ppb	ICAL	1	70370.5	73131.2	96.23	PASS	70-125	40895.7	42693.8	95.79	PASS	70-125
ICV	ICV	1	67664	73131.2	92.52	PASS	70-125	39652.5	42693.8	92.88	PASS	70-125
ICB	ICB	1	65448.4	73131.2	89.49	PASS	70-125	38083.3	42693.8	89.2	PASS	70-125
LLICV	CCV1	1	66203.8	73131.2	90.53	PASS	70-125	39787.3	42693.8	93.19	PASS	70-125
ICSA1	ICSA	1	66078.9	73131.2	90.36	PASS	70-125	38967.5	42693.8	91.27	PASS	70-125
ICSAB1	ICSAB	1	68715.7	73131.2	93.96	PASS	70-125	39989	42693.8	93.66	PASS	70-125
LLICV	CCV1	1	72879.3	73131.2	99.66	PASS	70-125	42932.1	42693.8	100.56	PASS	70-125
MB-75482	MBLK	1	71127.6	73131.2	97.26	PASS	70-125	42190.1	42693.8	98.82	PASS	70-125
LCS-75482	LCS	1	72230.7	73131.2	98.77	PASS	70-125	42251.4	42693.8	98.96	PASS	70-125
N037645-001B	SAMP	1	67070.4	73131.2	91.71	PASS	70-125	36189.1	42693.8	84.76	PASS	70-125
N037645-001B	SAMP	5	75457.2	73131.2	103.18	PASS	70-125	42634.6	42693.8	99.86	PASS	70-125
N037645-001B	SAMP	25	77602.3	73131.2	106.11	PASS	70-125	44525.3	42693.8	104.29	PASS	70-125
N037645-001B-PS	PS	1	73740.7	73131.2	100.83	PASS	70-125	39615.8	42693.8	92.79	PASS	70-125
N037645-001B-PS	PS	5	77007.5	73131.2	105.3	PASS	70-125	44054.1	42693.8	103.19	PASS	70-125
N037645-001B-MS	MS	1	74957.3	73131.2	102.5	PASS	70-125	41007.1	42693.8	96.05	PASS	70-125
N037645-001B-MS	MS	5	76592.4	73131.2	104.73	PASS	70-125	43989.3	42693.8	103.03	PASS	70-125
N037645-001B-MSD	MSD	1	74168	73131.2	101.42	PASS	70-125	41526.2	42693.8	97.27	PASS	70-125
CCV1	CCV	1	83002.6	73131.2	113.5	PASS	70-125	47549.5	42693.8	111.37	PASS	70-125
CCB1	CCB	1	78324.9	73131.2	107.1	PASS	70-125	45763.1	42693.8	107.19	PASS	70-125
N037645-001B-MSD	MSD	5	73380.4	73131.2	100.34	PASS	70-125	41839.4	42693.8	98	PASS	70-125
N037646-001B	SAMP	1	77722.9	73131.2	106.28	PASS	70-125	46266.8	42693.8	108.37	PASS	70-125
N037646-001B	SAMP	5	80002.9	73131.2	109.4	PASS	70-125	46469.6	42693.8	108.84	PASS	70-125
N037646-002B	SAMP	1	71261	73131.2	97.44	PASS	70-125	40522.6	42693.8	94.91	PASS	70-125
N037646-002B	SAMP	5	77506.5	73131.2	105.98	PASS	70-125	44759.3	42693.8	104.84	PASS	70-125
N037648-001D	SAMP	1	75671.7	73131.2	103.47	PASS	70-125	42582.2	42693.8	99.74	PASS	70-125
N037648-001D	SAMP	5	80722.7	73131.2	110.38	PASS	70-125	46427.1	42693.8	108.74	PASS	70-125
N037648-002D	SAMP	1	77437.3	73131.2	105.89	PASS	70-125	43800.1	42693.8	102.59	PASS	70-125
N037648-002D	SAMP	5	80260.5	73131.2	109.75	PASS	70-125	47044.4	42693.8	110.19	PASS	70-125
N037648-003D	SAMP	1	71232	73131.2	97.4	PASS	70-125	39502.3	42693.8	92.52	PASS	70-125
CCV2	CCV	1	79866.4	73131.2	109.21	PASS	70-125	47509.3	42693.8	111.28	PASS	70-125
CCB2	CCB	1	74693.6	73131.2	102.14	PASS	70-125	44554.3	42693.8	104.36	PASS	70-125
N037648-003D	SAMP	5	70430.3	73131.2	96.31	PASS	70-125	41205.4	42693.8	96.51	PASS	70-125
N037648-004D	SAMP	1	66770.4	73131.2	91.3	PASS	70-125	38000.9	42693.8	89.01	PASS	70-125

INTERNAL STANDARD: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037648-004D	SAMP	5	75702.8	73131.2	103.52	PASS	70-125	44634.4	42693.8	104.55	PASS	70-125
N037648-005D	SAMP	1	74574.3	73131.2	101.97	PASS	70-125	43550.3	42693.8	102.01	PASS	70-125
N037648-005D	SAMP	5	75939.4	73131.2	103.84	PASS	70-125	45162.5	42693.8	105.78	PASS	70-125
N037648-006D	SAMP	1	69068.9	73131.2	94.45	PASS	70-125	39726.2	42693.8	93.05	PASS	70-125
N037648-006D	SAMP	5	74731.9	73131.2	102.19	PASS	70-125	42914.1	42693.8	100.52	PASS	70-125
N037648-007D	SAMP	1	68894.5	73131.2	94.21	PASS	70-125	38881.9	42693.8	91.07	PASS	70-125
N037648-007D	SAMP	5	71909.5	73131.2	98.33	PASS	70-125	41718.8	42693.8	97.72	PASS	70-125
N037648-008D	SAMP	1	67815.5	73131.2	92.73	PASS	70-125	38098.8	42693.8	89.24	PASS	70-125
CCV3	CCV	1	75978.4	73131.2	103.89	PASS	70-125	45595	42693.8	106.8	PASS	70-125
CCB3	CCB	1	72715.1	73131.2	99.43	PASS	70-125	42419.7	42693.8	99.36	PASS	70-125
ICSA2	ICSA	1	69466.8	73131.2	94.99	PASS	70-125	40738.6	42693.8	95.42	PASS	70-125
ICSAB2	ICSAB	1	68497.3	73131.2	93.66	PASS	70-125	40820	42693.8	95.61	PASS	70-125
N037648-008D	SAMP	5	66571.7	73131.2	91.03	PASS	70-125	38882.9	42693.8	91.07	PASS	70-125
N037648-009D	SAMP	1	64432.3	73131.2	88.11	PASS	70-125	36655.5	42693.8	85.86	PASS	70-125
N037648-009D	SAMP	5	67661.8	73131.2	92.52	PASS	70-125	40022.3	42693.8	93.74	PASS	70-125
N037648-010D	SAMP	1	69778.1	73131.2	95.41	PASS	70-125	41256.9	42693.8	96.63	PASS	70-125
N037648-010D	SAMP	5	70758.8	73131.2	96.76	PASS	70-125	42027.3	42693.8	98.44	PASS	70-125
N037648-011D	SAMP	1	63050.6	73131.2	86.22	PASS	70-125	36937.3	42693.8	86.52	PASS	70-125
N037648-011D	SAMP	5	70459.9	73131.2	96.35	PASS	70-125	41674.3	42693.8	97.61	PASS	70-125
N037648-012D	SAMP	1	64818.1	73131.2	88.63	PASS	70-125	38382.9	42693.8	89.9	PASS	70-125
N037648-012D	SAMP	5	69134	73131.2	94.53	PASS	70-125	40518.1	42693.8	94.9	PASS	70-125
N037648-013D	SAMP	1	66458	73131.2	90.88	PASS	70-125	38669.1	42693.8	90.57	PASS	70-125
CCV4	CCV	1	71488.8	73131.2	97.75	PASS	70-125	43838.9	42693.8	102.68	PASS	70-125
CCB4	CCB	1	70099.5	73131.2	95.85	PASS	70-125	41570.7	42693.8	97.37	PASS	70-125
N037648-013D	SAMP	5	68030.8	73131.2	93.03	PASS	70-125	40434.6	42693.8	94.71	PASS	70-125
CCV5	CCV	1	73292.1	73131.2	100.22	PASS	70-125	44774.9	42693.8	104.87	PASS	70-125
CCB5	CCB	1	69089	73131.2	94.47	PASS	70-125	42518.8	42693.8	99.59	PASS	70-125
CCV6	CCV	1	66376.6	73131.2	90.76	PASS	70-125	40661.8	42693.8	95.24	PASS	70-125
CCB6	CCB	1	63613.6	73131.2	86.99	PASS	70-125	39306.1	42693.8	92.07	PASS	70-125
ICSA3	ICSA	1	61360.5	73131.2	83.9	PASS	70-125	36853.9	42693.8	86.32	PASS	70-125
ICSAB3	ICSAB	1	61920.6	73131.2	84.67	PASS	70-125	37038.6	42693.8	86.75	PASS	70-125
CCV7	CCV	1	68462.5	73131.2	93.62	PASS	70-125	42357.2	42693.8	99.21	PASS	70-125
CCB7	CCB	1	66607.5	73131.2	91.08	PASS	70-125	39900	42693.8	93.46	PASS	70-125
CCV8	CCV	1	71873.3	73131.2	98.28	PASS	70-125	43529.3	42693.8	101.96	PASS	70-125
CCB8	CCB	1	69354.5	73131.2	94.84	PASS	70-125	41548.4	42693.8	97.32	PASS	70-125
ICSA4	ICSA	1	63765.3	73131.2	87.19	PASS	70-125	38853.9	42693.8	91.01	PASS	70-125
ICSAB4	ICSAB	1	64774.9	73131.2	88.57	PASS	70-125	38596.9	42693.8	90.4	PASS	70-125

INTERNAL STANDARD: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	24337.8	24337.8	100	PASS	70-125	994406.9	994406.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	24679.4	24337.8	101.4	PASS	70-125	1024491	994406.9	103.03	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	24725.2	24337.8	101.59	PASS	70-125	1009566.5	994406.9	101.52	PASS	70-125
Std3-5/50 ppb	ICAL	1	24542.6	24337.8	100.84	PASS	70-125	1012145.2	994406.9	101.78	PASS	70-125
Std4-10/100 ppb	ICAL	1	24592.8	24337.8	101.05	PASS	70-125	1003227.6	994406.9	100.89	PASS	70-125
Std5-20/200 ppb	ICAL	1	24279	24337.8	99.76	PASS	70-125	993954.4	994406.9	99.95	PASS	70-125
Std6-40/400 ppb	ICAL	1	23795	24337.8	97.77	PASS	70-125	994840.6	994406.9	100.04	PASS	70-125
Std7-100/1000 ppb	ICAL	1	23140.5	24337.8	95.08	PASS	70-125	976518.1	994406.9	98.2	PASS	70-125
Std8-200/2000 ppb	ICAL	1	23345.4	24337.8	95.92	PASS	70-125	973471.8	994406.9	97.89	PASS	70-125
ICV	ICV	1	22910.2	24337.8	94.13	PASS	70-125	946644.1	994406.9	95.2	PASS	70-125
ICB	ICB	1	22159.2	24337.8	91.05	PASS	70-125	928368.2	994406.9	93.36	PASS	70-125
LLICV	CCV1	1	22336.2	24337.8	91.78	PASS	70-125	944360.6	994406.9	94.97	PASS	70-125
ICSA1	ICSA	1	21669.6	24337.8	89.04	PASS	70-125	861718.4	994406.9	86.66	PASS	70-125
ICSAB1	ICSAB	1	22750	24337.8	93.48	PASS	70-125	879971.2	994406.9	88.49	PASS	70-125
LLICV	CCV1	1	24223.3	24337.8	99.53	PASS	70-125	1000904	994406.9	100.65	PASS	70-125
MB-75482	MBLK	1	23758.1	24337.8	97.62	PASS	70-125	981776.7	994406.9	98.73	PASS	70-125
LCS-75482	LCS	1	24344.5	24337.8	100.03	PASS	70-125	993773.3	994406.9	99.94	PASS	70-125
N037645-001B	SAMP	1	20060.8	24337.8	82.43	PASS	70-125	765259	994406.9	76.96	PASS	70-125
N037645-001B	SAMP	5	24078.6	24337.8	98.93	PASS	70-125	901905.1	994406.9	90.7	PASS	70-125
N037645-001B	SAMP	25	24335.7	24337.8	99.99	PASS	70-125	962505.1	994406.9	96.79	PASS	70-125
N037645-001B-PS	PS	1	21875.5	24337.8	89.88	PASS	70-125	818328.6	994406.9	82.29	PASS	70-125
N037645-001B-PS	PS	5	23970.7	24337.8	98.49	PASS	70-125	918346.4	994406.9	92.35	PASS	70-125
N037645-001B-MS	MS	1	22203.8	24337.8	91.23	PASS	70-125	831732.1	994406.9	83.64	PASS	70-125
N037645-001B-MS	MS	5	23990.7	24337.8	98.57	PASS	70-125	904753.6	994406.9	90.98	PASS	70-125
N037645-001B-MSD	MSD	1	21519.5	24337.8	88.42	PASS	70-125	830601.9	994406.9	83.53	PASS	70-125
CCV1	CCV	1	26561.5	24337.8	109.14	PASS	70-125	1069565.2	994406.9	107.56	PASS	70-125
CCB1	CCB	1	25408.5	24337.8	104.4	PASS	70-125	1020134.1	994406.9	102.59	PASS	70-125
N037645-001B-MSD	MSD	5	22298.3	24337.8	91.62	PASS	70-125	873076.9	994406.9	87.8	PASS	70-125
N037646-001B	SAMP	1	24248.9	24337.8	99.63	PASS	70-125	936358	994406.9	94.16	PASS	70-125
N037646-001B	SAMP	5	25593.2	24337.8	105.16	PASS	70-125	992147.3	994406.9	99.77	PASS	70-125
N037646-002B	SAMP	1	21399.3	24337.8	87.93	PASS	70-125	827224.5	994406.9	83.19	PASS	70-125
N037646-002B	SAMP	5	24262.3	24337.8	99.69	PASS	70-125	933820.9	994406.9	93.91	PASS	70-125
N037648-001D	SAMP	1	21975.6	24337.8	90.29	PASS	70-125	866622	994406.9	87.15	PASS	70-125
N037648-001D	SAMP	5	25459.6	24337.8	104.61	PASS	70-125	959445.9	994406.9	96.48	PASS	70-125
N037648-002D	SAMP	1	23853.7	24337.8	98.01	PASS	70-125	890317.3	994406.9	89.53	PASS	70-125
N037648-002D	SAMP	5	25718.9	24337.8	105.67	PASS	70-125	966664.3	994406.9	97.21	PASS	70-125
N037648-003D	SAMP	1	21123.4	24337.8	86.79	PASS	70-125	810306	994406.9	81.49	PASS	70-125
CCV2	CCV	1	26130.7	24337.8	107.37	PASS	70-125	1049167.7	994406.9	105.51	PASS	70-125
CCB2	CCB	1	25167.1	24337.8	103.41	PASS	70-125	1003287.9	994406.9	100.89	PASS	70-125
N037648-003D	SAMP	5	22658.8	24337.8	93.1	PASS	70-125	872362.5	994406.9	87.73	PASS	70-125
N037648-004D	SAMP	1	20013.1	24337.8	82.23	PASS	70-125	765980.7	994406.9	77.03	PASS	70-125

INTERNAL STANDARD: 191008B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037648-004D	SAMP	5	24324.6	24337.8	99.95	PASS	70-125	901946.1	994406.9	90.7	PASS	70-125
N037648-005D	SAMP	1	23607.9	24337.8	97	PASS	70-125	895896.9	994406.9	90.09	PASS	70-125
N037648-005D	SAMP	5	25487.5	24337.8	104.72	PASS	70-125	955123.7	994406.9	96.05	PASS	70-125
N037648-006D	SAMP	1	20995.4	24337.8	86.27	PASS	70-125	822049.9	994406.9	82.67	PASS	70-125
N037648-006D	SAMP	5	23940.7	24337.8	98.37	PASS	70-125	918065.2	994406.9	92.32	PASS	70-125
N037648-007D	SAMP	1	20106.5	24337.8	82.61	PASS	70-125	795416	994406.9	79.99	PASS	70-125
N037648-007D	SAMP	5	22895.9	24337.8	94.08	PASS	70-125	890700.5	994406.9	89.57	PASS	70-125
N037648-008D	SAMP	1	20026.3	24337.8	82.28	PASS	70-125	765694.3	994406.9	77	PASS	70-125
CCV3	CCV	1	25820.3	24337.8	106.09	PASS	70-125	1018835.1	994406.9	102.46	PASS	70-125
CCB3	CCB	1	24505.9	24337.8	100.69	PASS	70-125	978774	994406.9	98.43	PASS	70-125
ICSA2	ICSA	1	22740	24337.8	93.43	PASS	70-125	872104.1	994406.9	87.7	PASS	70-125
ICSAB2	ICSAB	1	22766.6	24337.8	93.54	PASS	70-125	871919.3	994406.9	87.68	PASS	70-125
N037648-008D	SAMP	5	21995.6	24337.8	90.38	PASS	70-125	840878.4	994406.9	84.56	PASS	70-125
N037648-009D	SAMP	1	19048.5	24337.8	78.27	PASS	70-125	754092.8	994406.9	75.83	PASS	70-125
N037648-009D	SAMP	5	22676.5	24337.8	93.17	PASS	70-125	850522.1	994406.9	85.53	PASS	70-125
N037648-010D	SAMP	1	22922.4	24337.8	94.18	PASS	70-125	864648.1	994406.9	86.95	PASS	70-125
N037648-010D	SAMP	5	24027.4	24337.8	98.72	PASS	70-125	904249.4	994406.9	90.93	PASS	70-125
N037648-011D	SAMP	1	20137.6	24337.8	82.74	PASS	70-125	780706.8	994406.9	78.51	PASS	70-125
N037648-011D	SAMP	5	23669.1	24337.8	97.25	PASS	70-125	890373.3	994406.9	89.54	PASS	70-125
N037648-012D	SAMP	1	20241.1	24337.8	83.17	PASS	70-125	777303.5	994406.9	78.17	PASS	70-125
N037648-012D	SAMP	5	22248.2	24337.8	91.41	PASS	70-125	865177.9	994406.9	87	PASS	70-125
N037648-013D	SAMP	1	21342.5	24337.8	87.69	PASS	70-125	810444.1	994406.9	81.5	PASS	70-125
CCV4	CCV	1	24363.5	24337.8	100.11	PASS	70-125	976345.3	994406.9	98.18	PASS	70-125
CCB4	CCB	1	24179.9	24337.8	99.35	PASS	70-125	958242.3	994406.9	96.36	PASS	70-125
N037648-013D	SAMP	5	23021.5	24337.8	94.59	PASS	70-125	870632.1	994406.9	87.55	PASS	70-125
CCV5	CCV	1	26072.8	24337.8	107.13	PASS	70-125	1009919	994406.9	101.56	PASS	70-125
CCB5	CCB	1	24318	24337.8	99.92	PASS	70-125	960342.2	994406.9	96.57	PASS	70-125
CCV6	CCV	1	23222	24337.8	95.42	PASS	70-125	926049.4	994406.9	93.13	PASS	70-125
CCB6	CCB	1	22838	24337.8	93.84	PASS	70-125	885027.7	994406.9	89	PASS	70-125
ICSA3	ICSA	1	21698.5	24337.8	89.16	PASS	70-125	804061.8	994406.9	80.86	PASS	70-125
ICSAB3	ICSAB	1	21707.4	24337.8	89.19	PASS	70-125	801323.4	994406.9	80.58	PASS	70-125
CCV7	CCV	1	24409.1	24337.8	100.29	PASS	70-125	931478.1	994406.9	93.67	PASS	70-125
CCB7	CCB	1	23612.3	24337.8	97.02	PASS	70-125	901028.9	994406.9	90.61	PASS	70-125
CCV8	CCV	1	25512	24337.8	104.82	PASS	70-125	942231.6	994406.9	94.75	PASS	70-125
CCB8	CCB	1	24593.8	24337.8	101.05	PASS	70-125	909596.4	994406.9	91.47	PASS	70-125
ICSA4	ICSA	1	22592	24337.8	92.83	PASS	70-125	802072.7	994406.9	80.66	PASS	70-125
ICSAB4	ICSAB	1	22029	24337.8	90.51	PASS	70-125	806449.6	994406.9	81.1	PASS	70-125

INTERNAL STANDARD: 191010B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	595765	595765	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	622892.5	595765	104.55	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	622824.9	595765	104.54	PASS	70-125
Std3-5/50 ppb	ICAL	1	618241.5	595765	103.77	PASS	70-125
Std4-10/100 ppb	ICAL	1	621097.4	595765	104.25	PASS	70-125
Std5-20/200 ppb	ICAL	1	628251	595765	105.45	PASS	70-125
Std6-40/400 ppb	ICAL	1	627072.1	595765	105.25	PASS	70-125
Std7-100/1000 ppb	ICAL	1	616473.9	595765	103.48	PASS	70-125
Std8-200/2000 ppb	ICAL	1	616329.6	595765	103.45	PASS	70-125
ICV	ICV	1	608125.9	595765	102.08	PASS	70-125
ICB	ICB	1	590064.5	595765	99.04	PASS	70-125
LLICV	CCV1	1	629089.8	595765	105.59	PASS	70-125
ICSA1	ICSA	1	613042.7	595765	102.9	PASS	70-125
ICSAB1	ICSAB	1	566836.5	595765	95.14	PASS	70-125
LLICV	CCV1	1	606476.3	595765	101.8	PASS	70-125
MB-75482	MBLK	1	494115.1	595765	82.94	PASS	70-125
LCS-75482	LCS	1	580529.8	595765	97.44	PASS	70-125
N037645-001B	SAMP	1	480554.8	595765	80.66	PASS	70-125
N037645-001B	SAMP	5	601301	595765	100.93	PASS	70-125
N037645-001B-PS	PS	1	594044.6	595765	99.71	PASS	70-125
N037645-001B-MS	MS	1	599332.4	595765	100.6	PASS	70-125
N037645-001B-MSD	MSD	1	579040.6	595765	97.19	PASS	70-125
N037645-001B	SAMP	25	652215.7	595765	109.48	PASS	70-125
N037645-001B-PS	PS	5	613348.2	595765	102.95	PASS	70-125
N037645-001B-MS	MS	5	613162.1	595765	102.92	PASS	70-125
CCV1	CCV	1	598123.1	595765	100.4	PASS	70-125
CCB1	CCB	1	507498.6	595765	85.18	PASS	70-125
N037645-001B-MSD	MSD	5	608315.1	595765	102.11	PASS	70-125
N037646-001B	SAMP	1	655706.4	595765	110.06	PASS	70-125
N037646-002B	SAMP	1	590879.5	595765	99.18	PASS	70-125
N037648-001D	SAMP	1	610215.9	595765	102.43	PASS	70-125
N037648-002D	SAMP	1	615574	595765	103.32	PASS	70-125
N037648-003D	SAMP	1	560221.1	595765	94.03	PASS	70-125
N037648-003D	SAMP	25	605883.5	595765	101.7	PASS	70-125
N037648-004D	SAMP	1	517202.1	595765	86.81	PASS	70-125
N037648-005D	SAMP	1	594497.6	595765	99.79	PASS	70-125
N037648-006D	SAMP	1	557597.9	595765	93.59	PASS	70-125
CCV2	CCV	1	640456.7	595765	107.5	PASS	70-125
CCB2	CCB	1	604990.7	595765	101.55	PASS	70-125
N037648-007D	SAMP	1	508734.5	595765	85.39	PASS	70-125
N037648-008D	SAMP	1	493248.6	595765	82.79	PASS	70-125

INTERNAL STANDARD: 191010B

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N037648-009D	SAMP	1	506326.5	595765	84.99	PASS	70-125
N037648-010D	SAMP	1	580357	595765	97.41	PASS	70-125
N037648-011D	SAMP	1	531402.4	595765	89.2	PASS	70-125
N037648-012D	SAMP	1	512302.3	595765	85.99	PASS	70-125
N037648-013D	SAMP	1	536081.9	595765	89.98	PASS	70-125
N037645-001B	SAMP	1	491321.7	595765	82.47	PASS	70-125
N037648-001D	SAMP	1	556260.8	595765	93.37	PASS	70-125
N037648-007D	SAMP	1	533967.9	595765	89.63	PASS	70-125
CCV3	CCV	1	651211.1	595765	109.31	PASS	70-125
CCB3	CCB	1	548917.8	595765	92.14	PASS	70-125
ICSA2	ICSA	1	490636.3	595765	82.35	PASS	70-125
ICSAB2	ICSAB	1	500288.7	595765	83.97	PASS	70-125
N037648-011D	SAMP	1	478447.7	595765	80.31	PASS	70-125
N037648-001D	SAMP	1	490328	595765	82.3	PASS	70-125
CCV4	CCV	1	622661.8	595765	104.51	PASS	70-125
CCB4	CCB	1	519608.8	595765	87.22	PASS	70-125
ICSA3	ICSA	1	524340.8	595765	88.01	PASS	70-125
ICSAB3	ICSAB	1	514178.8	595765	86.31	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037646
Test Method: EPA 6020
Analysis Date: 10/8/2019

Matrix: Groundwater
Batch No.: 75482

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr & Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037645-001B DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N037645-001B DT 5x	Arsenic	As	µg/L	3.778872	PASS	3.85314	1.93%	10
N037645-001B DT 5x	Selenium	Se	µg/L	0	NA	0.894178	100.00%	10
N037645-001B DT 25x	Manganese	Mn	µg/L	164.5258	PASS	160.4334	2.55%	10
N037645-001B DT 25x	Molybdenum	Mo	µg/L	270.1604	PASS	259.5847	4.07%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037645-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136857
Client ID:	ZZZZZZ	Batch ID:	75482	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/8/2019	SeqNo:	3531159

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.553	0.10	10.00	3.853	107	80	120				

Sample ID	N037645-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136857
Client ID:	ZZZZZZ	Batch ID:	75482	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/8/2019	SeqNo:	3531160

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	265.086	2.5	100.0	160.4	105	80	120				

Sample ID	N037645-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136857
Client ID:	ZZZZZZ	Batch ID:	75482	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/8/2019	SeqNo:	3533275

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.654	0.50	10.00	0.8942	108	80	120				

Sample ID	N037645-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	136922
Client ID:	ZZZZZZ	Batch ID:	75482	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/10/2019	SeqNo:	3534321

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	265.727	2.5	10.00	259.6	61.4	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037646
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N037645-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	136857
Client ID:	ZZZZZZ	Batch ID:	75482	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/8/2019	SeqNo:	3531263

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.064	1.0	10.00	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

October 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037666

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 26, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for some samples due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meets internal standard recovery limit.

Internal Standard (IS) recovery for Molybdenum in closing ICSAB3 is biased low at 69.8% with criteria at 70-125%. However, analyte recovery in ICSAB3 passed criteria.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037666
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037666-001A	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-001B	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-001C	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-001D	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-002A	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-002B	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-002C	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-002D	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-003A	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-003B	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-003C	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-003D	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-004A	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-004B	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-004C	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-004D	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-005A	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-005B	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-005C	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-005D	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-006A	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-006B	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-006C	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-006D	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-007A	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019
N037666-007B	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019
N037666-007C	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019
N037666-007D	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:38:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 2:28:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:44:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	6400	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	6500	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037666-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:			RunNo: **136666**		
Client ID: **ZZZZZZ**	Batch ID: **R136666**	TestNo: **EPA 120.1**		Analysis Date: **9/27/2019**			SeqNo: **3520971**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2600.000	0.10						2590	0.385	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:38:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	78	0.33	2.0		µg/L	10	10/2/2019 03:24 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_191011C** QC Batch: **75504**				PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	77	0.13	1.0		µg/L	1	10/11/2019 05:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 2:28:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	150	0.66	4.0		µg/L	20	10/2/2019 01:11 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	160	0.13	1.0		µg/L	1	10/11/2019 06:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	330	1.7	10		µg/L	50	10/2/2019 01:30 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	340	0.65	5.0		µg/L	5	10/11/2019 06:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:44:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	330	1.7	10		µg/L	50	10/2/2019 01:49 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	320	0.65	5.0		µg/L	5	10/11/2019 06:53 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	9700	33	200		µg/L	1000	10/2/2019 02:27 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	11000	13	100		µg/L	100	10/11/2019 07:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	1.2	0.033	0.20		µg/L	1	10/2/2019 02:46 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_191014B** QC Batch: **75504**				PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	1.0	0.13	1.0		µg/L	1	10/14/2019 05:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	1.2	0.033	0.20		µg/L	1	10/2/2019 03:05 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_191014B**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	1.1	0.13	1.0		µg/L	1	10/14/2019 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136743	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	PBW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525208

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136743	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	LCSW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525209

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	90	110				

Sample ID	N037646-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525210

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	5.000	4.813	102	90	110				

Sample ID	N037645-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525212

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.185	1.0	5.000	0	104	90	110				

Sample ID	N037646-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525218

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.053	1.0	5.000	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	251.676	4.0	100.0	151.6	100	90	110				

Sample ID **N037666-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	572.540	10	250.0	326.0	98.6	90	110				

Sample ID **N037666-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	575.035	10	250.0	328.0	98.8	90	110				

Sample ID **N037666-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14705.100	200	5000	9736	99.4	90	110				

Sample ID **N037666-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.214	0.20	1.000	1.245	96.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.249	0.20	1.000	1.215	103	90	110				

Sample ID **N037666-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	126.961	2.0	50.00	78.28	97.4	90	110				

Sample ID **N037666-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	250.074	4.0	100.0	151.6	98.5	90	110	251.7	0.639	20	

Sample ID **N037666-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	78.017	2.0						78.28	0.342	20	

Sample ID **N037709-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N037645-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525240

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.976	0.20	1.000	0	97.6	90	110				

Sample ID	N037709-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525242

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	229.220	4.0	100.0	129.8	99.4	90	110				

Sample ID	N037709-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525246

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	154.886	2.0	50.00	105.7	98.3	90	110				

Sample ID	N037709-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525248

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	68.950	1.0	25.00	44.24	98.8	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75504	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	PBW	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534067

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75504	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	LCSW	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534068

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.448	1.0	10.00	0	104	85	115				

Sample ID	N037666-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	ZZZZZZ	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534074

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	88.129	1.0	10.00	76.97	112	75	125				

Sample ID	N037666-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	ZZZZZZ	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534076

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	88.680	1.0	10.00	76.97	117	75	125	88.13	0.623	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:38:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	9.3	0.63	1.0		mg/L	20	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 2:28:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	14	0.63	1.0		mg/L	20	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	5.2	0.16	0.25		mg/L	5	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:44:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191009A**	QC Batch: **R136984**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	5.7	0.16	0.25		mg/L	5	10/9/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.2	0.032	0.050		mg/L	1	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.2	0.032	0.050		mg/L	1	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136777	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	PBW	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526574

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136777	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	LCSW	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526575

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.453	0.050	0.5000	0	90.6	85	115				

Sample ID	N037648-009BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	ZZZZZZ	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526577

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.245	0.050						0.2534	3.37	20	

Sample ID	N037666-001CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	ZZZZZZ	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526579

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	17.190	1.0	10.00	9.262	79.3	75	125				

Sample ID	N037666-001CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	ZZZZZZ	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526580

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	18.906	1.0	10.00	9.262	96.4	75	125	17.19	9.51	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136984	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984
Client ID:	PBW	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536841

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136984	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984
Client ID:	LCSW	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536842

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.516	0.050	0.5000	0	103	85	115				

Sample ID	N037679-002BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984
Client ID:	ZZZZZZ	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	1.324	0.050						1.260	4.94	20	

Sample ID	N037679-004BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984
Client ID:	ZZZZZZ	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536846

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	25.878	1.0	10.00	16.53	93.5	75	125				

Sample ID	N037679-004BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984
Client ID:	ZZZZZZ	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536847

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	27.194	1.0	10.00	16.53	107	75	125	25.88	4.96	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:38:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Arsenic	2.5	0.081	0.10		µg/L	1	10/11/2019 05:34 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 05:34 AM
Molybdenum	65	0.21	0.50		µg/L	1	10/11/2019 05:34 AM
Selenium	8.0	0.36	0.50		µg/L	1	10/11/2019 05:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 2:28:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Arsenic	0.61	0.081	0.10		µg/L	1	10/11/2019 06:28 AM
Manganese	7.5	0.26	0.50		µg/L	1	10/11/2019 06:28 AM
Molybdenum	65	0.21	0.50		µg/L	1	10/11/2019 06:28 AM
Selenium	9.8	0.36	0.50		µg/L	1	10/11/2019 06:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**	Analyst: **CEI**	
Arsenic	2.4	0.081	0.10		µg/L	1	10/11/2019 06:37 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 06:37 AM
Molybdenum	34	1.1	2.5		µg/L	5	10/11/2019 06:43 AM
Selenium	4.1	0.36	0.50		µg/L	1	10/14/2019 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:44:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	10/11/2019 06:48 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 06:48 AM
Molybdenum	33	0.21	0.50		µg/L	1	10/11/2019 06:48 AM
Selenium	4.6	0.36	0.50		µg/L	1	10/11/2019 06:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**	Analyst: **CEI**	
Arsenic	3.1	0.081	0.10		µg/L	1	10/11/2019 06:58 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 06:58 AM
Molybdenum	33	0.21	0.50		µg/L	1	10/11/2019 06:58 AM
Selenium	10	0.36	0.50		µg/L	1	10/11/2019 06:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_191011C** QC Batch: **75504** PrepDate: **9/29/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	1.5	0.081	0.10		µg/L	1	10/11/2019 07:22 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 07:22 AM
Molybdenum	16	1.1	2.5		µg/L	5	10/11/2019 07:27 AM
Selenium	0.91	0.36	0.50		µg/L	1	10/14/2019 05:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Arsenic	1.5	0.081	0.10		µg/L	1	10/11/2019 07:32 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 07:32 AM
Molybdenum	15	0.21	0.50		µg/L	1	10/11/2019 07:32 AM
Selenium	0.89	0.36	0.50		µg/L	1	10/14/2019 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-75504**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2019**	RunNo: **136917**
Client ID: **PBW**	Batch ID: **75504**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3534131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-75504**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2019**	RunNo: **136917**
Client ID: **LCSW**	Batch ID: **75504**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3534132**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.341	0.10	10.00	0	103	85	115				
Manganese	106.708	0.50	100.0	0	107	85	115				
Molybdenum	10.658	0.50	10.00	0	107	85	115				
Selenium	10.370	0.50	10.00	0	104	85	115				

Sample ID **N037666-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2019**	RunNo: **136917**
Client ID: **ZZZZZZ**	Batch ID: **75504**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3534138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.243	0.10	10.00	2.492	108	75	125				
Manganese	93.921	0.50	100.0	0	93.9	75	125				
Molybdenum	76.217	0.50	10.00	64.75	115	75	125				
Selenium	18.325	0.50	10.00	8.000	103	75	125				

Sample ID **N037666-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2019**	RunNo: **136917**
Client ID: **ZZZZZZ**	Batch ID: **75504**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/11/2019**	SeqNo: **3534140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.189	0.10	10.00	2.492	107	75	125	13.24	0.413	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N037666-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	ZZZZZZ	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534140

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.311	0.50	100.0	0	93.3	75	125	93.92	0.652	20	
Molybdenum	76.329	0.50	10.00	64.75	116	75	125	76.22	0.146	20	
Selenium	18.575	0.50	10.00	8.000	106	75	125	18.33	1.35	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement / QA/QC / Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD; Geotracker; Labspec; Others ✓ / RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Specify: RWQCB / Global ID: / Specify State:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	1. Chilled ✓ Y / 2. Headspace N / 3. Container Intact ✓ Y / 4. Seal Present ✓ Y / 5. IR number 1 Y
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200 Fax:	6. Method of Cooling: ICE
Title: Scientist 1	Phone: 916-786-3302 Fax:		Sample Temp: 5.4
Signature: Date: 9/26/19	Sampled By: Nora Tey	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: 9/26/2019		
Project Number: 30019131			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM23203) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, Iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037666-01	MW-69-195-Q319	9/26/2019	8:38		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-65-160-Q319	9/26/2019	14:28		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	-03	MW-65-225-Q319	9/26/2019	13:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-04	MW-902-Q319	9/26/2019	13:44		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-05	MW-68-180-Q319	9/26/2019	15:42		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	-06	MW-63-065-Q319	9/26/2019	8:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	-07	MW-903-Q319	9/26/2019	8:28		X		X	X	X	X	X	X		X						E	4	P	BNS	
8																									
9																									
10																									

Relinquished by (Signature and Printed Name): Nora Tey Date/Time: 9/26/19 1640
Relinquished by (Signature and Printed Name): JORDAN Date/Time: 9/26/19 1640
Relinquished by (Signature and Printed Name): JORDAN 9/26/19 1900 Date/Time:
Relinquished by (Signature and Printed Name): JORDAN 9/26/19 1900 Date/Time:
Relinquished by (Signature and Printed Name): Date/Time:
Relinquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/26/2019	Workorder:	N037666
Rep sample Temp (Deg C):	3.4	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YR 9/30/2019

Reviewed By: LG 100919

ASSET Laboratories

WORK ORDER Summary

27-Sep-19

WorkOrder: N037666

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/26/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037666-001A	MW-69-195-Q319	9/26/2019 8:38:00 AM	10/10/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-001B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-001C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-001D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-002A	MW-65-160-Q319	9/26/2019 2:28:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-002B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-002C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-002D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-003A	MW-65-225-Q319	9/26/2019 1:34:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-003B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-003C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-003D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-004A	MW-902-Q319	9/26/2019 1:44:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-004B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

27-Sep-19

WorkOrder: N037666

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/26/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037666-004B	MW-902-Q319	9/26/2019 1:44:00 PM	10/10/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-004C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-004D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-005A	MW-68-180-Q319	9/26/2019 3:42:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-005B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-005C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-005D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-006A	MW-63-065-Q319	9/26/2019 8:18:00 AM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-006B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-006C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-006D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-007A	MW-903-Q319	9/26/2019 8:28:00 AM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-007B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-007C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-007D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

27-Sep-19

WorkOrder: N037666

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/26/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037666-008A	FOLDER	10/10/2019	10/10/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/10/2019		Folder	Folder	☐	☐	☐	LAB
			10/10/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: 30019131

ASSET Laboratories Work Order:

N037666

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N037666

RE: PG&E Topock - GMP, 30019131

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 26, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037666

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for some samples due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meets internal standard recovery limit.

Internal Standard (IS) recovery for Molybdenum in closing ICSAB3 is biased low at 69.8% with criteria at 70-125%. However, analyte recovery in ICSAB3 passed criteria.

ASSET Laboratories

Date: *16-Oct-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, 30019131
Lab Order: N037666
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N037666-001A	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-001B	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-001C	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-001D	MW-69-195-Q319	Groundwater	9/26/2019 8:38:00 AM	9/26/2019	10/16/2019
N037666-002A	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-002B	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-002C	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-002D	MW-65-160-Q319	Groundwater	9/26/2019 2:28:00 PM	9/26/2019	10/16/2019
N037666-003A	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-003B	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-003C	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-003D	MW-65-225-Q319	Groundwater	9/26/2019 1:34:00 PM	9/26/2019	10/16/2019
N037666-004A	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-004B	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-004C	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-004D	MW-902-Q319	Groundwater	9/26/2019 1:44:00 PM	9/26/2019	10/16/2019
N037666-005A	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-005B	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-005C	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-005D	MW-68-180-Q319	Groundwater	9/26/2019 3:42:00 PM	9/26/2019	10/16/2019
N037666-006A	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-006B	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-006C	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-006D	MW-63-065-Q319	Groundwater	9/26/2019 8:18:00 AM	9/26/2019	10/16/2019
N037666-007A	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019
N037666-007B	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019
N037666-007C	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019
N037666-007D	MW-903-Q319	Groundwater	9/26/2019 8:28:00 AM	9/26/2019	10/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:38:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 2:28:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037666
Project: PG&E Topock - GMP, 30019131
Lab ID: N037666-004

Client Sample ID: MW-902-Q319
Collection Date: 9/26/2019 1:44:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	6400	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190927B**	QC Batch: **R136666**			PrepDate:			Analyst: **LR**
Specific Conductance	6500	0.10	0.10		umhos/cm	1	9/27/2019 01:45 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N037666-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:					RunNo: **136666**		
Client ID: **ZZZZZZ**	Batch ID: **R136666**	TestNo: **EPA 120.1**		Analysis Date: **9/27/2019**					SeqNo: **3520971**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2600.000	0.10						2590	0.385	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:38:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	78	0.33	2.0		µg/L	10	10/2/2019 03:24 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_191011C** QC Batch: **75504**				PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	77	0.13	1.0		µg/L	1	10/11/2019 05:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 2:28:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	150	0.66	4.0		µg/L	20	10/2/2019 01:11 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	160	0.13	1.0		µg/L	1	10/11/2019 06:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	330	1.7	10		µg/L	50	10/2/2019 01:30 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	340	0.65	5.0		µg/L	5	10/11/2019 06:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:44:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	330	1.7	10		µg/L	50	10/2/2019 01:49 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	320	0.65	5.0		µg/L	5	10/11/2019 06:53 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A**	QC Batch: **R136743**			PrepDate:			Analyst: **HG**
Hexavalent Chromium	9700	33	200		µg/L	1000	10/2/2019 02:27 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	11000	13	100		µg/L	100	10/11/2019 07:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	1.2	0.033	0.20		µg/L	1	10/2/2019 02:46 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_191014B** QC Batch: **75504**				PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	1.0	0.13	1.0		µg/L	1	10/14/2019 05:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_191002A** QC Batch: **R136743**				PrepDate:			Analyst: **HG**
Hexavalent Chromium	1.2	0.033	0.20		µg/L	1	10/2/2019 03:05 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_191014B** QC Batch: **75504**				PrepDate:	**9/29/2019**		Analyst: **CEI**
Chromium	1.1	0.13	1.0		µg/L	1	10/14/2019 04:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R136743	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	PBW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525208

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R136743	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	LCSW	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525209

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	90	110				

Sample ID	N037646-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525210

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	5.000	4.813	102	90	110				

Sample ID	N037645-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525212

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.185	1.0	5.000	0	104	90	110				

Sample ID	N037646-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	136743
Client ID:	ZZZZZZ	Batch ID:	R136743	TestNo:	EPA 218.6			Analysis Date:	10/2/2019	SeqNo:	3525218

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.053	1.0	5.000	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	251.676	4.0	100.0	151.6	100	90	110				

Sample ID **N037666-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	572.540	10	250.0	326.0	98.6	90	110				

Sample ID **N037666-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	575.035	10	250.0	328.0	98.8	90	110				

Sample ID **N037666-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14705.100	200	5000	9736	99.4	90	110				

Sample ID **N037666-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.214	0.20	1.000	1.245	96.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037666-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.249	0.20	1.000	1.215	103	90	110				

Sample ID **N037666-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	126.961	2.0	50.00	78.28	97.4	90	110				

Sample ID **N037666-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	250.074	4.0	100.0	151.6	98.5	90	110	251.7	0.639	20	

Sample ID **N037666-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	78.017	2.0						78.28	0.342	20	

Sample ID **N037709-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **136743**
Client ID: **ZZZZZZ** Batch ID: **R136743** TestNo: **EPA 218.6** Analysis Date: **10/2/2019** SeqNo: **3525239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N037645-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.976	0.20	1.000	0	97.6	90	110				

Sample ID **N037709-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	229.220	4.0	100.0	129.8	99.4	90	110				

Sample ID **N037709-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	154.886	2.0	50.00	105.7	98.3	90	110				

Sample ID **N037709-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	68.950	1.0	25.00	44.24	98.8	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-75504	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	PBW	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534067

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-75504	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	LCSW	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534068

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.448	1.0	10.00	0	104	85	115				

Sample ID	N037666-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	ZZZZZZ	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534074

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	88.129	1.0	10.00	76.97	112	75	125				

Sample ID	N037666-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	ZZZZZZ	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534076

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	88.680	1.0	10.00	76.97	117	75	125	88.13	0.623	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:38:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	9.3	0.63	1.0		mg/L	20	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 2:28:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	14	0.63	1.0		mg/L	20	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	5.2	0.16	0.25		mg/L	5	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:44:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191009A**	QC Batch: **R136984**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	5.7	0.16	0.25		mg/L	5	10/9/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.2	0.032	0.050		mg/L	1	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_191003E**	QC Batch: **R136777**			PrepDate:			Analyst: **MBC**
Nitrate/Nitrite as N	1.2	0.032	0.050		mg/L	1	10/3/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136777	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	PBW	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526574

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R136777	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	LCSW	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526575

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.453	0.050	0.5000	0	90.6	85	115				

Sample ID	N037648-009BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	ZZZZZZ	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526577

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.245	0.050						0.2534	3.37	20	

Sample ID	N037666-001CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	ZZZZZZ	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526579

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	17.190	1.0	10.00	9.262	79.3	75	125				

Sample ID	N037666-001CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136777
Client ID:	ZZZZZZ	Batch ID:	R136777	TestNo:	SM4500-NO3			Analysis Date:	10/3/2019	SeqNo:	3526580

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	18.906	1.0	10.00	9.262	96.4	75	125	17.19	9.51	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R136984	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984		
Client ID:	PBW	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536841		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050											

Sample ID	LCS-R136984	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984		
Client ID:	LCSW	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536842		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.516	0.050	0.5000	0	103	85	115						

Sample ID	N037679-002BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984		
Client ID:	ZZZZZZ	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536844		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	1.324	0.050						1.260	4.94	20			

Sample ID	N037679-004BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984		
Client ID:	ZZZZZZ	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536846		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	25.878	1.0	10.00	16.53	93.5	75	125						

Sample ID	N037679-004BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	136984		
Client ID:	ZZZZZZ	Batch ID:	R136984	TestNo:	SM4500-NO3			Analysis Date:	10/9/2019	SeqNo:	3536847		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	27.194	1.0	10.00	16.53	107	75	125	25.88	4.96	20			

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037666
Project: PG&E Topock - GMP, 30019131
Lab ID: N037666-001

Client Sample ID: MW-69-195-Q319
Collection Date: 9/26/2019 8:38:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:		**9/29/2019**	Analyst: **CEI**
Arsenic	2.5	0.081	0.10		µg/L	1	10/11/2019 05:34 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 05:34 AM
Molybdenum	65	0.21	0.50		µg/L	1	10/11/2019 05:34 AM
Selenium	8.0	0.36	0.50		µg/L	1	10/11/2019 05:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N037666
Project: PG&E Topock - GMP, 30019131
Lab ID: N037666-002

Client Sample ID: MW-65-160-Q319
Collection Date: 9/26/2019 2:28:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:		**9/29/2019**	Analyst: **CEI**
Arsenic	0.61	0.081	0.10		µg/L	1	10/11/2019 06:28 AM
Manganese	7.5	0.26	0.50		µg/L	1	10/11/2019 06:28 AM
Molybdenum	65	0.21	0.50		µg/L	1	10/11/2019 06:28 AM
Selenium	9.8	0.36	0.50		µg/L	1	10/11/2019 06:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:34:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	10/11/2019 06:37 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 06:37 AM
Molybdenum	34	1.1	2.5		µg/L	5	10/11/2019 06:43 AM
Selenium	4.1	0.36	0.50		µg/L	1	10/14/2019 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 1:44:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:		**9/29/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	10/11/2019 06:48 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 06:48 AM
Molybdenum	33	0.21	0.50		µg/L	1	10/11/2019 06:48 AM
Selenium	4.6	0.36	0.50		µg/L	1	10/11/2019 06:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 3:42:00 PM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:	**9/29/2019**		Analyst: **CEI**
Arsenic	3.1	0.081	0.10		µg/L	1	10/11/2019 06:58 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 06:58 AM
Molybdenum	33	0.21	0.50		µg/L	1	10/11/2019 06:58 AM
Selenium	10	0.36	0.50		µg/L	1	10/11/2019 06:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:18:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**				PrepDate:	**9/29/2019**	Analyst: **CEI**
Arsenic	1.5	0.081	0.10		µg/L	1	10/11/2019 07:22 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 07:22 AM
Molybdenum	16	1.1	2.5		µg/L	5	10/11/2019 07:27 AM
Selenium	0.91	0.36	0.50		µg/L	1	10/14/2019 05:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q319
Lab Order:	N037666	**Collection Date:**	9/26/2019 8:28:00 AM
Project:	PG&E Topock - GMP, 30019131	**Matrix:**	GROUNDWATER
Lab ID:	N037666-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_191011C**	QC Batch: **75504**			PrepDate:		**9/29/2019**	Analyst: **CEI**
Arsenic	1.5	0.081	0.10		µg/L	1	10/11/2019 07:32 AM
Manganese	ND	0.26	0.50		µg/L	1	10/11/2019 07:32 AM
Molybdenum	15	0.21	0.50		µg/L	1	10/11/2019 07:32 AM
Selenium	0.89	0.36	0.50		µg/L	1	10/14/2019 04:51 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-75504	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	PBW	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534131

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-75504	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	LCSW	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534132

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.341	0.10	10.00	0	103	85	115				
Manganese	106.708	0.50	100.0	0	107	85	115				
Molybdenum	10.658	0.50	10.00	0	107	85	115				
Selenium	10.370	0.50	10.00	0	104	85	115				

Sample ID	N037666-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	ZZZZZZ	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534138

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.243	0.10	10.00	2.492	108	75	125				
Manganese	93.921	0.50	100.0	0	93.9	75	125				
Molybdenum	76.217	0.50	10.00	64.75	115	75	125				
Selenium	18.325	0.50	10.00	8.000	103	75	125				

Sample ID	N037666-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2019	RunNo:	136917
Client ID:	ZZZZZZ	Batch ID:	75504	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/11/2019	SeqNo:	3534140

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.189	0.10	10.00	2.492	107	75	125	13.24	0.413	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N037666-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/29/2019** RunNo: **136917**
Client ID: **ZZZZZZ** Batch ID: **75504** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/11/2019** SeqNo: **3534140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.311	0.50	100.0	0	93.3	75	125	93.92	0.652	20	
Molybdenum	76.329	0.50	10.00	64.75	116	75	125	76.22	0.146	20	
Selenium	18.575	0.50	10.00	8.000	106	75	125	18.33	1.35	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement / QA/QC / Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD; RTNE; 1. Chilled ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker; RWQCB ✓; 2. Headspace
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	Labspec; CalTrans; 3. Container Intact ✓
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Others ✓; LEVEL III; 4. Seal Present ✓
Title: Scientist 1		Global ID:	Specify: RWQCB; LEVEL IV; Regulatory; 5. IR number 1
Signature: Date: 9/26/19	Sampled By: Nora Tey		Specify State: 6. Method of Cooling: ICE
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Sample Temp: 5.4
Project Name: PG&E Topock - GMP	Signature: 9/26/2019		Courier:
Project Number: 30019131			Tracking No.:

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM23203) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, Iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N037666-01	MW-69-195-Q319	9/26/2019	8:38		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-65-160-Q319	9/26/2019	14:28		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	-03	MW-65-225-Q319	9/26/2019	13:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-04	MW-902-Q319	9/26/2019	13:44		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-05	MW-68-180-Q319	9/26/2019	15:42		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	-06	MW-63-065-Q319	9/26/2019	8:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	-07	MW-903-Q319	9/26/2019	8:28		X		X	X	X	X	X	X		X						E	4	P	BNS	
8																									
9																									
10																									

Relinquished by (Signature and Printed Name): Nora Tey Date/Time: 9/26/19 1640
Relinquished by (Signature and Printed Name): JORDAN Date/Time: 9/26/19 1640
Relinquished by (Signature and Printed Name): JORDAN Date/Time: 9/26/19 1900
Relinquished by (Signature and Printed Name): JORDAN Date/Time: 9/26/19 1900

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/26/2019	Workorder:	N037666
Rep sample Temp (Deg C):	3.4	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YR 9/30/2019

Reviewed By: LG 100919

ASSET Laboratories

WORK ORDER Summary

27-Sep-19

WorkOrder: N037666

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/26/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037666-001A	MW-69-195-Q319	9/26/2019 8:38:00 AM	10/10/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-001B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-001C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-001D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-002A	MW-65-160-Q319	9/26/2019 2:28:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-002B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-002C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-002D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-003A	MW-65-225-Q319	9/26/2019 1:34:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-003B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-003C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-003D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-004A	MW-902-Q319	9/26/2019 1:44:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-004B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

27-Sep-19

WorkOrder: N037666

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/26/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037666-004B	MW-902-Q319	9/26/2019 1:44:00 PM	10/10/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-004C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-004D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-005A	MW-68-180-Q319	9/26/2019 3:42:00 PM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-005B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-005C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-005D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-006A	MW-63-065-Q319	9/26/2019 8:18:00 AM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-006B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-006C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-006D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N037666-007A	MW-903-Q319	9/26/2019 8:28:00 AM	10/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N037666-007B			10/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N037666-007C			10/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N037666-007D			10/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

27-Sep-19

WorkOrder: N037666

Client ID: ARCUS02

Project: PG&E Topock - GMP, 30019131 **QC Level:** Level IV **Date Received:** 9/26/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N037666-008A	FOLDER	10/10/2019	10/10/2019		EDD	RWQCB	☐	☐	☐	LAB
			10/10/2019		Folder	Folder	☐	☐	☐	LAB
			10/10/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N037666

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Marlon Cartin	SM 4500-NO3F
Lilia Ramit	EPA 120.1
Hanah Glodoviza	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136666 **Analyst:** LSR

ASSET #: N037666 **Date Analyzed:** 27-Sep

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, ~~RPD's~~ are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 10/3/2019

2nd Level Reviewer Nancy 10/16/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 9/27/19 1345
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CIW - 190724B	10.18 @24.7°C	% Rec: (90-110%)
1410	D	1418 @24.7°C	
9985	F	10080 @24.8°C	
99999	CIW - 190613A	100100 @24.8°C	

	Sample ID	Matrix	Reading	Comments
1	ND37666-1D	H2O	2590 @25.6°C	MB = 0.71
2	1D DUP		2600 @25.5°C	
3	2D uS/cm		3900 @25.3°C	
4	3D		12680 @25.3°C	
5	4D		12530 @25.4°C	
6	5D		3460 @25.3°C	
7	6D		6400 @25.5°C	
8	7D		6510 @25.7°C	
9				
10	1413 uS/cm	CIW - 190726A	1441 @23.9°C	
Dup	10000	190724G	10270 @24.0°C	RPD Criteria: 2%
	Std Chk: 99999	190524A	98200 @24.0°C	% Rec: (90-110%)

Julia Ramit 10/3/2019

Date: 10/1/19 1400
Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CIW - 190724B	10.08 @20.1°C	% Rec: (90-110%)
1410	D	1411 @20.2°C	
9985	F	9890 @20.1°C	
99999	CIW - 190613A	101000 @20.3°C	

	Sample ID	Matrix	Reading	Comments
1	ND37709-1D	H2O	2730 @18.1°C	MB = 0.45
2	1D DUP		2770 @18.3°C	
3	2D		2420 @18.4°C	
4	3D		2190 @18.0°C	
5				
6				
7				
8				
9	1413 uS/cm	CIW - 190726A	1462 @19.2°C	
10	10000	190724G	10060 @19.6°C	
Dup	99999	190524A	102400 @19.6°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R136743
ASSET #: N037666

Instrument ID: IC-07
Analyst: HSG
Date Analyzed: 10/2/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: HSG Date: 10/14/2019

2nd Level Reviewer: NS 10/14/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N037666-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 7.8284 * 10$$

$$Cr^{+6}, \mu g/L = 78.2840$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 78}$$

ANALYSIS RUN LOG

INJECTION LOG: 190924A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	ICV	ICV	1	Hexavalent Chromium	09/24/19 10:59 AM	Reported
9	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/24/19 11:10 AM	Reported
10	ICB	ICB	1	Hexavalent Chromium	09/24/19 11:20 AM	Reported
11	MB-R136616	MBLK	1	Hexavalent Chromium	09/24/19 11:29 AM	Reported
12	LCS-R136616	LCS	1	Hexavalent Chromium	09/24/19 11:38 AM	Reported
13	N037597-001AMS	MS	5	Hexavalent Chromium	09/24/19 12:09 PM	Reported
14	N037597-002AMS	MS	1	Hexavalent Chromium	09/24/19 12:21 PM	Reported
15	N037597-003AMS	MS	1	Hexavalent Chromium	09/24/19 12:30 PM	Reported
16	N037597-004AMS	MS	1	Hexavalent Chromium	09/24/19 12:40 PM	Reported
17	N037597-001A	SAMP	5	Hexavalent Chromium	09/24/19 1:57 PM	Reported
18	N037597-002A	SAMP	1	Hexavalent Chromium	09/24/19 2:08 PM	Reported
19	N037597-003A	SAMP	1	Hexavalent Chromium	09/24/19 2:18 PM	Reported
20	N037597-004A	SAMP	1	Hexavalent Chromium	09/24/19 2:27 PM	Reported
21	CCV-1	CCV1	1	Hexavalent Chromium	09/24/19 2:37 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	09/24/19 2:46 PM	Reported
23	N037599-001A	SAMP	20	Hexavalent Chromium	09/24/19 3:01 PM	Not Reported
24	N037597-002ADUP	DUP	1	Hexavalent Chromium	09/24/19 3:13 PM	Reported
25	N037597-003AMSD	MSD	1	Hexavalent Chromium	09/24/19 3:22 PM	Reported
26	N037599-001A	SAMP	500	Hexavalent Chromium	09/24/19 4:01 PM	Reported
27	N037599-001AMS	MS	500	Hexavalent Chromium	09/24/19 4:12 PM	Reported
28	CCV-2	CCV	1	Hexavalent Chromium	09/24/19 4:22 PM	Reported
29	CCB-2	CCB	1	Hexavalent Chromium	09/24/19 4:31 PM	Reported
30	BLANK	BLANK	1	Hexavalent Chromium	09/24/19 4:41 PM	Not Reported

10/1/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190924A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Sep/19 17:11:38**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	ICV,ICV,1,	9	1000	Unknown		09/24/2019 10:59	Finished	ICV @5ppb, IWST-190702B
9	PQL@0.2ppb,CCV2,1	10	1000	Unknown		09/24/2019 11:10	Finished	PQL @ 0.2ppb
10	ICB,ICB,1,	11	1000	Unknown		09/24/2019 11:20	Finished	CCB R190830A
11	MB-H2O,MBLK,1,	12	1000	Unknown		09/24/2019 11:29	Finished	MB R190830A
12	LCS-H2O,LCS,1,	13	1000	Unknown		09/24/2019 11:38	Finished	LCS @5ppb, IWST-190702B
13	N037597-001AMS,MS	14	1000	Unknown		09/24/2019 12:09	Finished	MS (1ppb), IWST-190702B,2>1
14	N037597-002AMS,MS	15	1000	Unknown		09/24/2019 12:21	Finished	MS (1ppb), IWST-190702B,10
15	N037597-003AMS,MS	16	1000	Unknown		09/24/2019 12:30	Finished	MS (1ppb), IWST-190702B,10
16	N037597-004AMS,MS	17	1000	Unknown		09/24/2019 12:40	Finished	MS (1ppb), IWST-190702B,10
17	N037597-001A,SAMP	19	1000	Unknown		09/24/2019 13:57	Finished	SAMP,2>10mL
18	N037597-002A,SAMP	20	1000	Unknown		09/24/2019 14:08	Finished	SAMP,10mL
19	N037597-003A,SAMP	21	1000	Unknown		09/24/2019 14:18	Finished	SAMP,10mL
20	N037597-004A,SAMP	22	1000	Unknown		09/24/2019 14:27	Finished	SAMP,10mL
21	CCV-2,CCV1,1,	23	1000	Unknown		09/24/2019 14:37	Finished	CCV @10ppb, IWST-190702A
22	CCB-2,CCB,1,	24	1000	Unknown		09/24/2019 14:46	Finished	CCB R190830A
23	N037599-001A,SAMP	26	1000	Unknown		09/24/2019 15:01	Finished	SAMP,0.5>10mL
24	N037597-002ADUP,D	27	1000	Unknown		09/24/2019 15:13	Finished	DUP,10mL
25	N037597-003AMSD,M	28	1000	Unknown		09/24/2019 15:22	Finished	
26	N037599-001A,SAMP	30	1000	Unknown		09/24/2019 16:01	Finished	SAMP,0.02>10mL
27	N037599-001AMS,MS	31	1000	Unknown		09/24/2019 16:12	Finished	MS (1ppb), IWST-190702B,0.0
28	CCV-3,CCV,1,	32	1000	Unknown		09/24/2019 16:22	Finished	CCV @5ppb, IWST-190702A
29	CCB-3,CCB,1,	33	1000	Unknown		09/24/2019 16:31	Finished	CCB R190830A
30	BLANK	34	1000	Unknown		09/24/2019 16:41	Finished	BLANK
31	SHUTDOWN	35	1000	Unknown		09/24/2019 16:50	Finished	
32	Eluent: R190924B	36	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190920B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

10/1/2019

Chromeleon (c) Dionex
Version 7.1.1.1127

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 9:43 AM	Not Reported
9	CCV-1	CCV	1	Hexavalent Chromium	10/02/19 9:54 AM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/19 10:03 AM	Reported
11	CCB-1	CCB	1	Hexavalent Chromium	10/02/19 10:13 AM	Reported
12	MB-R136743	MBLK	1	Hexavalent Chromium	10/02/19 10:22 AM	Reported
13	LCS-R136743	LCS	1	Hexavalent Chromium	10/02/19 10:32 AM	Reported
14	N037645-001AMS	MS	1	Hexavalent Chromium	10/02/19 10:46 AM	Not Reported
15	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 10:57 AM	Not Reported
16	N037646-001AMS	MS	1	Hexavalent Chromium	10/02/19 11:06 AM	Reported
17	N037646-002AMS	MS	1	Hexavalent Chromium	10/02/19 11:16 AM	Not Reported
18	N037645-001A	SAMP	5	Hexavalent Chromium	10/02/19 11:31 AM	Reported
19	N037645-001AMS	MS	5	Hexavalent Chromium	10/02/19 11:42 AM	Reported
20	N037645-002A	SAMP	1	Hexavalent Chromium	10/02/19 11:52 AM	Reported
21	N037646-001A	SAMP	1	Hexavalent Chromium	10/02/19 12:01 PM	Reported
22	CCV-2	CCV1	1	Hexavalent Chromium	10/02/19 12:11 PM	Reported
23	CCB-2	CCB	1	Hexavalent Chromium	10/02/19 12:20 PM	Reported
24	N037646-002A	SAMP	5	Hexavalent Chromium	10/02/19 12:32 PM	Reported
25	N037646-002AMS	MS	5	Hexavalent Chromium	10/02/19 12:43 PM	Reported
26	N037666-001A	SAMP	50	Hexavalent Chromium	10/02/19 12:52 PM	Not Reported
27	N037666-001AMS	MS	50	Hexavalent Chromium	10/02/19 1:02 PM	Not Reported
28	N037666-002A	SAMP	20	Hexavalent Chromium	10/02/19 1:11 PM	Reported
29	N037666-002AMS	MS	20	Hexavalent Chromium	10/02/19 1:21 PM	Reported
30	N037666-003A	SAMP	50	Hexavalent Chromium	10/02/19 1:30 PM	Reported
31	N037666-003AMS	MS	50	Hexavalent Chromium	10/02/19 1:40 PM	Reported
32	N037666-004A	SAMP	50	Hexavalent Chromium	10/02/19 1:49 PM	Reported
33	N037666-004AMS	MS	50	Hexavalent Chromium	10/02/19 1:59 PM	Reported
34	CCV-3	CCV	1	Hexavalent Chromium	10/02/19 2:08 PM	Reported
35	CCB-3	CCB	1	Hexavalent Chromium	10/02/19 2:18 PM	Reported
36	N037666-005A	SAMP	1000	Hexavalent Chromium	10/02/19 2:27 PM	Reported
37	N037666-005AMS	MS	1000	Hexavalent Chromium	10/02/19 2:36 PM	Reported
38	N037666-006A	SAMP	1	Hexavalent Chromium	10/02/19 2:46 PM	Reported
39	N037666-006AMS	MS	1	Hexavalent Chromium	10/02/19 2:55 PM	Reported
40	N037666-007A	SAMP	1	Hexavalent Chromium	10/02/19 3:05 PM	Reported
41	N037666-007AMS	MS	1	Hexavalent Chromium	10/02/19 3:14 PM	Reported
42	N037666-001A	SAMP	10	Hexavalent Chromium	10/02/19 3:24 PM	Reported

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037666-001AMS	MS	10	Hexavalent Chromium	10/02/19 3:33 PM	Reported
44	N037666-002AMSD	MSD	20	Hexavalent Chromium	10/02/19 3:43 PM	Reported
45	N037666-001ADUP	DUP	10	Hexavalent Chromium	10/02/19 3:52 PM	Reported
46	CCV-4	CCV1	1	Hexavalent Chromium	10/02/19 4:02 PM	Reported
47	CCB-4	CCB	1	Hexavalent Chromium	10/02/19 4:11 PM	Reported
48	N037572-001A	SAMP	5	Hexavalent Chromium	10/02/19 4:21 PM	Not Reported
49	N037572-001AMS	MS	5	Hexavalent Chromium	10/02/19 4:30 PM	Not Reported
50	N037709-001AMS	MS	1	Hexavalent Chromium	10/02/19 4:40 PM	Not Reported
51	N037709-002AMS	MS	1	Hexavalent Chromium	10/02/19 4:49 PM	Not Reported
52	N037709-003AMS	MS	1	Hexavalent Chromium	10/02/19 4:58 PM	Not Reported
53	N037709-004AMS	MS	1	Hexavalent Chromium	10/02/19 5:08 PM	Reported
54	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 5:17 PM	Reported
55	N037709-001A	SAMP	20	Hexavalent Chromium	10/02/19 5:35 PM	Reported
56	N037709-001AMS	MS	20	Hexavalent Chromium	10/02/19 5:46 PM	Reported
57	N037709-002A	SAMP	10	Hexavalent Chromium	10/02/19 5:55 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	10/02/19 6:05 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	10/02/19 6:14 PM	Reported
60	N037709-002AMS	MS	10	Hexavalent Chromium	10/02/19 6:24 PM	Reported
61	N037709-003A	SAMP	5	Hexavalent Chromium	10/02/19 6:33 PM	Reported
62	N037709-003AMS	MS	5	Hexavalent Chromium	10/02/19 6:42 PM	Reported
63	N037709-004A	SAMP	1	Hexavalent Chromium	10/02/19 6:52 PM	Reported
64	CCV-6	CCV	1	Hexavalent Chromium	10/02/19 7:01 PM	Reported
65	CCB-6	CCB	1	Hexavalent Chromium	10/02/19 7:11 PM	Reported
66	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 7:20 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Oct/19 19:51:09**
No. of Injections:	**69**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	BLANK	1	1000	Unknown		10/02/2019 09:43	Finished	BLANK
9	CCV1,CCV,1,	2	1000	Unknown		10/02/2019 09:54	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/02/2019 10:03	Finished	PQL @ 0.2ppb
11	CCB1,CCB,1,	4	1000	Unknown		10/02/2019 10:13	Finished	CCB R190830A
12	MB-H2O,MBLK,1,	5	1000	Unknown		10/02/2019 10:22	Finished	MB R190830A
13	LCS-H2O,LCS,1,	6	1000	Unknown		10/02/2019 10:32	Finished	LCS @5ppb, IWST-190702B
14	N037645-001AMS,MS	8	1000	Unknown		10/02/2019 10:46	Finished	MS (1ppb), IWST-190702B,10
15	N037645-002AMS,MS	9	1000	Unknown		10/02/2019 10:57	Finished	MS (1ppb), IWST-190702B,10
16	N037646-001AMS,MS	10	1000	Unknown		10/02/2019 11:06	Finished	MS (5ppb), IWST-190702B,10
17	N037646-002AMS,MS	11	1000	Unknown		10/02/2019 11:16	Finished	MS (1ppb), IWST-190702B,10
18	N037645-001A,SAMP	13	1000	Unknown		10/02/2019 11:31	Finished	SAMP, 2>10 mL
19	N037645-001AMS,MS	14	1000	Unknown		10/02/2019 11:42	Finished	MS (1ppb), IWST-190702B,2>1
20	N037645-002A,SAMP	15	1000	Unknown		10/02/2019 11:52	Finished	
21	N037646-001A,SAMP	16	1000	Unknown		10/02/2019 12:01	Finished	
22	CCV-2,CCV1,1,	17	1000	Unknown		10/02/2019 12:11	Finished	CCV @10ppb, IWST-190702A
23	CCB-2,CCB,1,	18	1000	Unknown		10/02/2019 12:20	Finished	CCB R190830A
24	N037646-002A,SAMP	19	1000	Unknown		10/02/2019 12:32	Finished	
25	N037646-002AMS,MS	20	1000	Unknown		10/02/2019 12:43	Finished	
26	N037666-001A,SAMP	21	1000	Unknown		10/02/2019 12:52	Finished	
27	N037666-001AMS,MS	22	1000	Unknown		10/02/2019 13:02	Finished	
28	N037666-002A,SAMP	23	1000	Unknown		10/02/2019 13:11	Finished	
29	N037666-002AMS,MS	24	1000	Unknown		10/02/2019 13:21	Finished	
30	N037666-003A,SAMP	25	1000	Unknown		10/02/2019 13:30	Finished	
31	N037666-003AMS,MS	26	1000	Unknown		10/02/2019 13:40	Finished	
32	N037666-004A,SAMP	27	1000	Unknown		10/02/2019 13:49	Finished	
33	N037666-004AMS,MS	28	1000	Unknown		10/02/2019 13:59	Finished	
34	CCV-3,CCV,1,	29	1000	Unknown		10/02/2019 14:08	Finished	CCV @5ppb, IWST-190702A
35	CCB-3,CCB,1,	30	1000	Unknown		10/02/2019 14:18	Finished	CCB R190830A
36	N037666-005A,SAMP	31	1000	Unknown		10/02/2019 14:27	Finished	
37	N037666-005AMS,MS	32	1000	Unknown		10/02/2019 14:36	Finished	
38	N037666-006A,SAMP	33	1000	Unknown		10/02/2019 14:46	Finished	
39	N037666-006AMS,MS	34	1000	Unknown		10/02/2019 14:55	Finished	
40	N037666-007A,SAMP	35	1000	Unknown		10/02/2019 15:05	Finished	
41	N037666-007AMS,MS	36	1000	Unknown		10/02/2019 15:14	Finished	
42	N037666-001A,SAMP	37	1000	Unknown		10/02/2019 15:24	Finished	
43	N037666-001AMS,MS	38	1000	Unknown		10/02/2019 15:33	Finished	
44	N037666-002AMSD,M	39	1000	Unknown		10/02/2019 15:43	Finished	
45	N037666-001ADUP,D	40	1000	Unknown		10/02/2019 15:52	Finished	
46	CCV-4,CCV1,1,	41	1000	Unknown		10/02/2019 16:02	Finished	CCV @10ppb, IWST-190702A
47	CCB-4,CCB,1,	42	1000	Unknown		10/02/2019 16:11	Finished	CCB R190830A
48	N037572-001A,SAMP	43	1000	Unknown		10/02/2019 16:21	Finished	
49	N037572-001AMS,MS	44	1000	Unknown		10/02/2019 16:30	Finished	
50	N037709-001AMS,MS	45	1000	Unknown		10/02/2019 16:40	Finished	
51	N037709-002AMS,MS	46	1000	Unknown		10/02/2019 16:49	Finished	
52	N037709-003AMS,MS	47	1000	Unknown		10/02/2019 16:58	Finished	
53	N037709-004AMS,MS	48	1000	Unknown		10/02/2019 17:08	Finished	
54	N037645-002AMS,MS	49	1000	Unknown		10/02/2019 17:17	Finished	
55	N037709-001A,SAMP	1	1000	Unknown		10/02/2019 17:35	Finished	
56	N037709-001AMS,MS	2	1000	Unknown		10/02/2019 17:46	Finished	
57	N037709-002A,SAMP	3	1000	Unknown		10/02/2019 17:55	Finished	
58	CCV-5,CCV,1,	4	1000	Unknown		10/02/2019 18:05	Finished	CCV @5ppb, IWST-190702A
59	CCB-5,CCB,1,	5	1000	Unknown		10/02/2019 18:14	Finished	CCB R190830A
60	N037709-002AMS,MS	6	1000	Unknown		10/02/2019 18:24	Finished	

61	N037709-003A,SAMP	7	1000	Unknown		10/02/2019 18:33	Finished	
62	N037709-003AMS,MS	8	1000	Unknown		10/02/2019 18:42	Finished	
63	N037709-004A,SAMP	9	1000	Unknown		10/02/2019 18:52	Finished	
64	CCV-6,CCV,1,	10	1000	Unknown		10/02/2019 19:01	Finished	CCV @10ppb, IWST-190702A
65	CCB-6,CCB,1,	11	1000	Unknown		10/02/2019 19:11	Finished	CCB R190830A
66	BLANK	12	1000	Unknown		10/02/2019 19:20	Finished	BLANK
67	SHUTDOWN	13	1000	Unknown		10/02/2019 19:30	Finished	
68	Eluent: R190930D	14	1000	Unknown		n.a.	Finished	Eluent
69	PCR: R190930E	15	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 9/27/19
Time Prepared: 0910
Prepared By: HSG

SLOPE: 96.1%
pH 4: 4.00
7: 6.97
10: 10.02

Reagent ID:
Sulfuric Acid: 11235
6N NaOH: R190722A
Diphenylcarbazide: CINN-190329A
NH4OH + NH4SO4 eluent: R1909300
NH4OH + NH4SO4 buffer: R190830A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037664-1A	9.12	9.36	~250mL	~250mL	+2 DROPS 6N	NaOH
2)	2A	9.24	9.36			+1	
3)	3A	9.15	9.36			+3	
4)	4A	9.15	9.35			+3	
5)	5A	9.16	9.40			+3	
6)	6A	9.12	9.30			+3	
7)	7A	9.14	9.33			+3	
8)	8A	8.92	9.38			+7	
9)	9A	9.40	—				
10)	10A	9.34	—				
11)	N037666-1A	9.11	9.30			+3 DROPS 6N	NaOH
12)	2A	9.06	9.34			+4	
13)	3A	9.15	9.37			+3	
14)	4A	9.14	9.37			+3	
15)	5A	9.15	9.37			+4	
	6A	8.83	9.30			+6	
	7A	8.85	9.31			+6	

Sample Preparation CONT'D

Date Prepared: 9/27/19
Time Prepared: 0910
Prepared By: HG

Reagent ID:
Sulfuric Acid: 11235
Diphenylcarbazide: CINN-190329A
NH4OH + NH4SO4 eluent: R1909300
NH4OH + NH4SO4 buffer: R190830A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N037678-1A	9.37	—	~250mL	~250mL		
2)	2A	9.37	—				
3)	3A	9.22	9.38			+1 DROPS 6N	NaOH
4)	4A	9.22	9.38			+1	
5)	5A	9.23	9.38			+1	
6)	6A	9.20	9.40			+2	
7)	7A	9.26	9.34			+1	
8)	8A	9.16	9.35			+2	
9)	9A	9.10	9.41			+3	
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 17

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 9/24/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0583	0.2636	1.3281	2.6480	4.1596	5.4105	0.9995

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190702A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ICV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.889	0.20	5.000	0	97.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.194	0.20	0.2000	0	96.9	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.061	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.221	0.20	0.2000	0	110	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.987	0.20	10.00	0	99.9	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.016	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.830	0.20	10.00	0	98.3	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCV**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.992	0.20	5.000	0	99.8	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ZZZZZZ**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.859	0.20	10.00	0	98.6	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **ICB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **9/24/2019**	SeqNo: **3525204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **136743**
Client ID: **CCB**	Batch ID: **R136743**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2019**	SeqNo: **3525251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	

Average	4.747
Actual RT Window	4.667 - 4.827
Applied RT Window	4.547 - 4.947

MB-R136743	N.A.	N.A.
LCS-R136743	4.731	PASS
N037645-001AMS	N.A.	N.A.
N037645-002AMS	4.731	PASS
N037646-001AMS	4.698	PASS
N037646-002AMS	4.506	FAIL
N037645-001A	N.A.	N.A.
N037645-001AMS	4.665	PASS
N037645-002A	N.A.	N.A.
N037646-001A	4.715	PASS
N037646-002A	N.A.	N.A.
N037646-002AMS	4.698	PASS
N037666-001A	4.731	PASS
N037666-001AMS	4.731	PASS
N037666-002A	4.731	PASS
N037666-002AMS	4.731	PASS
N037666-003A	4.731	PASS
N037666-003AMS	4.731	PASS
N037666-004A	4.731	PASS
N037666-004AMS	4.731	PASS
N037666-005A	4.731	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	
Average	4.747	
Actual RT Window	4.667 - 4.827	
Applied RT Window	4.547 - 4.947	
N037666-005AMS	4.731	PASS
N037666-006A	4.648	PASS
N037666-006AMS	4.648	PASS
N037666-007A	4.640	PASS
N037666-007AMS	4.648	PASS
N037666-001A	4.731	PASS
N037666-001AMS	4.731	PASS
N037666-002AMSD	4.731	PASS
N037666-001ADUP	4.731	PASS
N037572-001A	4.706	PASS
N037572-001AMS	4.715	PASS
N037709-001AMS	4.698	PASS
N037709-002AMS	4.706	PASS
N037709-003AMS	4.715	PASS
N037709-004AMS	4.748	PASS
N037645-002AMS	4.748	PASS
N037709-001A	4.756	PASS
N037709-001AMS	4.756	PASS
N037709-002A	4.756	PASS
N037709-002AMS	4.773	PASS
N037709-003A	4.773	PASS
N037709-003AMS	4.781	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2019

Sample Name	Retention Time	Evaluation
ICV	4.715	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.765	
CCV-6	4.790	
Average	4.747	
Actual RT Window	4.667 - 4.827	
Applied RT Window	4.547 - 4.947	
N037709-004A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190924A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	ICV	ICV	1	Hexavalent Chromium	09/24/19 10:59 AM	Reported
9	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/24/19 11:10 AM	Reported
10	ICB	ICB	1	Hexavalent Chromium	09/24/19 11:20 AM	Reported
11	MB-R136616	MBLK	1	Hexavalent Chromium	09/24/19 11:29 AM	Reported
12	LCS-R136616	LCS	1	Hexavalent Chromium	09/24/19 11:38 AM	Reported
13	N037597-001AMS	MS	5	Hexavalent Chromium	09/24/19 12:09 PM	Reported
14	N037597-002AMS	MS	1	Hexavalent Chromium	09/24/19 12:21 PM	Reported
15	N037597-003AMS	MS	1	Hexavalent Chromium	09/24/19 12:30 PM	Reported
16	N037597-004AMS	MS	1	Hexavalent Chromium	09/24/19 12:40 PM	Reported
17	N037597-001A	SAMP	5	Hexavalent Chromium	09/24/19 1:57 PM	Reported
18	N037597-002A	SAMP	1	Hexavalent Chromium	09/24/19 2:08 PM	Reported
19	N037597-003A	SAMP	1	Hexavalent Chromium	09/24/19 2:18 PM	Reported
20	N037597-004A	SAMP	1	Hexavalent Chromium	09/24/19 2:27 PM	Reported
21	CCV-1	CCV1	1	Hexavalent Chromium	09/24/19 2:37 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	09/24/19 2:46 PM	Reported
23	N037599-001A	SAMP	20	Hexavalent Chromium	09/24/19 3:01 PM	Not Reported
24	N037597-002ADUP	DUP	1	Hexavalent Chromium	09/24/19 3:13 PM	Reported
25	N037597-003AMSD	MSD	1	Hexavalent Chromium	09/24/19 3:22 PM	Reported
26	N037599-001A	SAMP	500	Hexavalent Chromium	09/24/19 4:01 PM	Reported
27	N037599-001AMS	MS	500	Hexavalent Chromium	09/24/19 4:12 PM	Reported
28	CCV-2	CCV	1	Hexavalent Chromium	09/24/19 4:22 PM	Reported
29	CCB-2	CCB	1	Hexavalent Chromium	09/24/19 4:31 PM	Reported
30	BLANK	BLANK	1	Hexavalent Chromium	09/24/19 4:41 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190924A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Sep/19 17:11:38**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

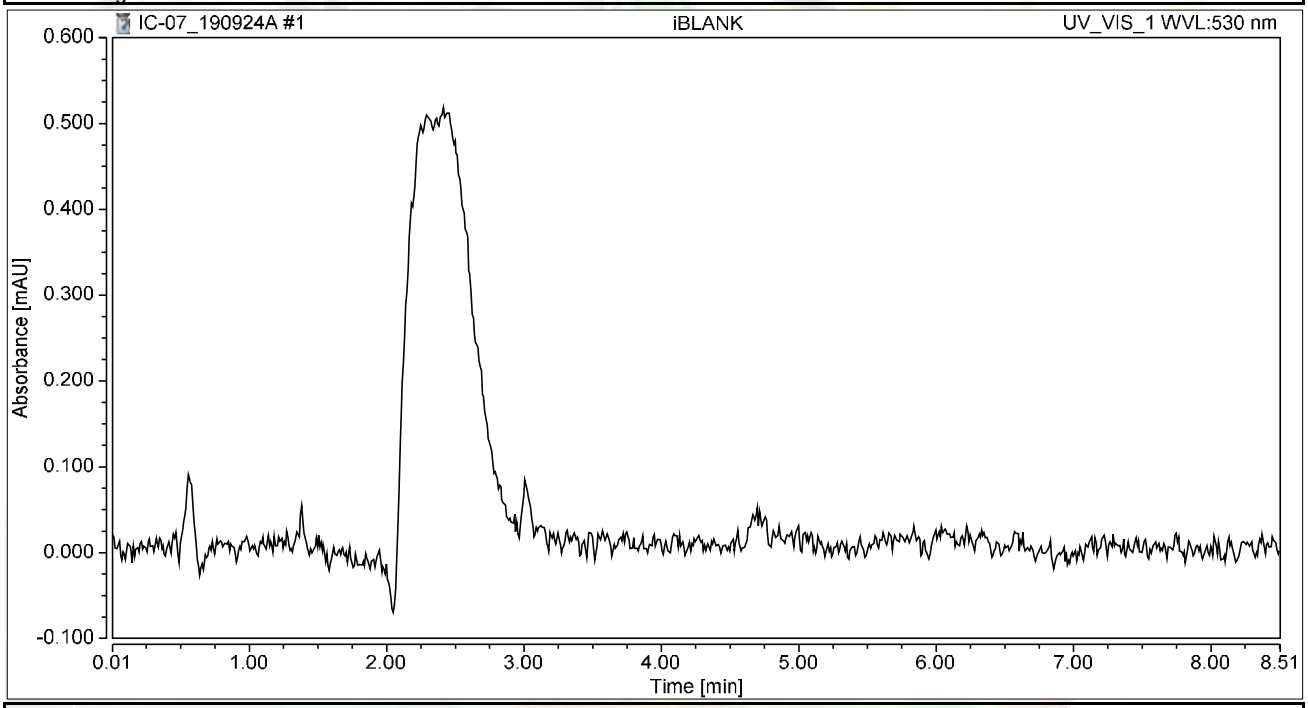
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	ICV,ICV,1,	9	1000	Unknown		09/24/2019 10:59	Finished	ICV @5ppb, IWST-190702B
9	PQL@0.2ppb,CCV2,1	10	1000	Unknown		09/24/2019 11:10	Finished	PQL @ 0.2ppb
10	ICB,ICB,1,	11	1000	Unknown		09/24/2019 11:20	Finished	CCB R190830A
11	MB-H2O,MBLK,1,	12	1000	Unknown		09/24/2019 11:29	Finished	MB R190830A
12	LCS-H2O,LCS,1,	13	1000	Unknown		09/24/2019 11:38	Finished	LCS @5ppb, IWST-190702B
13	N037597-001AMS,MS	14	1000	Unknown		09/24/2019 12:09	Finished	MS (1ppb), IWST-190702B,2>1
14	N037597-002AMS,MS	15	1000	Unknown		09/24/2019 12:21	Finished	MS (1ppb), IWST-190702B,10
15	N037597-003AMS,MS	16	1000	Unknown		09/24/2019 12:30	Finished	MS (1ppb), IWST-190702B,10
16	N037597-004AMS,MS	17	1000	Unknown		09/24/2019 12:40	Finished	MS (1ppb), IWST-190702B,10
17	N037597-001A,SAMP	19	1000	Unknown		09/24/2019 13:57	Finished	SAMP,2>10mL
18	N037597-002A,SAMP	20	1000	Unknown		09/24/2019 14:08	Finished	SAMP,10mL
19	N037597-003A,SAMP	21	1000	Unknown		09/24/2019 14:18	Finished	SAMP,10mL
20	N037597-004A,SAMP	22	1000	Unknown		09/24/2019 14:27	Finished	SAMP,10mL
21	CCV-2,CCV1,1,	23	1000	Unknown		09/24/2019 14:37	Finished	CCV @10ppb, IWST-190702A
22	CCB-2,CCB,1,	24	1000	Unknown		09/24/2019 14:46	Finished	CCB R190830A
23	N037599-001A,SAMP	26	1000	Unknown		09/24/2019 15:01	Finished	SAMP,0.5>10mL
24	N037597-002ADUP,D	27	1000	Unknown		09/24/2019 15:13	Finished	DUP,10mL
25	N037597-003AMSD,M	28	1000	Unknown		09/24/2019 15:22	Finished	
26	N037599-001A,SAMP	30	1000	Unknown		09/24/2019 16:01	Finished	SAMP,0.02>10mL
27	N037599-001AMS,MS	31	1000	Unknown		09/24/2019 16:12	Finished	MS (1ppb), IWST-190702B,0.0
28	CCV-3,CCV,1,	32	1000	Unknown		09/24/2019 16:22	Finished	CCV @5ppb, IWST-190702A
29	CCB-3,CCB,1,	33	1000	Unknown		09/24/2019 16:31	Finished	CCB R190830A
30	BLANK	34	1000	Unknown		09/24/2019 16:41	Finished	BLANK
31	SHUTDOWN	35	1000	Unknown		09/24/2019 16:50	Finished	
32	Eluent: R190924B	36	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190920B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

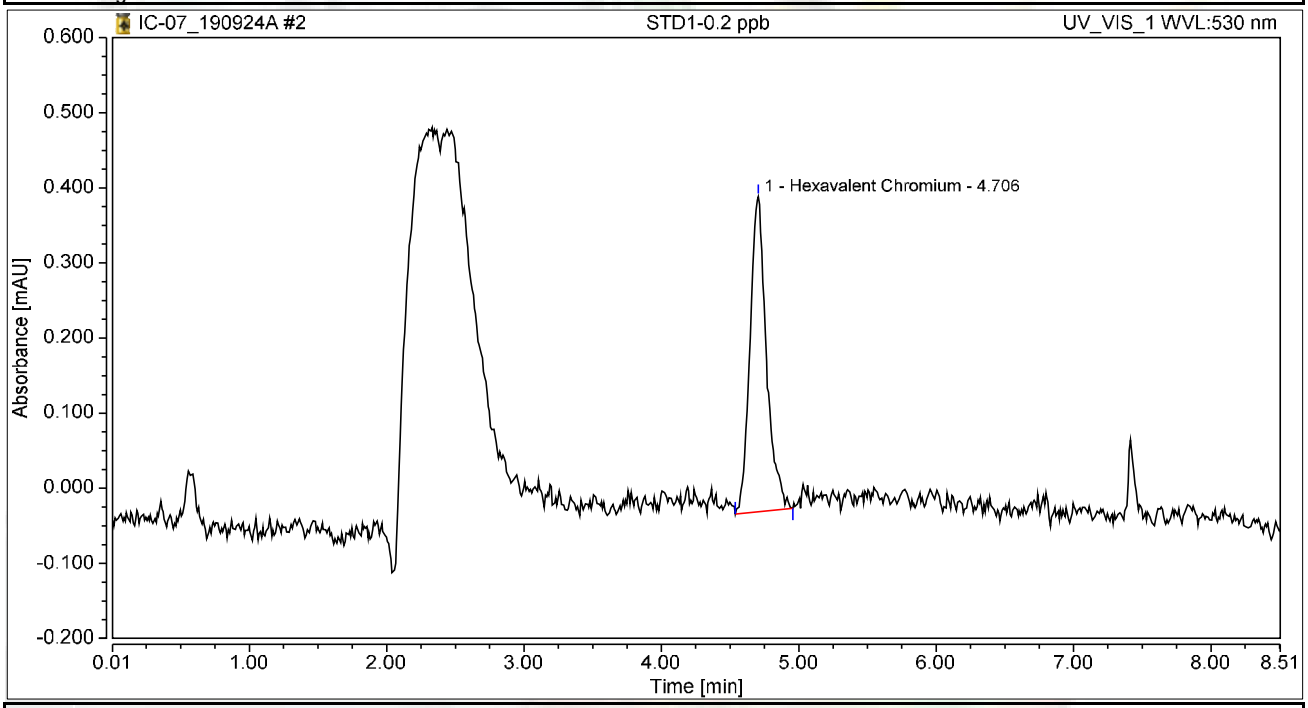
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

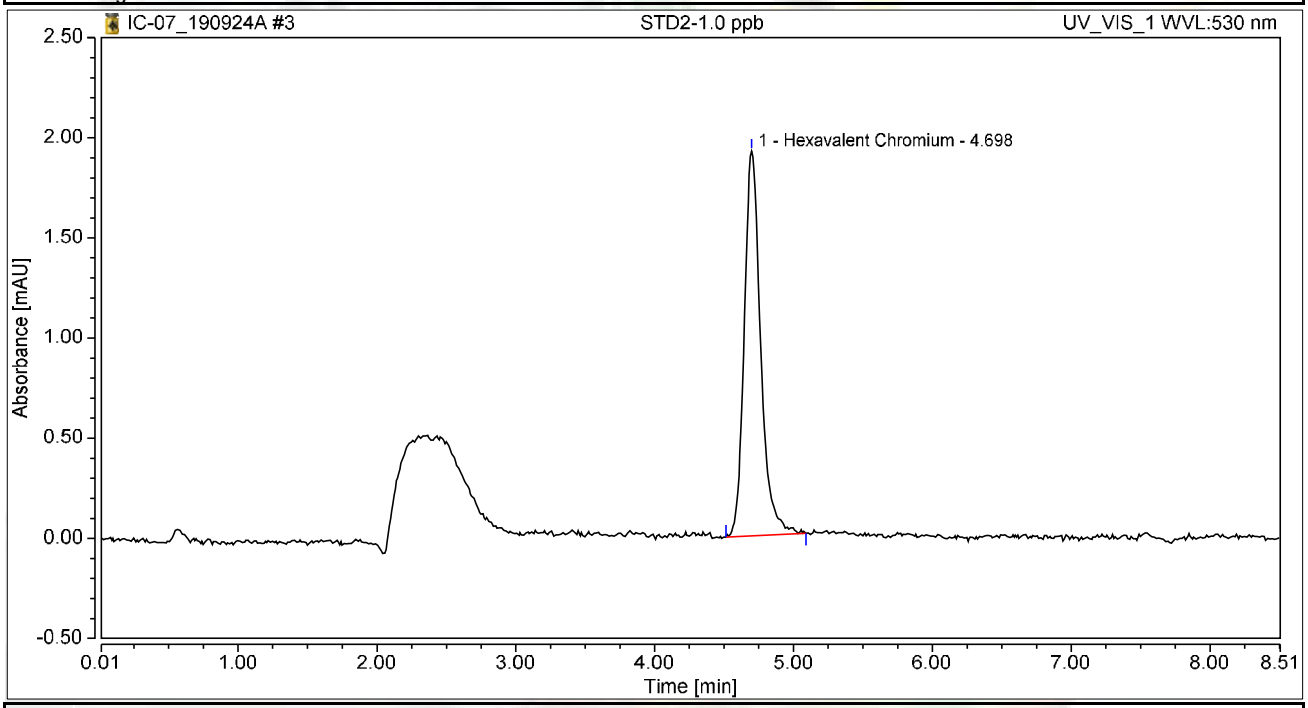
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.058	0.419	100.00	100.00	0.2147
Total:			**0.058**	**0.419**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

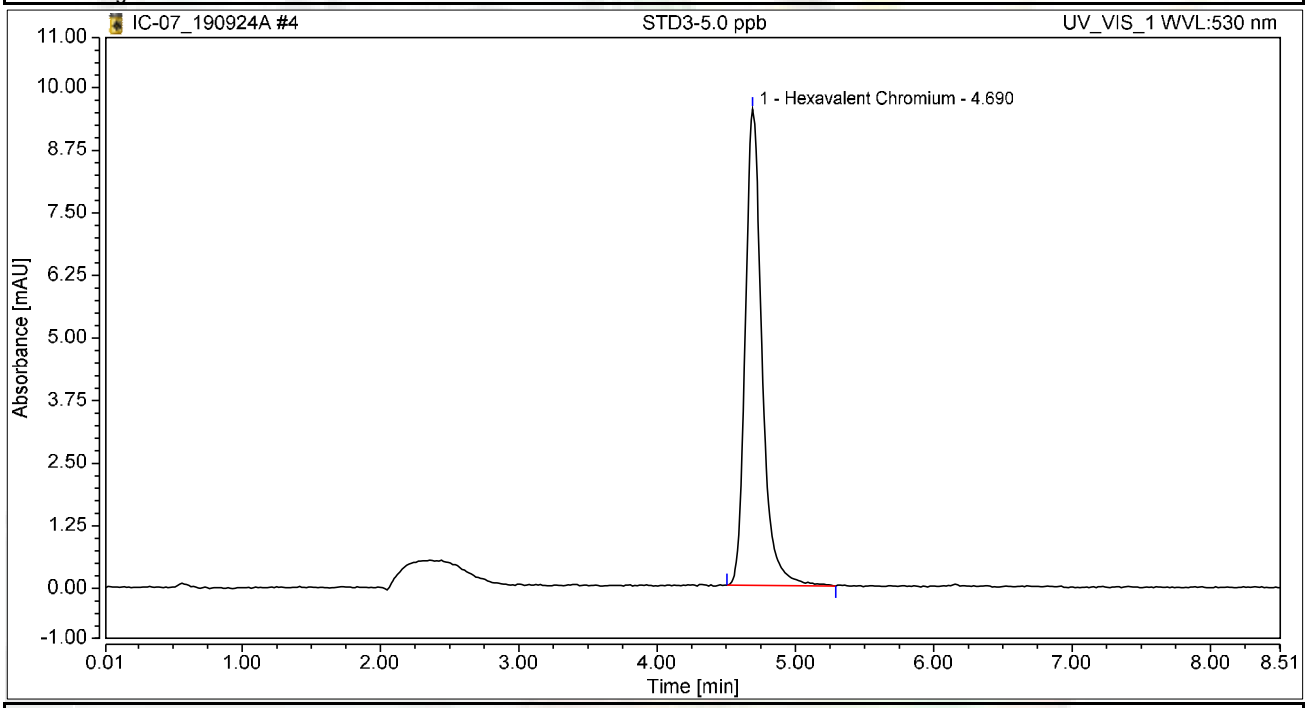
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.264	1.921	100.00	100.00	0.9706
Total:			**0.264**	**1.921**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

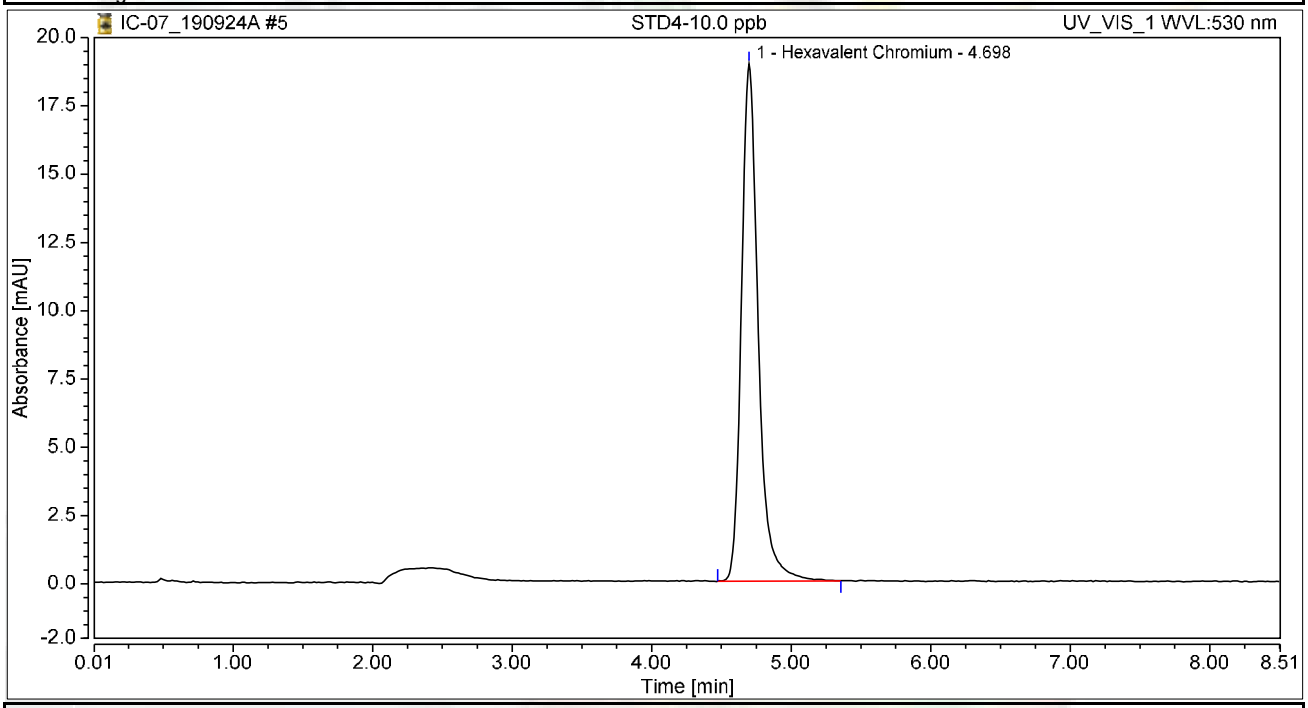
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.328	9.510	100.00	100.00	4.8896
Total:			**1.328**	**9.510**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

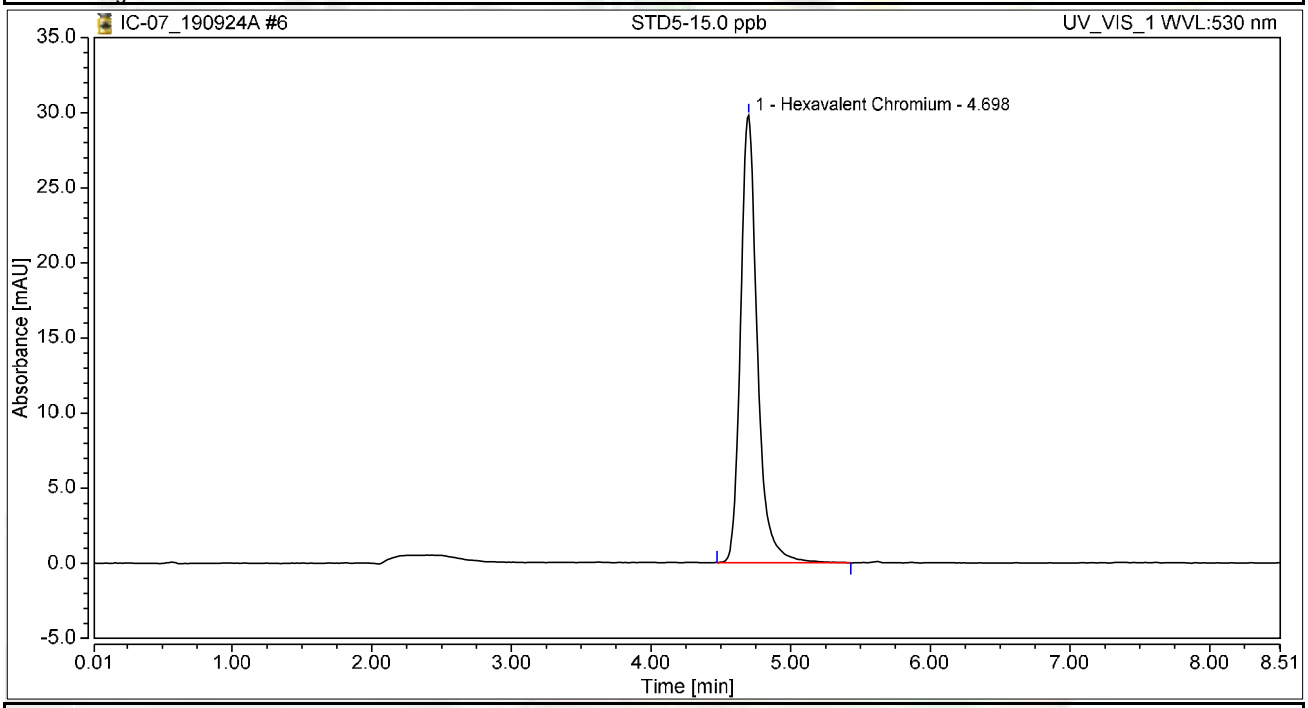
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.648	18.938	100.00	100.00	9.7487
Total:			**2.648**	**18.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

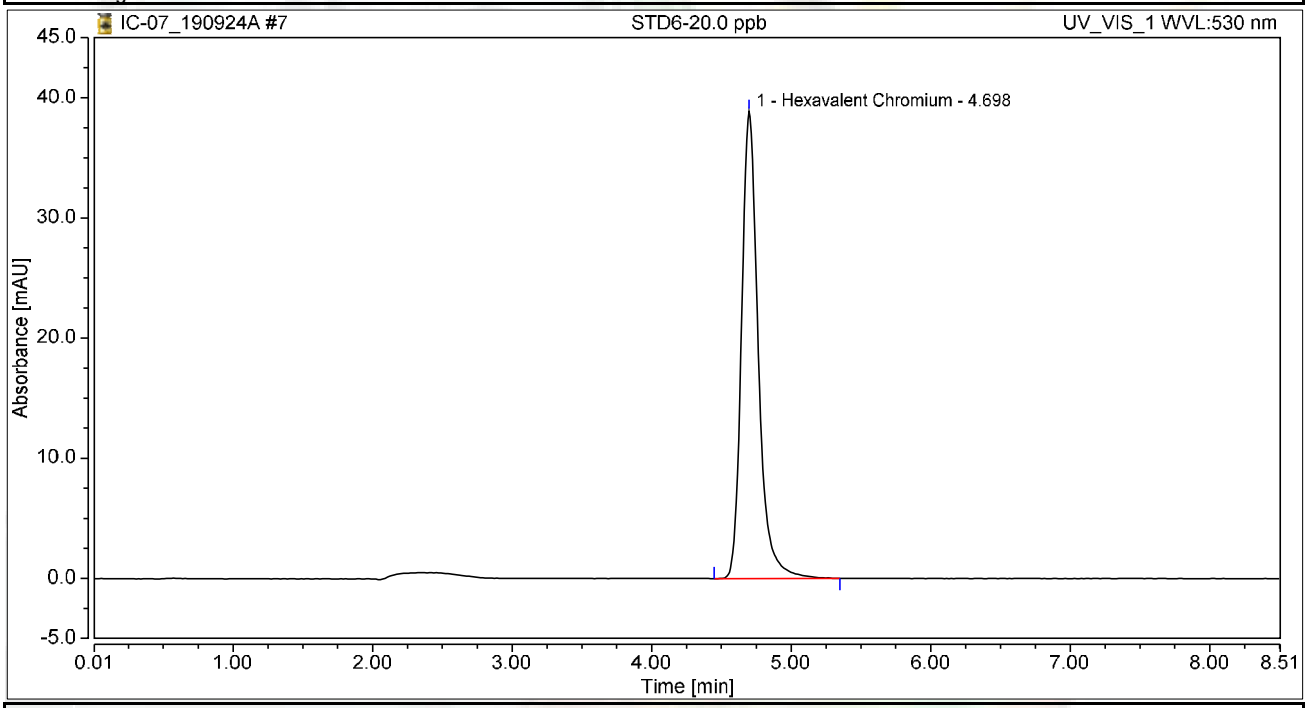
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	4.160	29.761	100.00	100.00	15.3139
Total:			**4.160**	**29.761**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:42**	*Sample Weight:*	**1.0000**

Chromatogram



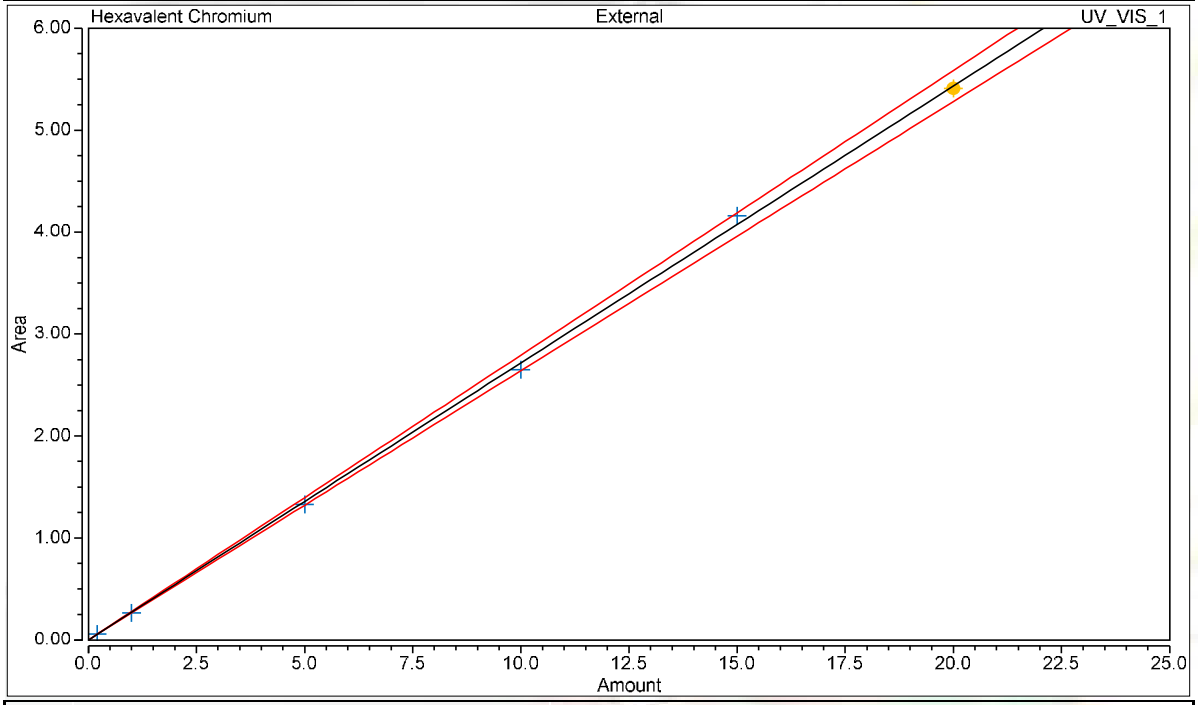
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	5.411	38.871	100.00	100.00	19.9192
Total:			**5.411**	**38.871**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2716
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99943

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

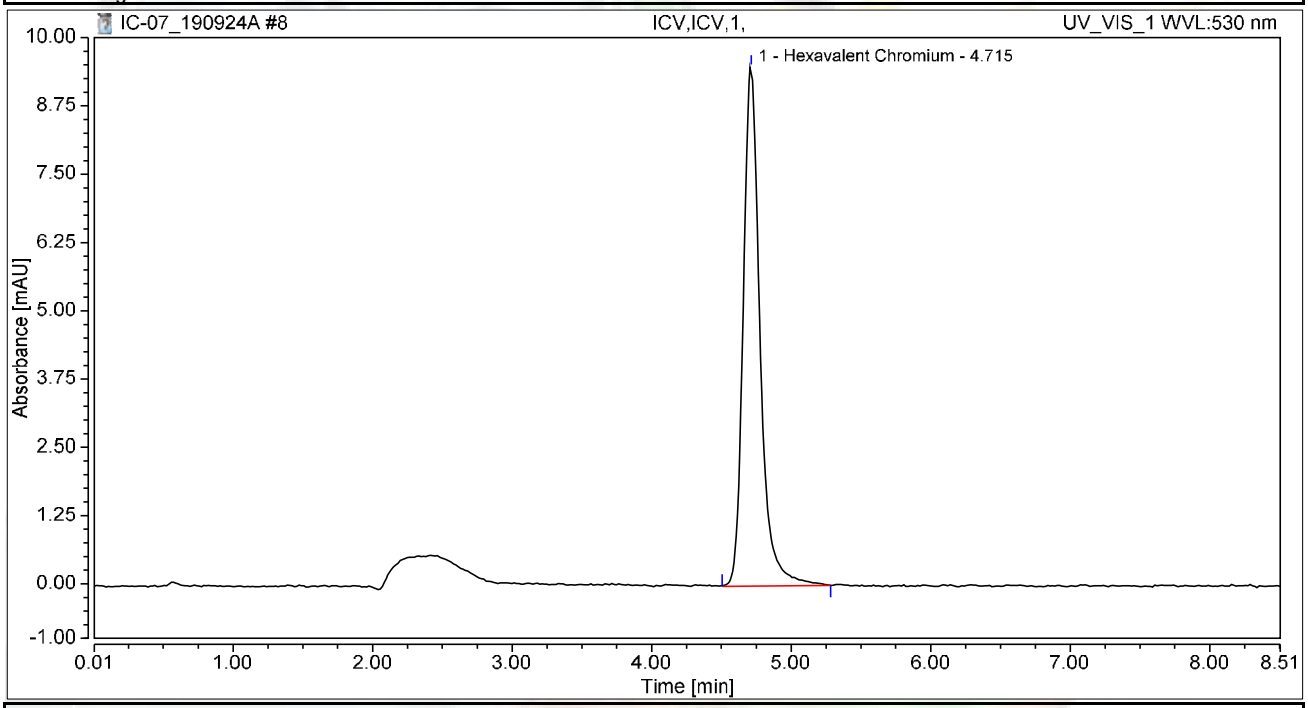
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
2	STD1-0.2 ppb	01	0.2000	0.0583	0.058	0.419
3	STD2-1.0 ppb	02	1.0000	0.2636	0.264	1.921
4	STD3-5.0 ppb	03	5.0000	1.3281	1.328	9.510
5	STD4-10.0 ppb	04	10.0000	2.6480	2.648	18.938
6	STD5-15.0 ppb	05	15.0000	4.1596	4.160	29.761
7	STD6-20.0 ppb	06	20.0000	5.4105	5.411	38.871

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 10:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

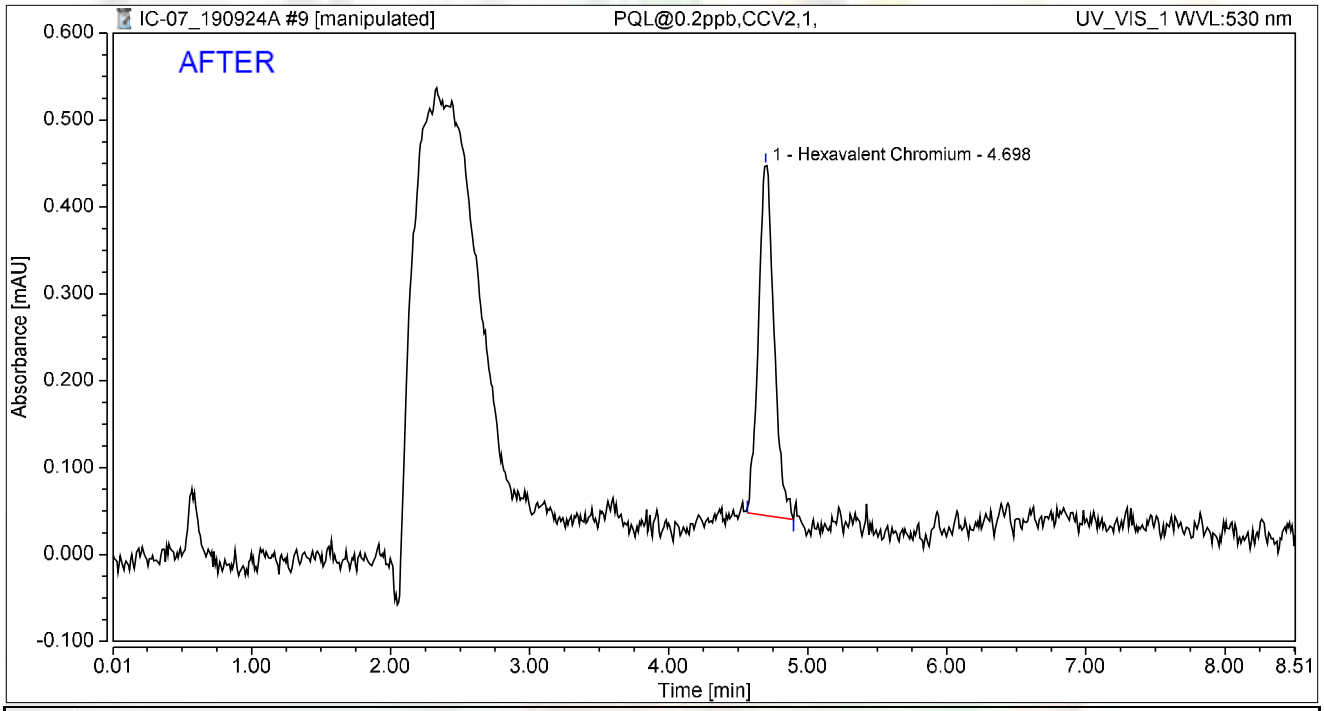
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.328	9.497	100.00	100.00	4.8891
Total:			**1.328**	**9.497**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.053	0.403	100.00	100.00	0.1937
Total:			**0.053**	**0.403**	**100.00**	**100.00**	

Reviewed by:
Nancy 9/26/2019

My first report/Integration

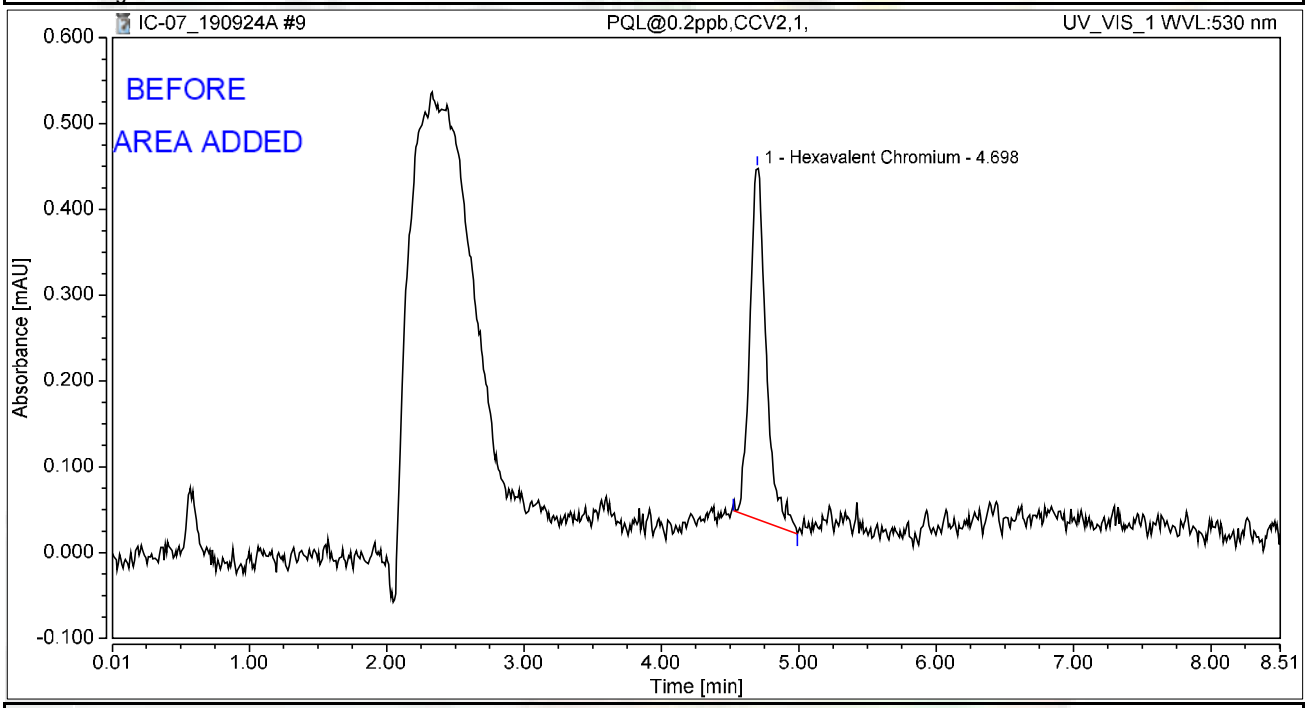
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

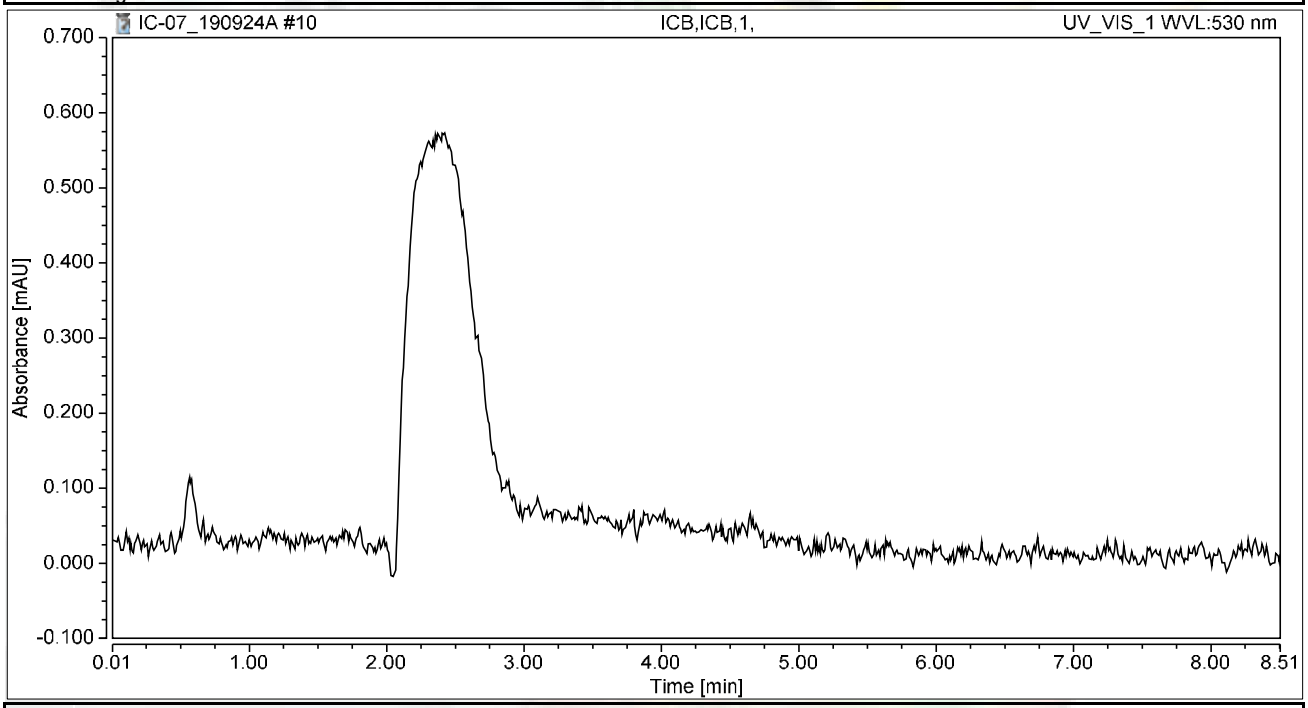
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.057	0.409	100.00	100.00	0.2088
Total:			**0.057**	**0.409**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Sep/19 11:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	iBLANK	iBLANK	1	Hexavalent Chromium	09/24/19 9:32 AM	Reported
2	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/24/19 9:53 AM	Reported
3	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:04 AM	Reported
4	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:14 AM	Reported
5	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:23 AM	Reported
6	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:32 AM	Reported
7	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/24/19 10:42 AM	Reported
8	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 9:43 AM	Not Reported
9	CCV-1	CCV	1	Hexavalent Chromium	10/02/19 9:54 AM	Reported
10	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/19 10:03 AM	Reported
11	CCB-1	CCB	1	Hexavalent Chromium	10/02/19 10:13 AM	Reported
12	MB-R136743	MBLK	1	Hexavalent Chromium	10/02/19 10:22 AM	Reported
13	LCS-R136743	LCS	1	Hexavalent Chromium	10/02/19 10:32 AM	Reported
14	N037645-001AMS	MS	1	Hexavalent Chromium	10/02/19 10:46 AM	Not Reported
15	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 10:57 AM	Not Reported
16	N037646-001AMS	MS	1	Hexavalent Chromium	10/02/19 11:06 AM	Reported
17	N037646-002AMS	MS	1	Hexavalent Chromium	10/02/19 11:16 AM	Not Reported
18	N037645-001A	SAMP	5	Hexavalent Chromium	10/02/19 11:31 AM	Reported
19	N037645-001AMS	MS	5	Hexavalent Chromium	10/02/19 11:42 AM	Reported
20	N037645-002A	SAMP	1	Hexavalent Chromium	10/02/19 11:52 AM	Reported
21	N037646-001A	SAMP	1	Hexavalent Chromium	10/02/19 12:01 PM	Reported
22	CCV-2	CCV1	1	Hexavalent Chromium	10/02/19 12:11 PM	Reported
23	CCB-2	CCB	1	Hexavalent Chromium	10/02/19 12:20 PM	Reported
24	N037646-002A	SAMP	5	Hexavalent Chromium	10/02/19 12:32 PM	Reported
25	N037646-002AMS	MS	5	Hexavalent Chromium	10/02/19 12:43 PM	Reported
26	N037666-001A	SAMP	50	Hexavalent Chromium	10/02/19 12:52 PM	Not Reported
27	N037666-001AMS	MS	50	Hexavalent Chromium	10/02/19 1:02 PM	Not Reported
28	N037666-002A	SAMP	20	Hexavalent Chromium	10/02/19 1:11 PM	Reported
29	N037666-002AMS	MS	20	Hexavalent Chromium	10/02/19 1:21 PM	Reported
30	N037666-003A	SAMP	50	Hexavalent Chromium	10/02/19 1:30 PM	Reported
31	N037666-003AMS	MS	50	Hexavalent Chromium	10/02/19 1:40 PM	Reported
32	N037666-004A	SAMP	50	Hexavalent Chromium	10/02/19 1:49 PM	Reported
33	N037666-004AMS	MS	50	Hexavalent Chromium	10/02/19 1:59 PM	Reported
34	CCV-3	CCV	1	Hexavalent Chromium	10/02/19 2:08 PM	Reported
35	CCB-3	CCB	1	Hexavalent Chromium	10/02/19 2:18 PM	Reported
36	N037666-005A	SAMP	1000	Hexavalent Chromium	10/02/19 2:27 PM	Reported
37	N037666-005AMS	MS	1000	Hexavalent Chromium	10/02/19 2:36 PM	Reported
38	N037666-006A	SAMP	1	Hexavalent Chromium	10/02/19 2:46 PM	Reported
39	N037666-006AMS	MS	1	Hexavalent Chromium	10/02/19 2:55 PM	Reported
40	N037666-007A	SAMP	1	Hexavalent Chromium	10/02/19 3:05 PM	Reported
41	N037666-007AMS	MS	1	Hexavalent Chromium	10/02/19 3:14 PM	Reported
42	N037666-001A	SAMP	10	Hexavalent Chromium	10/02/19 3:24 PM	Reported

10/14/2019

INJECTION LOG: 191002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N037666-001AMS	MS	10	Hexavalent Chromium	10/02/19 3:33 PM	Reported
44	N037666-002AMSD	MSD	20	Hexavalent Chromium	10/02/19 3:43 PM	Reported
45	N037666-001ADUP	DUP	10	Hexavalent Chromium	10/02/19 3:52 PM	Reported
46	CCV-4	CCV1	1	Hexavalent Chromium	10/02/19 4:02 PM	Reported
47	CCB-4	CCB	1	Hexavalent Chromium	10/02/19 4:11 PM	Reported
48	N037572-001A	SAMP	5	Hexavalent Chromium	10/02/19 4:21 PM	Not Reported
49	N037572-001AMS	MS	5	Hexavalent Chromium	10/02/19 4:30 PM	Not Reported
50	N037709-001AMS	MS	1	Hexavalent Chromium	10/02/19 4:40 PM	Not Reported
51	N037709-002AMS	MS	1	Hexavalent Chromium	10/02/19 4:49 PM	Not Reported
52	N037709-003AMS	MS	1	Hexavalent Chromium	10/02/19 4:58 PM	Not Reported
53	N037709-004AMS	MS	1	Hexavalent Chromium	10/02/19 5:08 PM	Reported
54	N037645-002AMS	MS	1	Hexavalent Chromium	10/02/19 5:17 PM	Reported
55	N037709-001A	SAMP	20	Hexavalent Chromium	10/02/19 5:35 PM	Reported
56	N037709-001AMS	MS	20	Hexavalent Chromium	10/02/19 5:46 PM	Reported
57	N037709-002A	SAMP	10	Hexavalent Chromium	10/02/19 5:55 PM	Reported
58	CCV-5	CCV	1	Hexavalent Chromium	10/02/19 6:05 PM	Reported
59	CCB-5	CCB	1	Hexavalent Chromium	10/02/19 6:14 PM	Reported
60	N037709-002AMS	MS	10	Hexavalent Chromium	10/02/19 6:24 PM	Reported
61	N037709-003A	SAMP	5	Hexavalent Chromium	10/02/19 6:33 PM	Reported
62	N037709-003AMS	MS	5	Hexavalent Chromium	10/02/19 6:42 PM	Reported
63	N037709-004A	SAMP	1	Hexavalent Chromium	10/02/19 6:52 PM	Reported
64	CCV-6	CCV	1	Hexavalent Chromium	10/02/19 7:01 PM	Reported
65	CCB-6	CCB	1	Hexavalent Chromium	10/02/19 7:11 PM	Reported
66	BLANK	BLANK	1	Hexavalent Chromium	10/02/19 7:20 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_191002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**02/Oct/19 19:51:09**
No. of Injections:	**69**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	iBLANK	1	1000	Unknown		09/24/2019 09:32	Finished	INSTRUMENT BLANK
2	STD1-0.2 ppb	2	1000	Calibration Standard	01	09/24/2019 09:53	Finished	0.2 ppb, IWST-190702A
3	STD2-1.0 ppb	3	1000	Calibration Standard	02	09/24/2019 10:04	Finished	1.0 ppb, IWST-190702A
4	STD3-5.0 ppb	4	1000	Calibration Standard	03	09/24/2019 10:14	Finished	5.0 ppb, IWST-190702A
5	STD4-10.0 ppb	5	1000	Calibration Standard	04	09/24/2019 10:23	Finished	10 ppb, IWST-190702A
6	STD5-15.0 ppb	6	1000	Calibration Standard	05	09/24/2019 10:32	Finished	15 ppb, IWST-190702A
7	STD6-20.0 ppb	7	1000	Calibration Standard	06	09/24/2019 10:42	Finished	20 ppb, IWST-190702A
8	BLANK	1	1000	Unknown		10/02/2019 09:43	Finished	BLANK
9	CCV1,CCV,1,	2	1000	Unknown		10/02/2019 09:54	Finished	ICV @5ppb, IWST-190702B
10	PQL@0.2ppb,CCV2,1	3	1000	Unknown		10/02/2019 10:03	Finished	PQL @ 0.2ppb
11	CCB1,CCB,1,	4	1000	Unknown		10/02/2019 10:13	Finished	CCB R190830A
12	MB-H2O,MBLK,1,	5	1000	Unknown		10/02/2019 10:22	Finished	MB R190830A
13	LCS-H2O,LCS,1,	6	1000	Unknown		10/02/2019 10:32	Finished	LCS @5ppb, IWST-190702B
14	N037645-001AMS,MS	8	1000	Unknown		10/02/2019 10:46	Finished	MS (1ppb), IWST-190702B,10
15	N037645-002AMS,MS	9	1000	Unknown		10/02/2019 10:57	Finished	MS (1ppb), IWST-190702B,10
16	N037646-001AMS,MS	10	1000	Unknown		10/02/2019 11:06	Finished	MS (5ppb), IWST-190702B,10
17	N037646-002AMS,MS	11	1000	Unknown		10/02/2019 11:16	Finished	MS (1ppb), IWST-190702B,10
18	N037645-001A,SAMP	13	1000	Unknown		10/02/2019 11:31	Finished	SAMP, 2>10 mL
19	N037645-001AMS,MS	14	1000	Unknown		10/02/2019 11:42	Finished	MS (1ppb), IWST-190702B,2>1
20	N037645-002A,SAMP	15	1000	Unknown		10/02/2019 11:52	Finished	
21	N037646-001A,SAMP	16	1000	Unknown		10/02/2019 12:01	Finished	
22	CCV-2,CCV1,1,	17	1000	Unknown		10/02/2019 12:11	Finished	CCV @10ppb, IWST-190702A
23	CCB-2,CCB,1,	18	1000	Unknown		10/02/2019 12:20	Finished	CCB R190830A
24	N037646-002A,SAMP	19	1000	Unknown		10/02/2019 12:32	Finished	
25	N037646-002AMS,MS	20	1000	Unknown		10/02/2019 12:43	Finished	
26	N037666-001A,SAMP	21	1000	Unknown		10/02/2019 12:52	Finished	
27	N037666-001AMS,MS	22	1000	Unknown		10/02/2019 13:02	Finished	
28	N037666-002A,SAMP	23	1000	Unknown		10/02/2019 13:11	Finished	
29	N037666-002AMS,MS	24	1000	Unknown		10/02/2019 13:21	Finished	
30	N037666-003A,SAMP	25	1000	Unknown		10/02/2019 13:30	Finished	
31	N037666-003AMS,MS	26	1000	Unknown		10/02/2019 13:40	Finished	
32	N037666-004A,SAMP	27	1000	Unknown		10/02/2019 13:49	Finished	
33	N037666-004AMS,MS	28	1000	Unknown		10/02/2019 13:59	Finished	
34	CCV-3,CCV,1,	29	1000	Unknown		10/02/2019 14:08	Finished	CCV @5ppb, IWST-190702A
35	CCB-3,CCB,1,	30	1000	Unknown		10/02/2019 14:18	Finished	CCB R190830A
36	N037666-005A,SAMP	31	1000	Unknown		10/02/2019 14:27	Finished	
37	N037666-005AMS,MS	32	1000	Unknown		10/02/2019 14:36	Finished	
38	N037666-006A,SAMP	33	1000	Unknown		10/02/2019 14:46	Finished	
39	N037666-006AMS,MS	34	1000	Unknown		10/02/2019 14:55	Finished	
40	N037666-007A,SAMP	35	1000	Unknown		10/02/2019 15:05	Finished	
41	N037666-007AMS,MS	36	1000	Unknown		10/02/2019 15:14	Finished	
42	N037666-001A,SAMP	37	1000	Unknown		10/02/2019 15:24	Finished	
43	N037666-001AMS,MS	38	1000	Unknown		10/02/2019 15:33	Finished	
44	N037666-002AMSD,M	39	1000	Unknown		10/02/2019 15:43	Finished	
45	N037666-001ADUP,D	40	1000	Unknown		10/02/2019 15:52	Finished	
46	CCV-4,CCV1,1,	41	1000	Unknown		10/02/2019 16:02	Finished	CCV @10ppb, IWST-190702A
47	CCB-4,CCB,1,	42	1000	Unknown		10/02/2019 16:11	Finished	CCB R190830A
48	N037572-001A,SAMP	43	1000	Unknown		10/02/2019 16:21	Finished	
49	N037572-001AMS,MS	44	1000	Unknown		10/02/2019 16:30	Finished	
50	N037709-001AMS,MS	45	1000	Unknown		10/02/2019 16:40	Finished	
51	N037709-002AMS,MS	46	1000	Unknown		10/02/2019 16:49	Finished	
52	N037709-003AMS,MS	47	1000	Unknown		10/02/2019 16:58	Finished	
53	N037709-004AMS,MS	48	1000	Unknown		10/02/2019 17:08	Finished	
54	N037645-002AMS,MS	49	1000	Unknown		10/02/2019 17:17	Finished	
55	N037709-001A,SAMP	1	1000	Unknown		10/02/2019 17:35	Finished	
56	N037709-001AMS,MS	2	1000	Unknown		10/02/2019 17:46	Finished	
57	N037709-002A,SAMP	3	1000	Unknown		10/02/2019 17:55	Finished	
58	CCV-5,CCV,1,	4	1000	Unknown		10/02/2019 18:05	Finished	CCV @5ppb, IWST-190702A
59	CCB-5,CCB,1,	5	1000	Unknown		10/02/2019 18:14	Finished	CCB R190830A
60	N037709-002AMS,MS	6	1000	Unknown		10/02/2019 18:24	Finished	

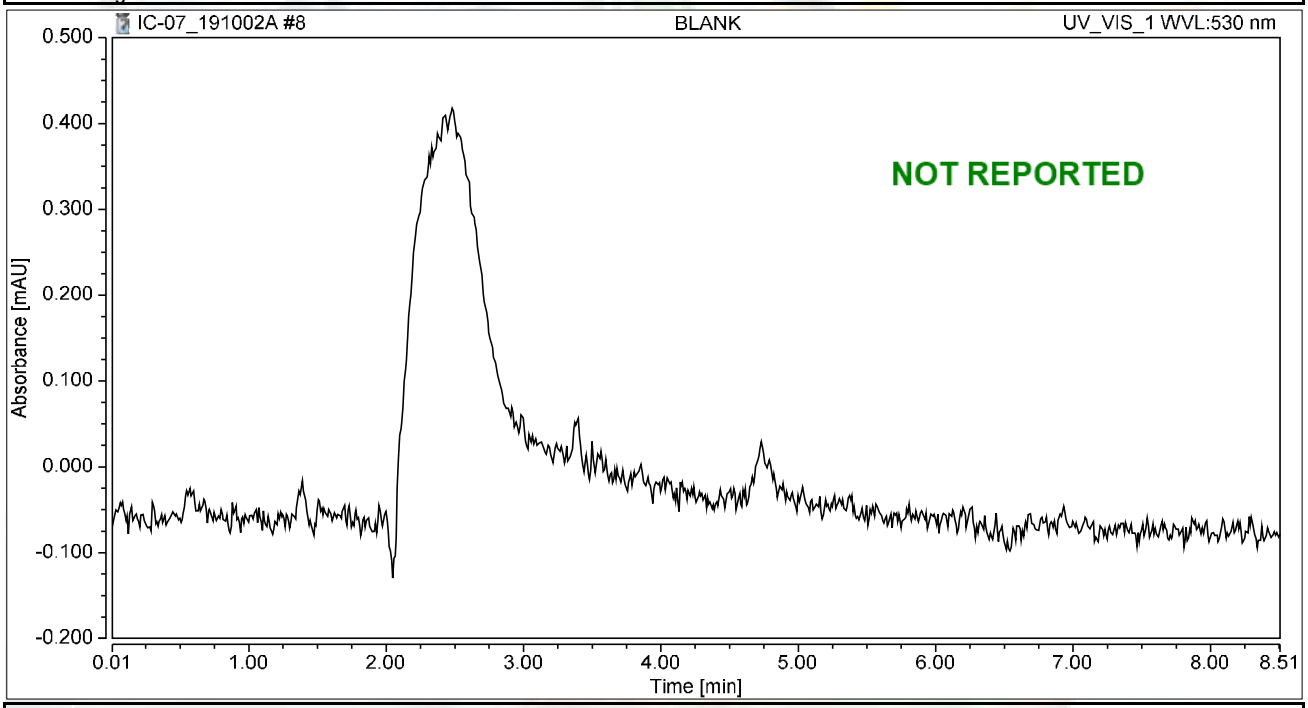
61	N037709-003A,SAMP	7	1000	Unknown		10/02/2019 18:33	Finished	
62	N037709-003AMS,MS	8	1000	Unknown		10/02/2019 18:42	Finished	
63	N037709-004A,SAMP	9	1000	Unknown		10/02/2019 18:52	Finished	
64	CCV-6,CCV,1,	10	1000	Unknown		10/02/2019 19:01	Finished	CCV @10ppb, IWST-190702A
65	CCB-6,CCB,1,	11	1000	Unknown		10/02/2019 19:11	Finished	CCB R190830A
66	BLANK	12	1000	Unknown		10/02/2019 19:20	Finished	BLANK
67	SHUTDOWN	13	1000	Unknown		10/02/2019 19:30	Finished	
68	Eluent: R190930D	14	1000	Unknown		n.a.	Finished	Eluent
69	PCR: R190930E	15	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 09:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

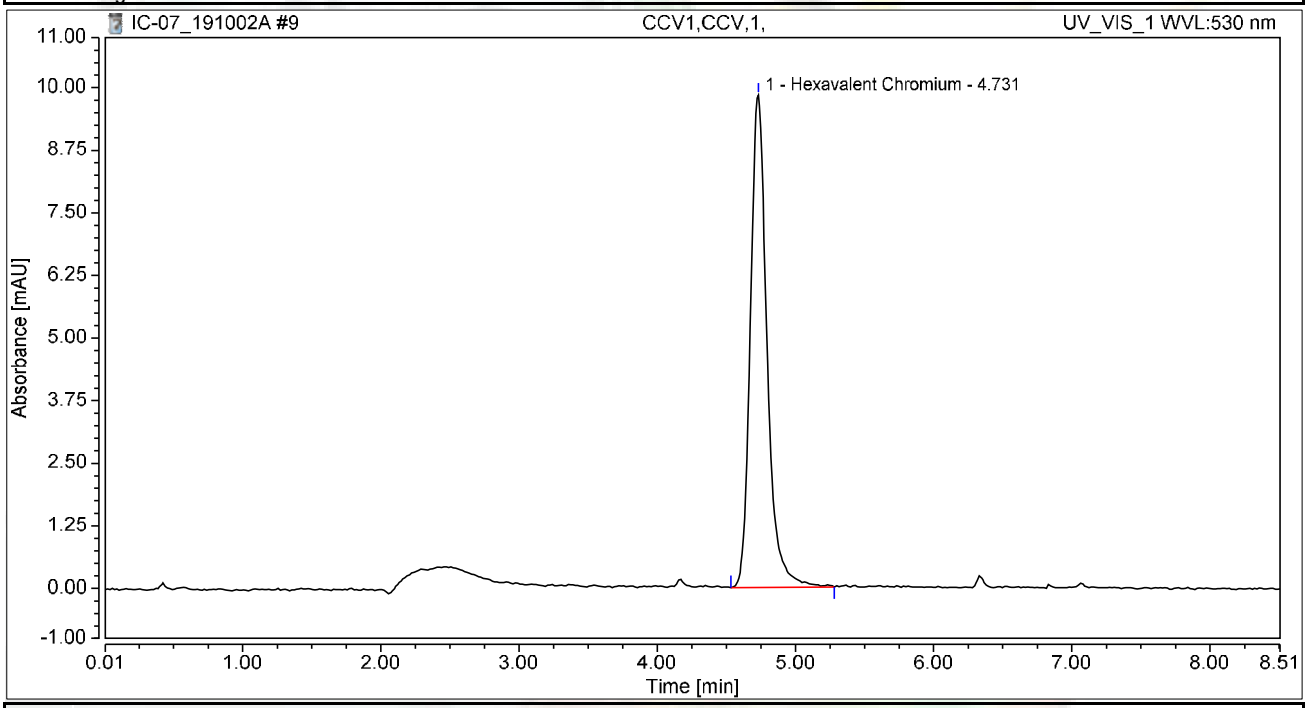
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 09:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

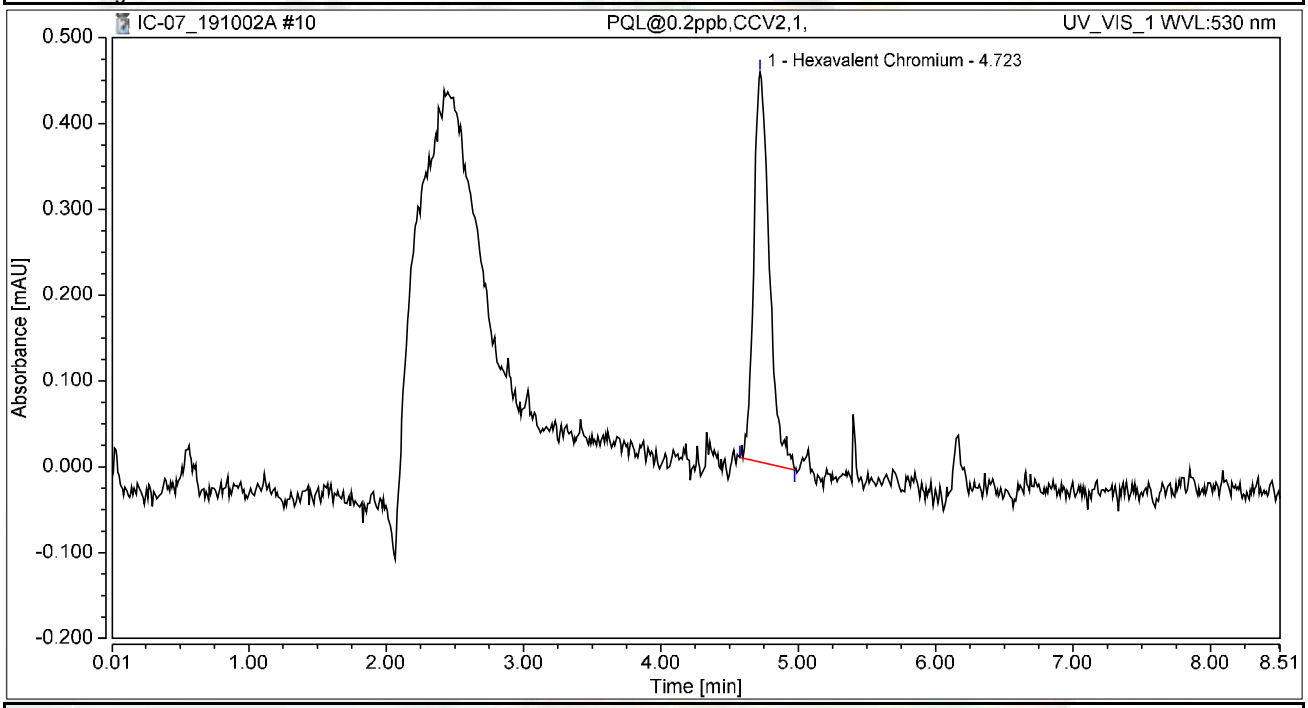
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.375	9.831	100.00	100.00	5.0614
Total:			**1.375**	**9.831**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

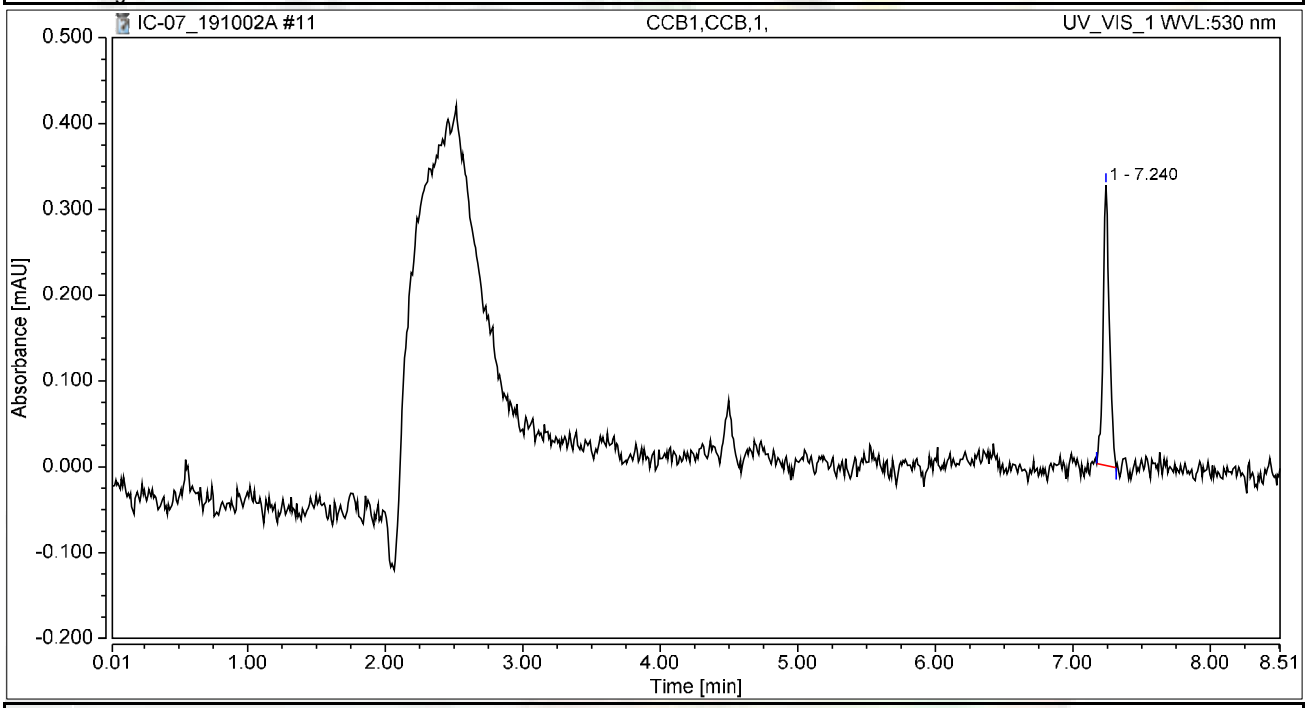
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.060	0.455	100.00	100.00	0.2206
Total:			**0.060**	**0.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

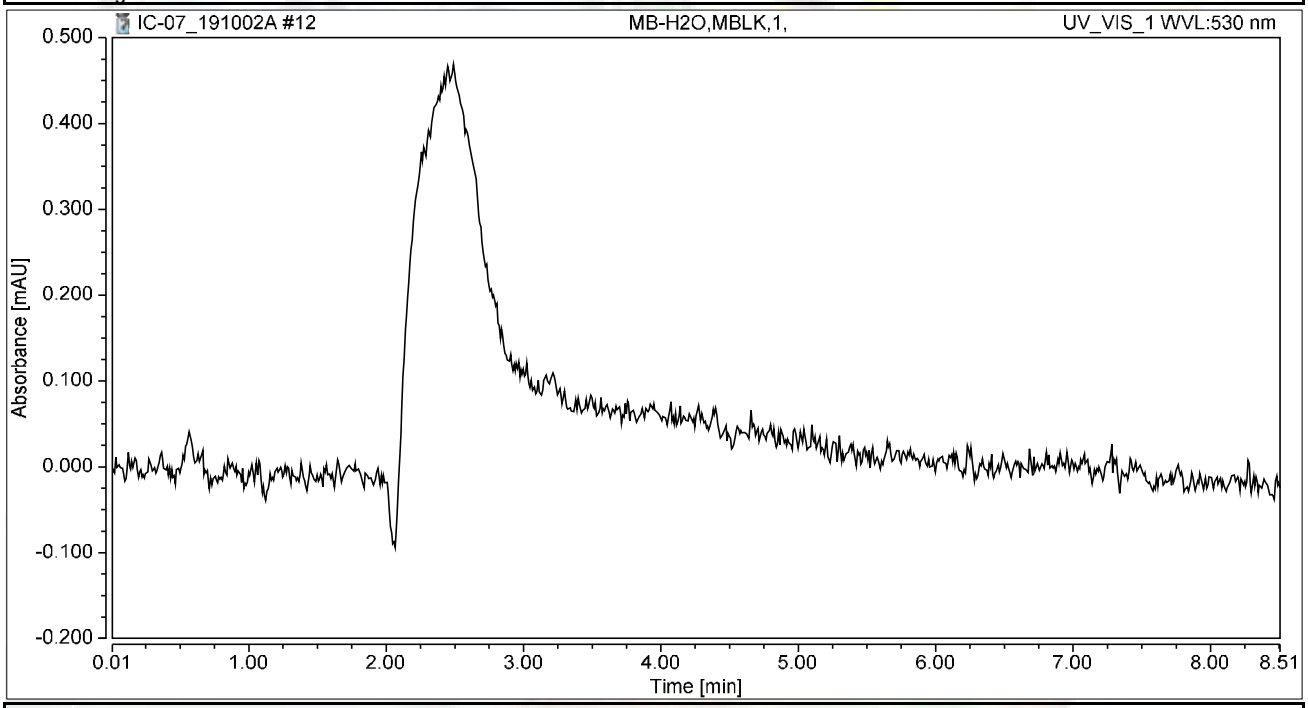
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.240	0.017	0.327	100.00	100.00	n.a.
Total:			**0.017**	**0.327**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

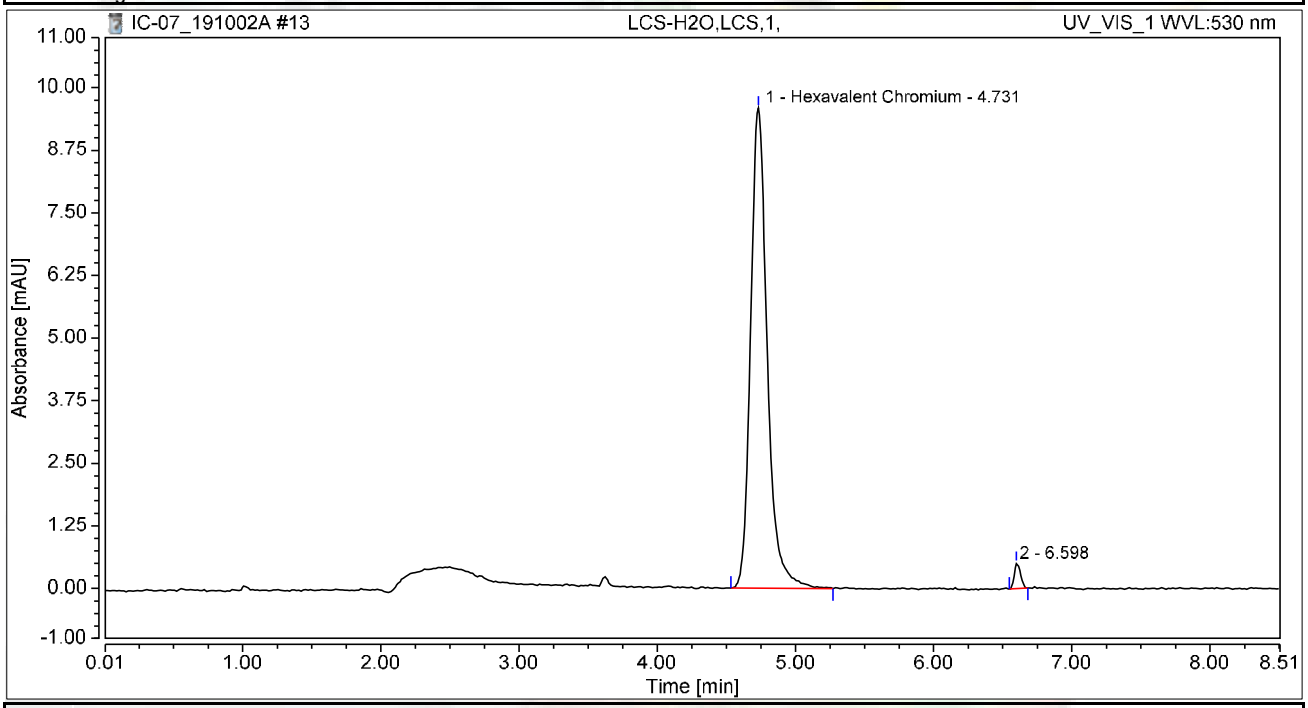
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

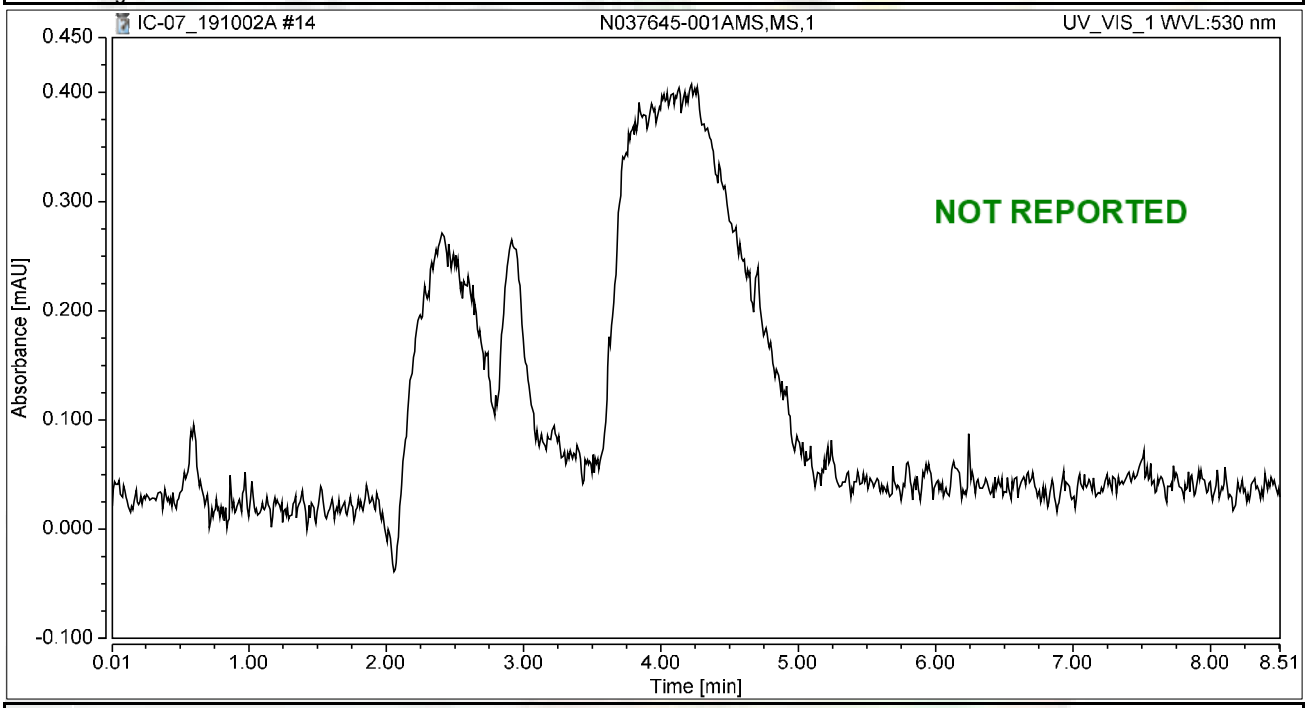
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.338	9.593	98.03	95.05	4.9254
2		6.598	0.027	0.500	1.97	4.95	n.a.
Total:			**1.365**	**10.093**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

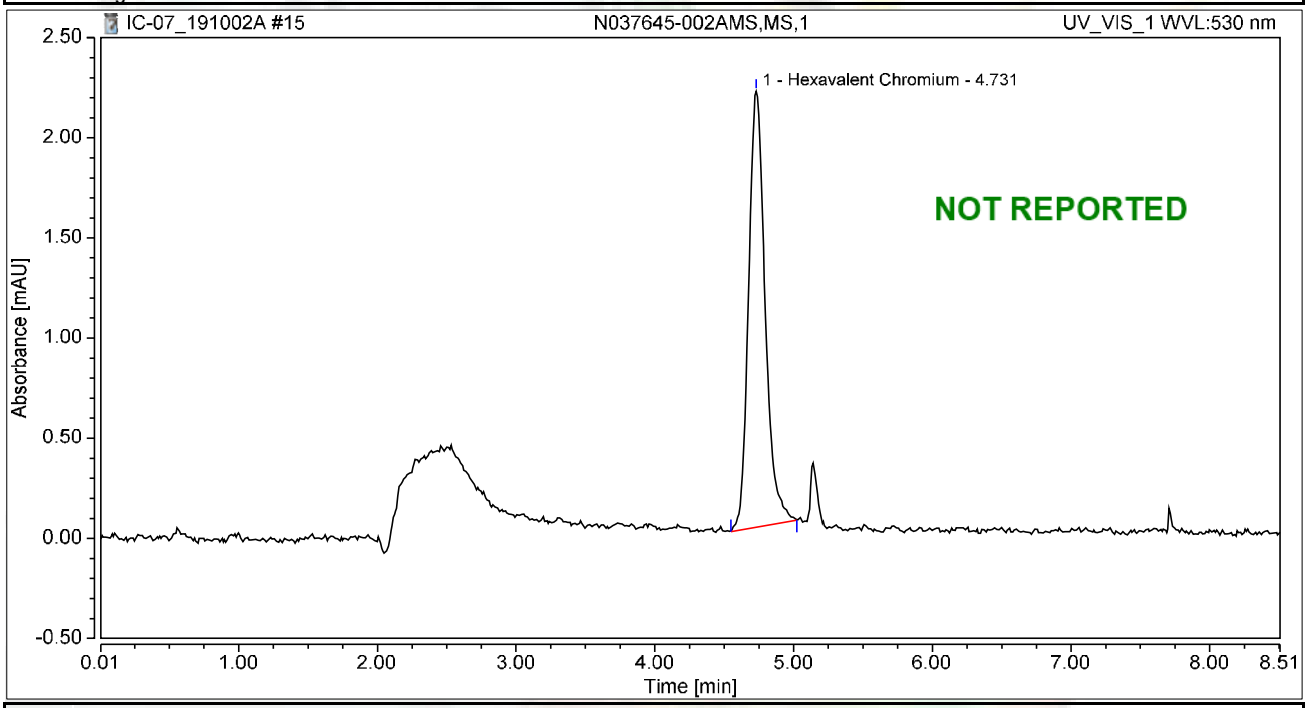
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

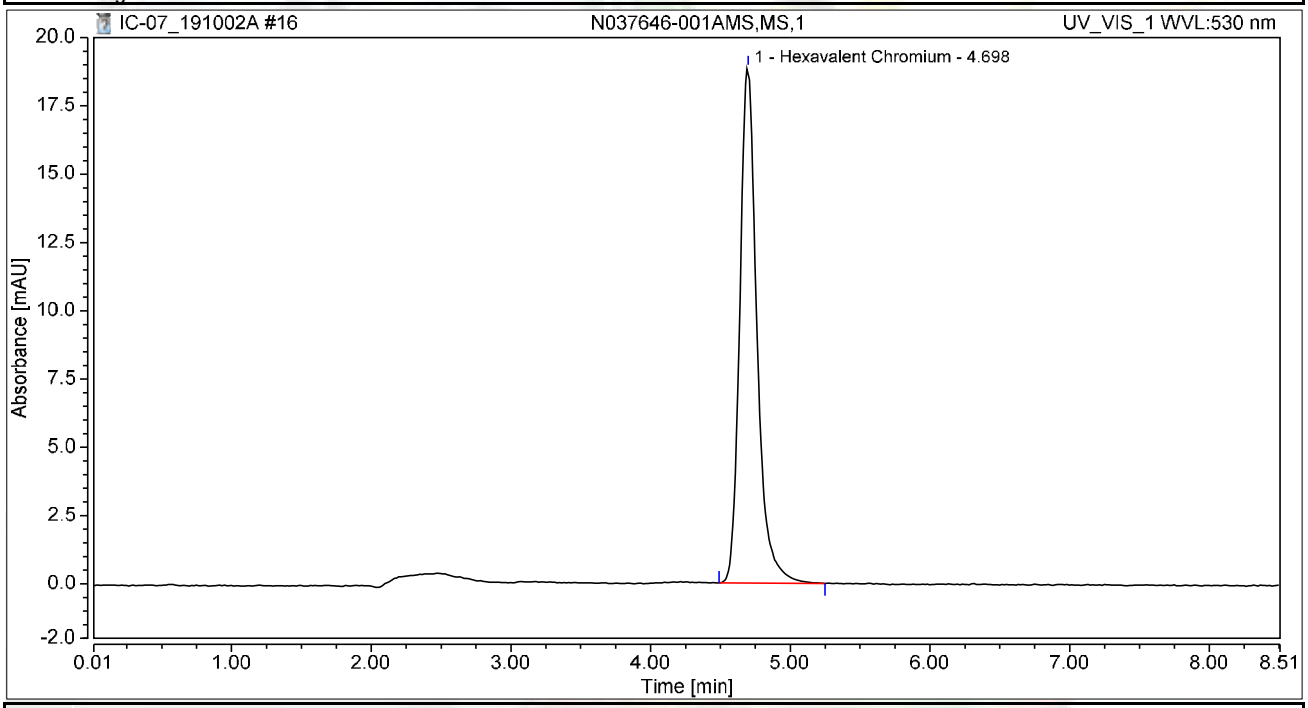
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.301	2.177	100.00	100.00	1.1084
Total:			**0.301**	**2.177**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

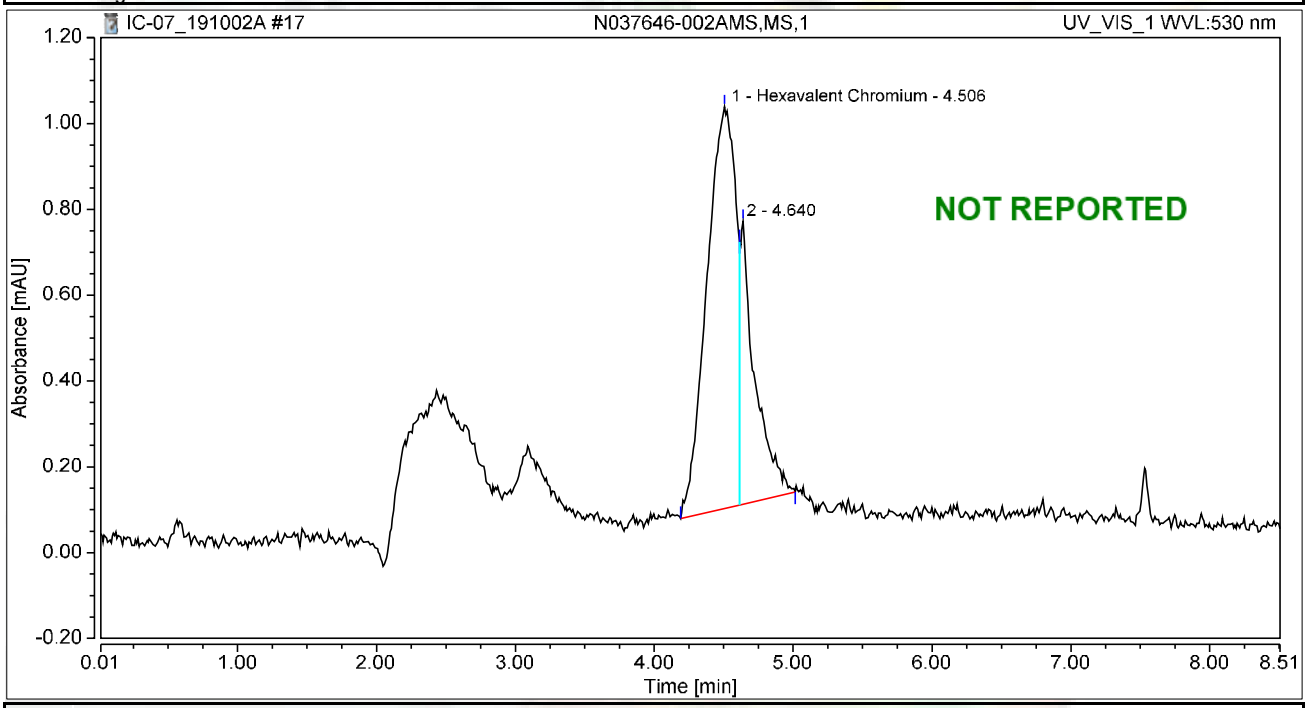
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.693	18.865	100.00	100.00	9.9133
Total:			**2.693**	**18.865**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

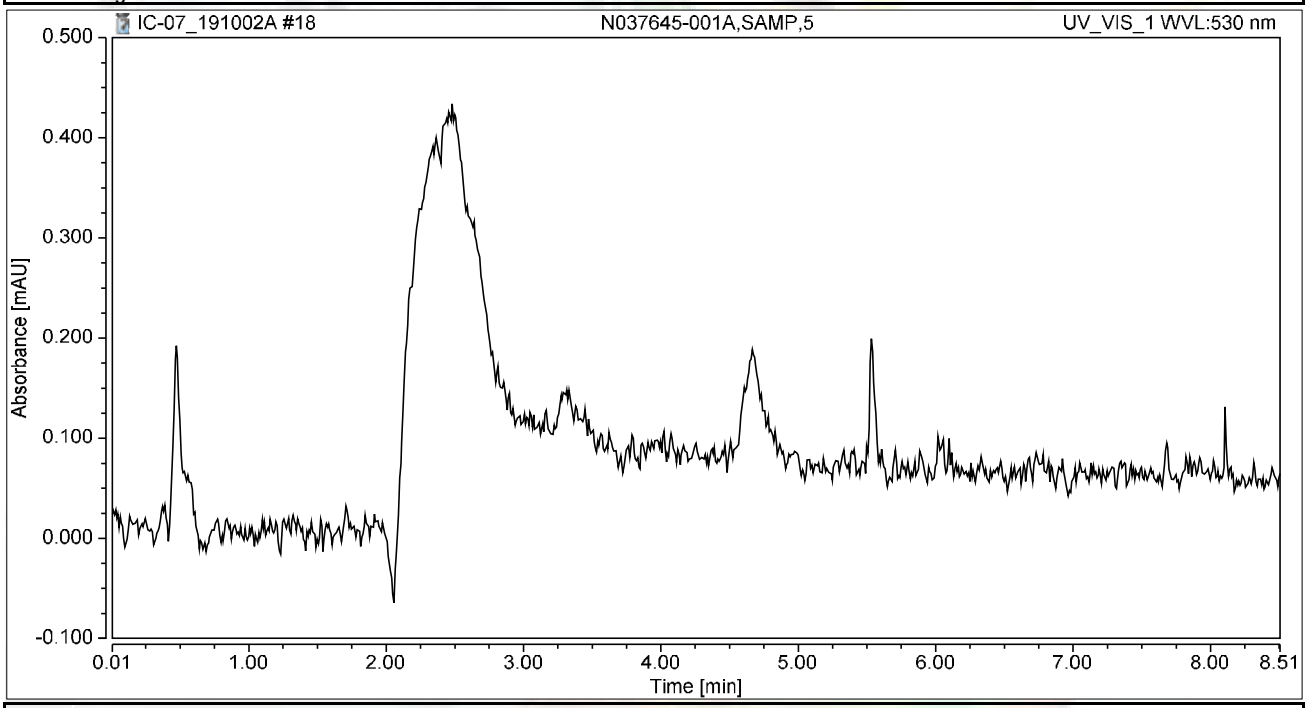
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.225	0.936	73.16	58.68	0.8272
2		4.640	0.082	0.659	26.84	41.32	n.a.
Total:			**0.307**	**1.594**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

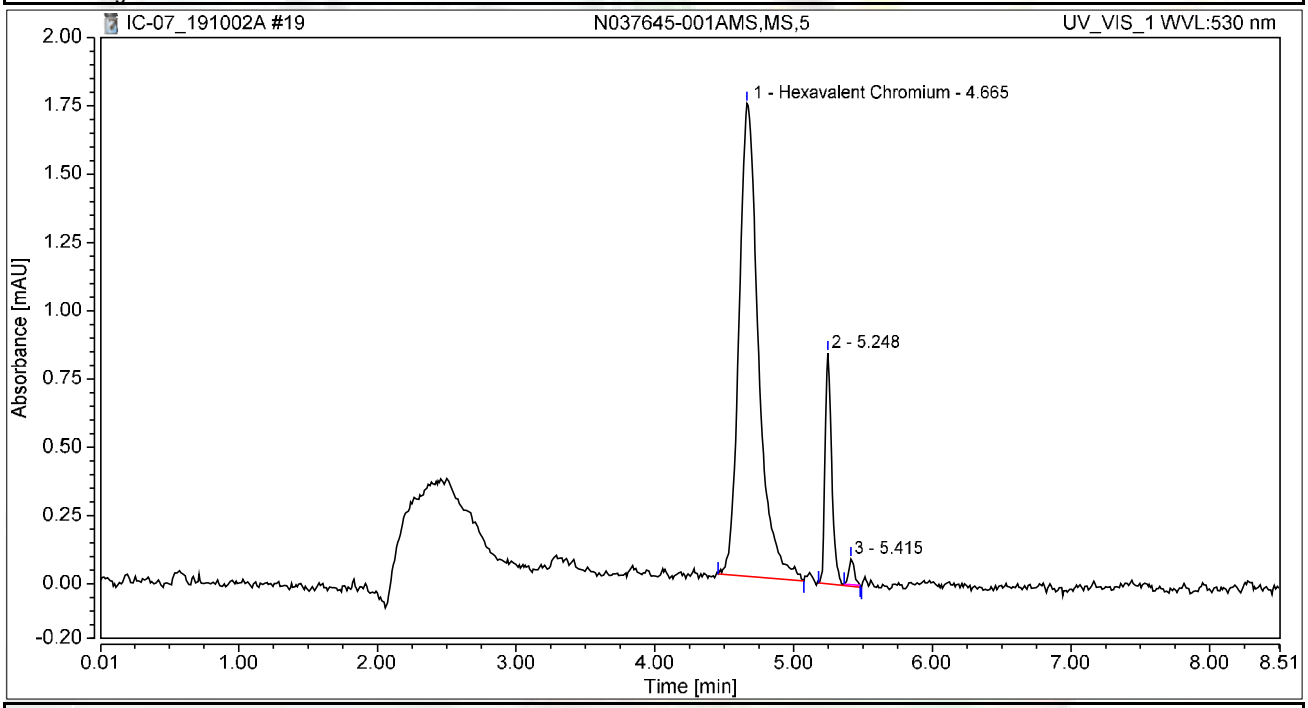
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

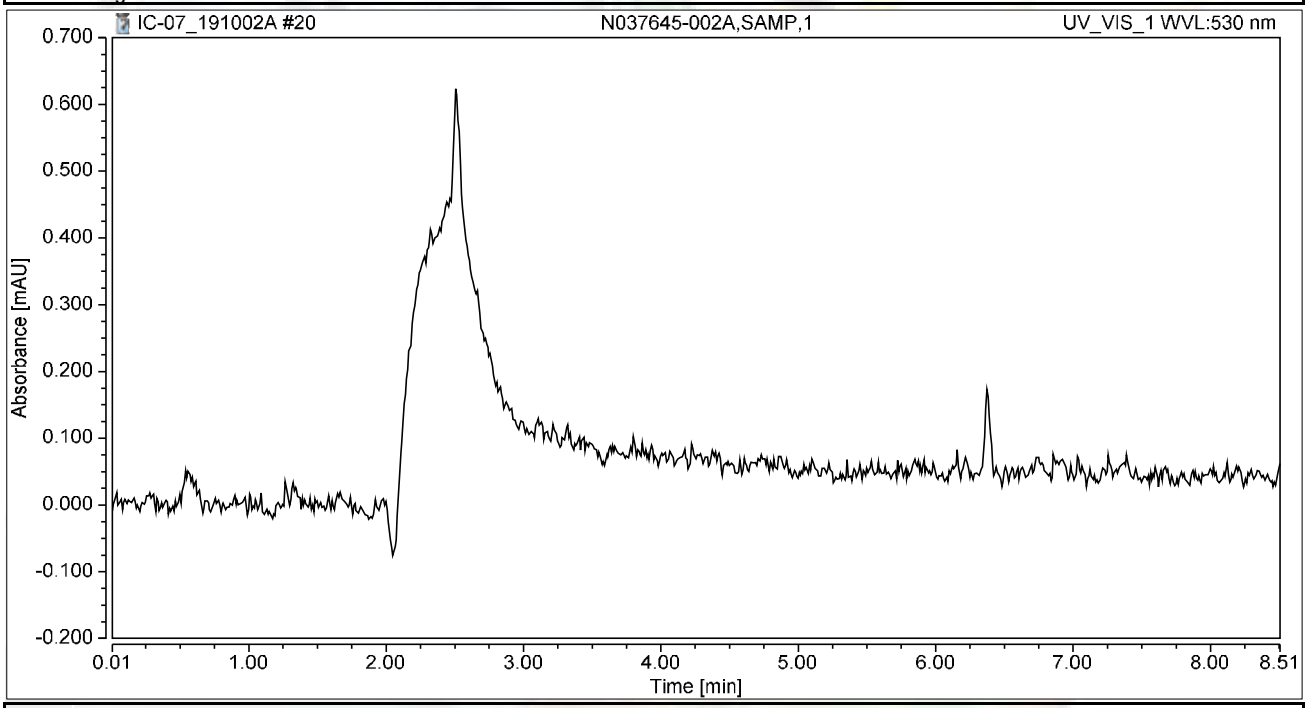
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.282	1.732	84.47	64.81	1.0370
2		5.248	0.047	0.846	14.22	31.67	n.a.
3		5.415	0.004	0.094	1.30	3.52	n.a.
Total:			**0.333**	**2.672**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 11:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

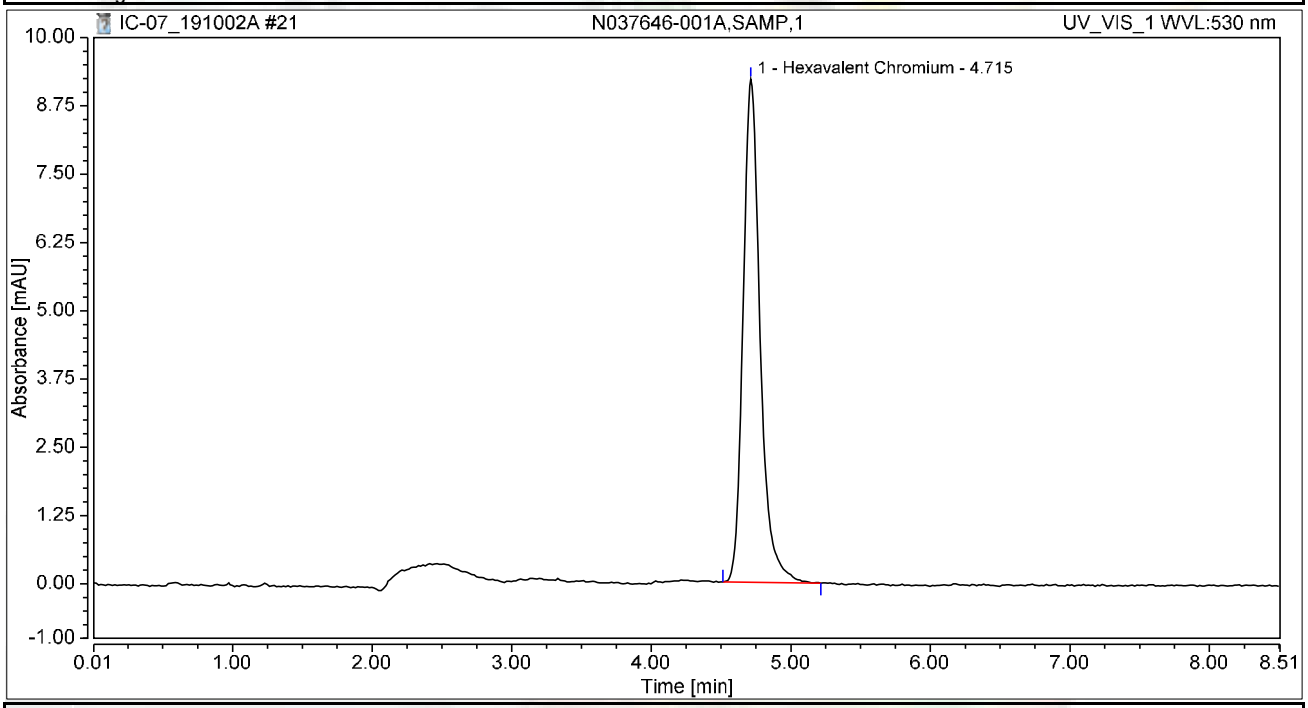
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

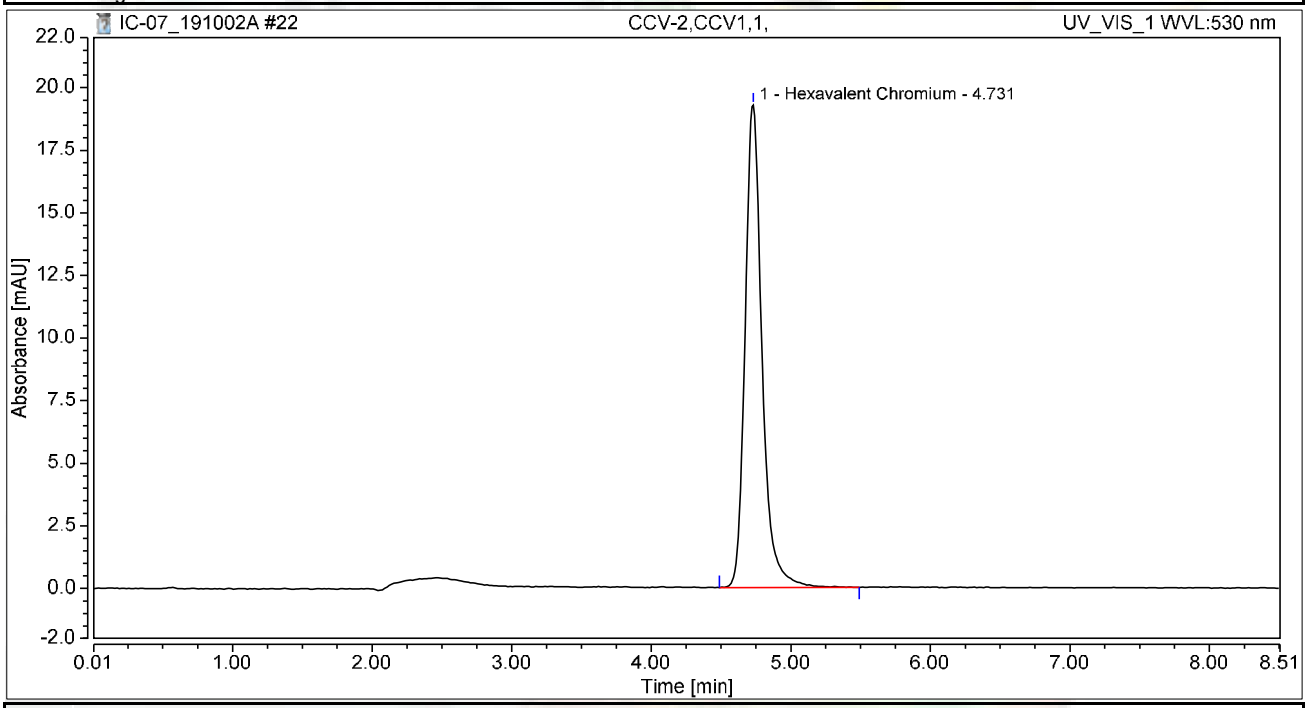
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.307	9.206	100.00	100.00	4.8128
Total:			**1.307**	**9.206**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

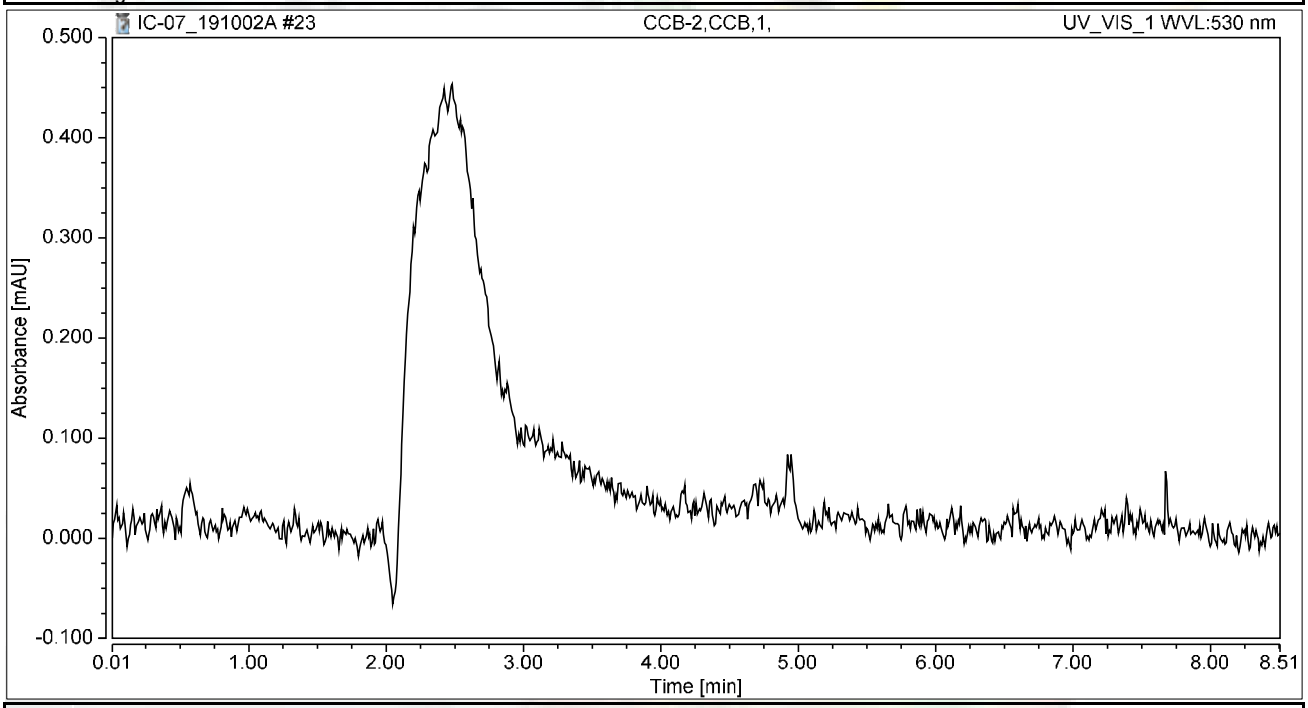
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.713	19.267	100.00	100.00	9.9871
Total:			**2.713**	**19.267**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

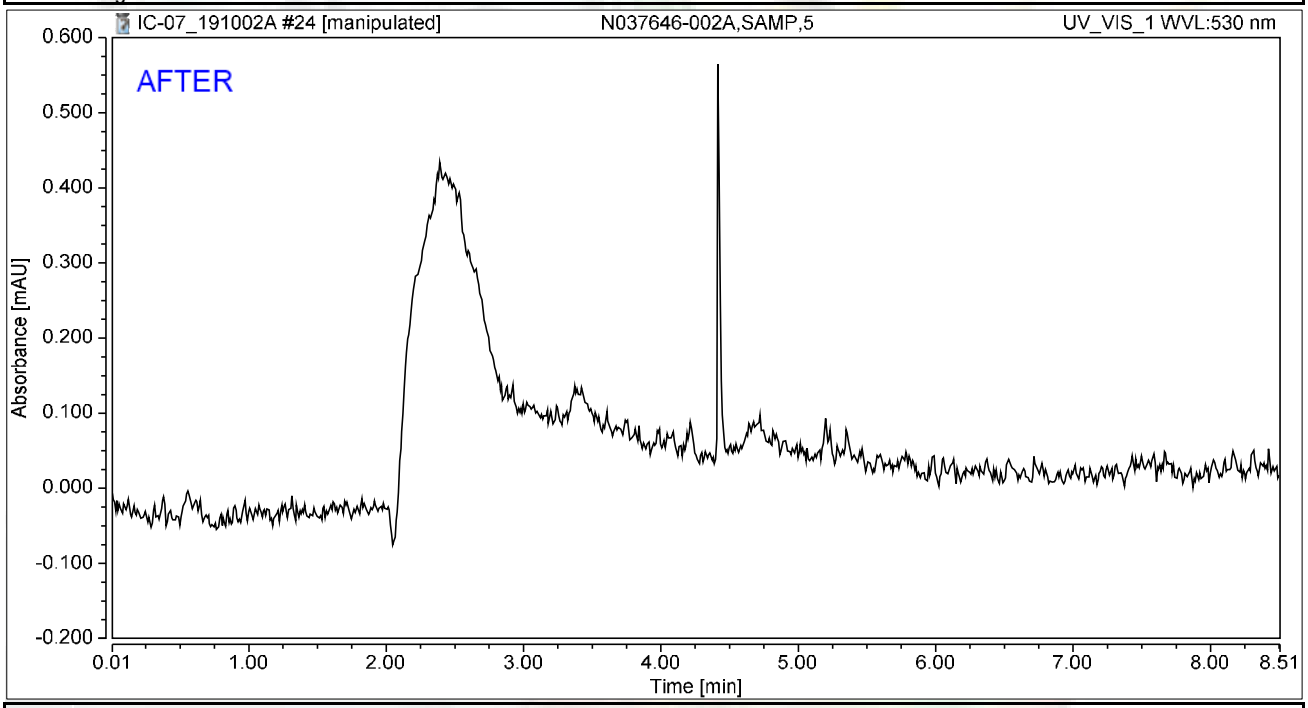
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

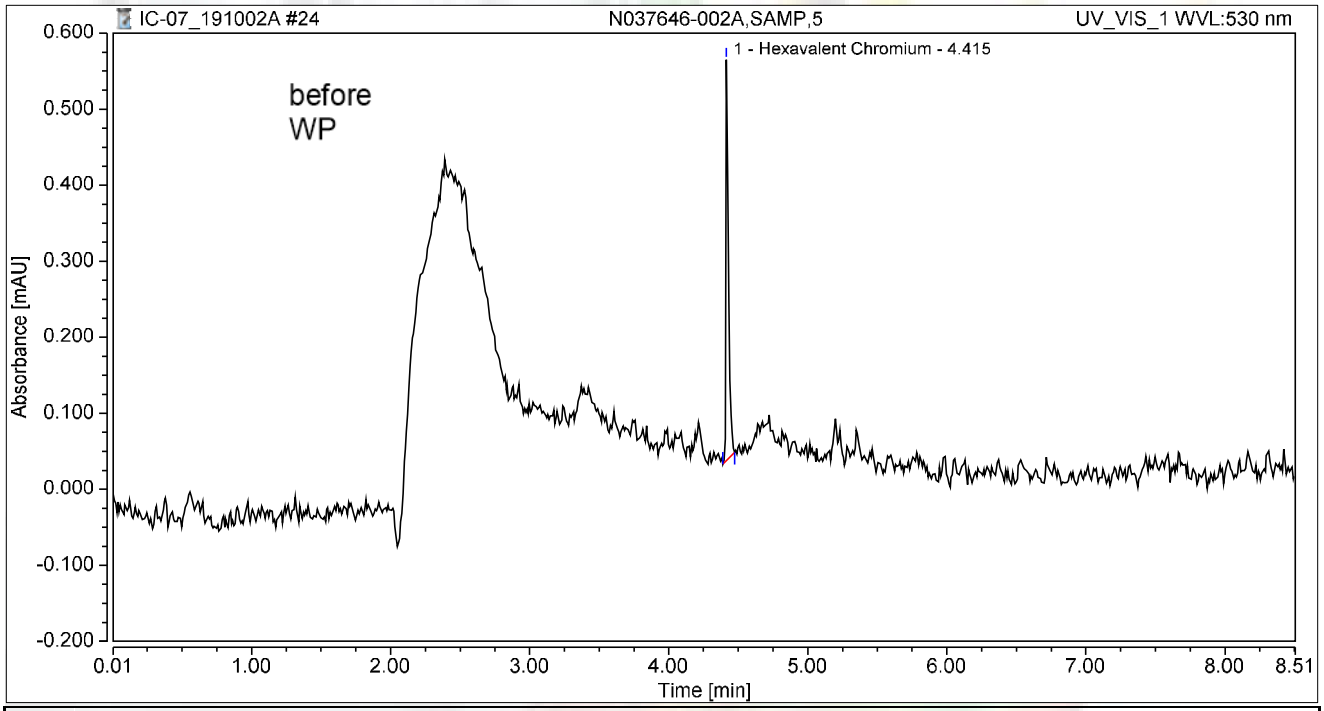
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

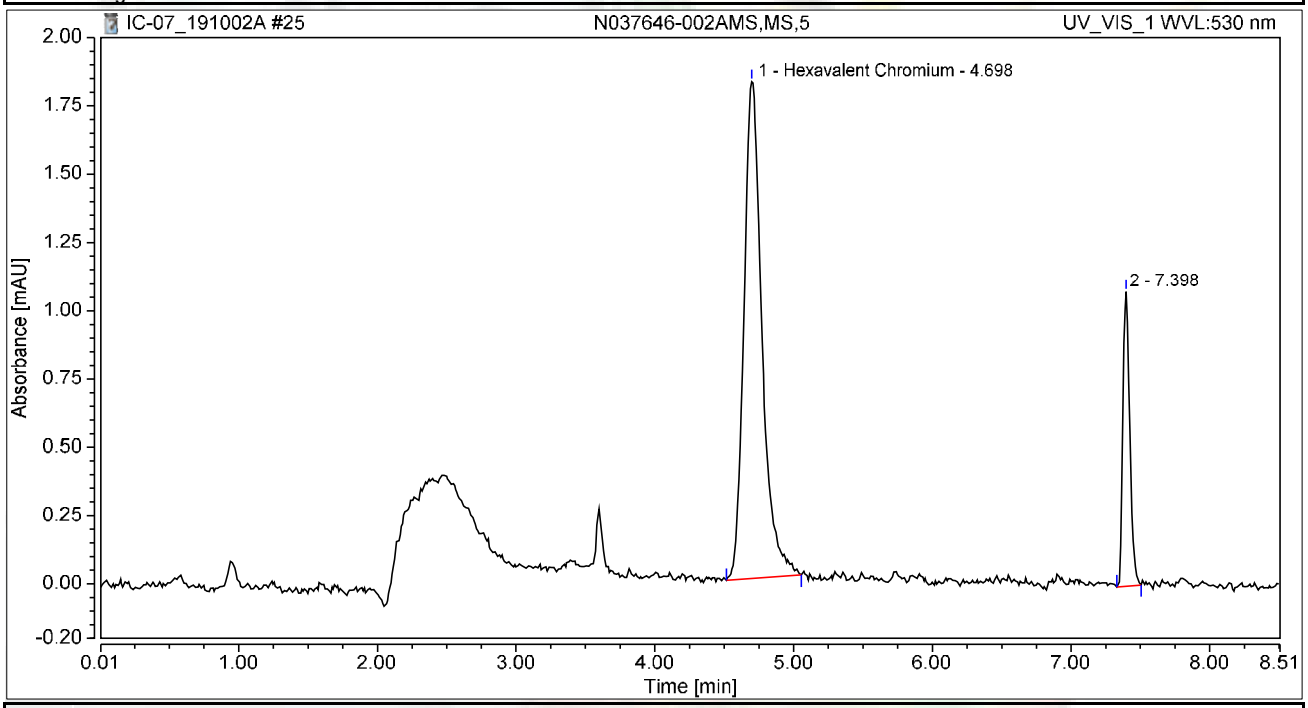
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.415	0.011	0.527	100.00	100.00	0.0411
Total:			**0.011**	**0.527**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037646-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

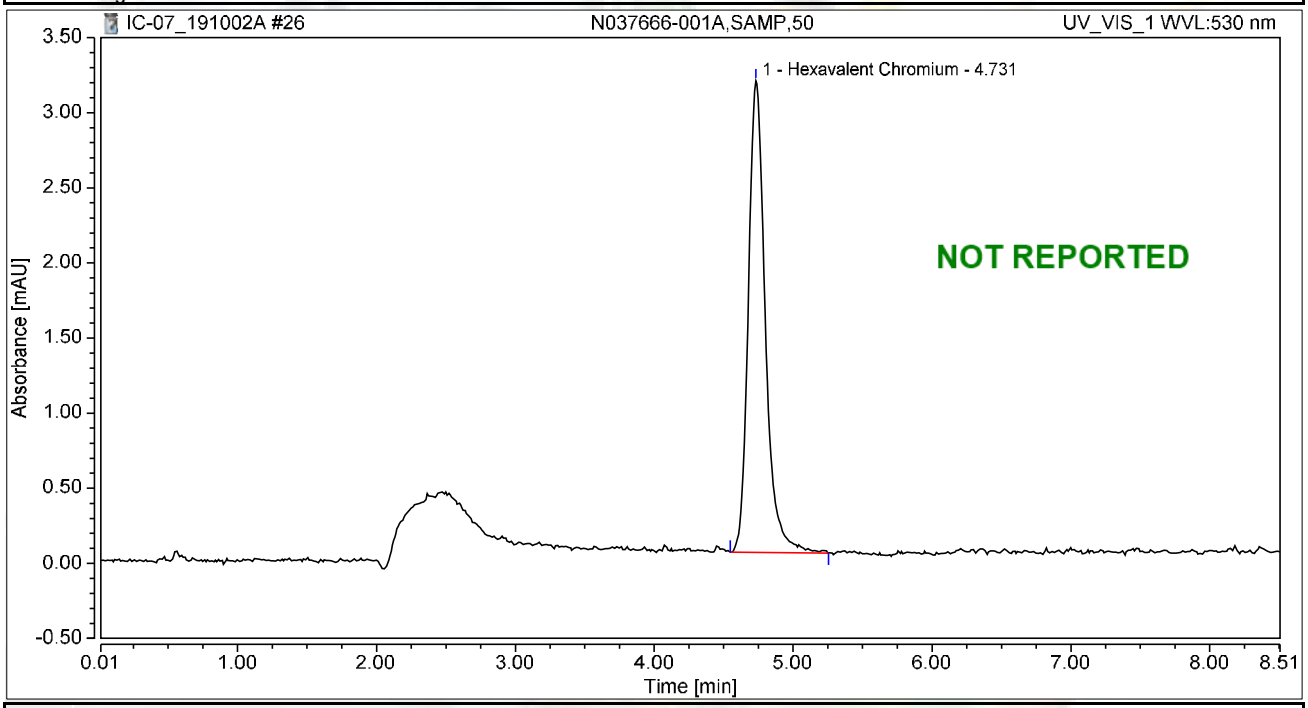
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.274	1.820	81.40	62.80	1.0106
2		7.398	0.063	1.078	18.60	37.20	n.a.
Total:			**0.337**	**2.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 12:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

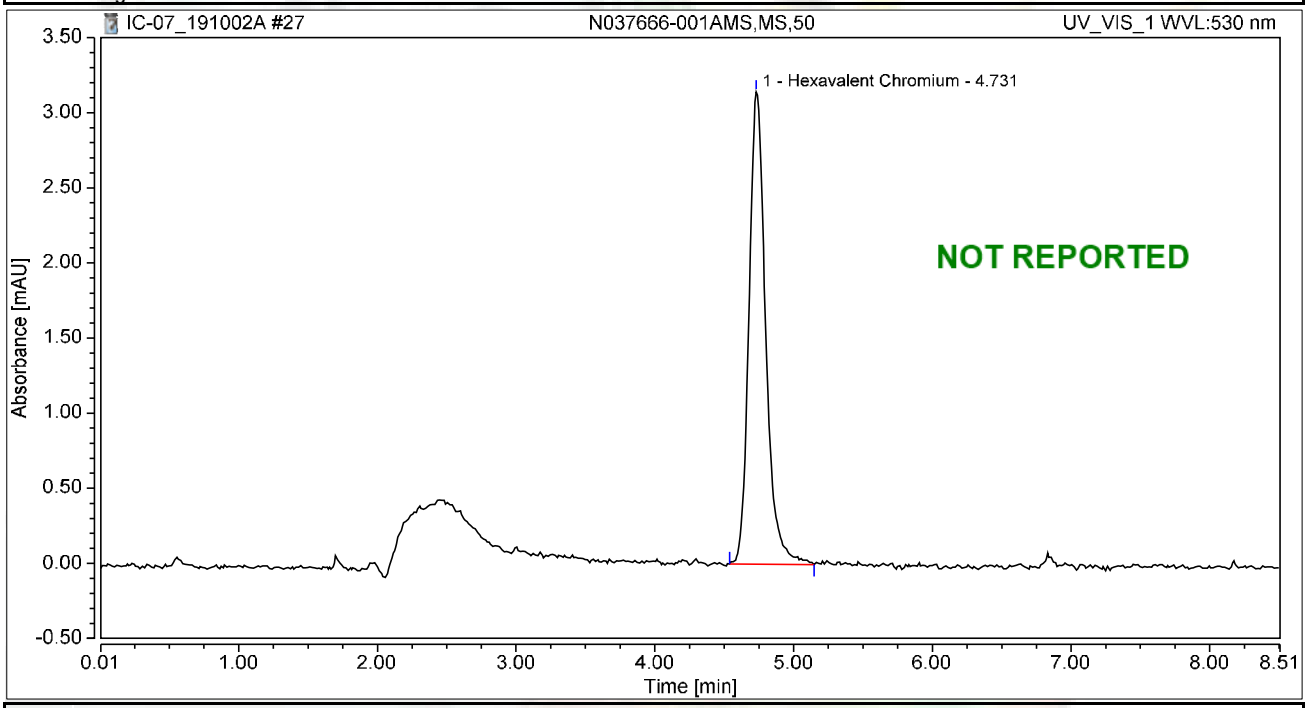
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.445	3.140	100.00	100.00	1.6398
Total:			**0.445**	**3.140**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

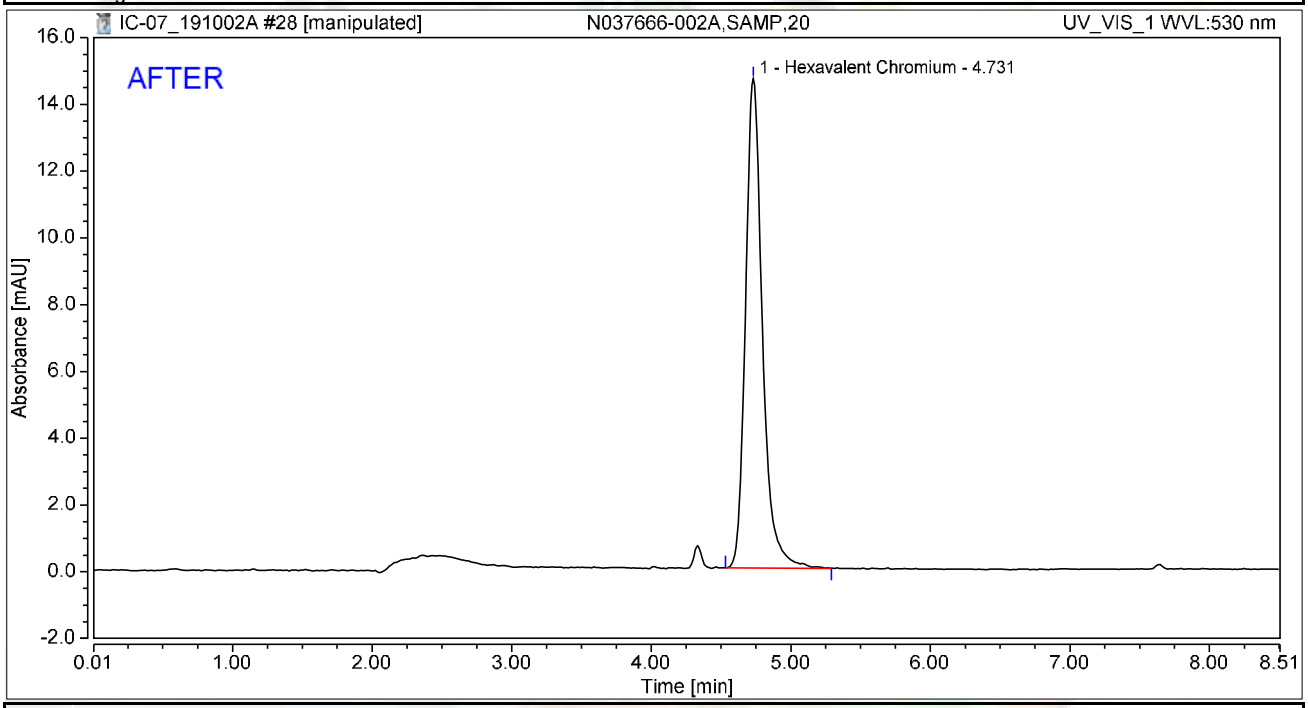
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.439	3.143	100.00	100.00	1.6171
Total:			**0.439**	**3.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.059	14.662	100.00	100.00	7.5806
Total:			**2.059**	**14.662**	**100.00**	**100.00**	

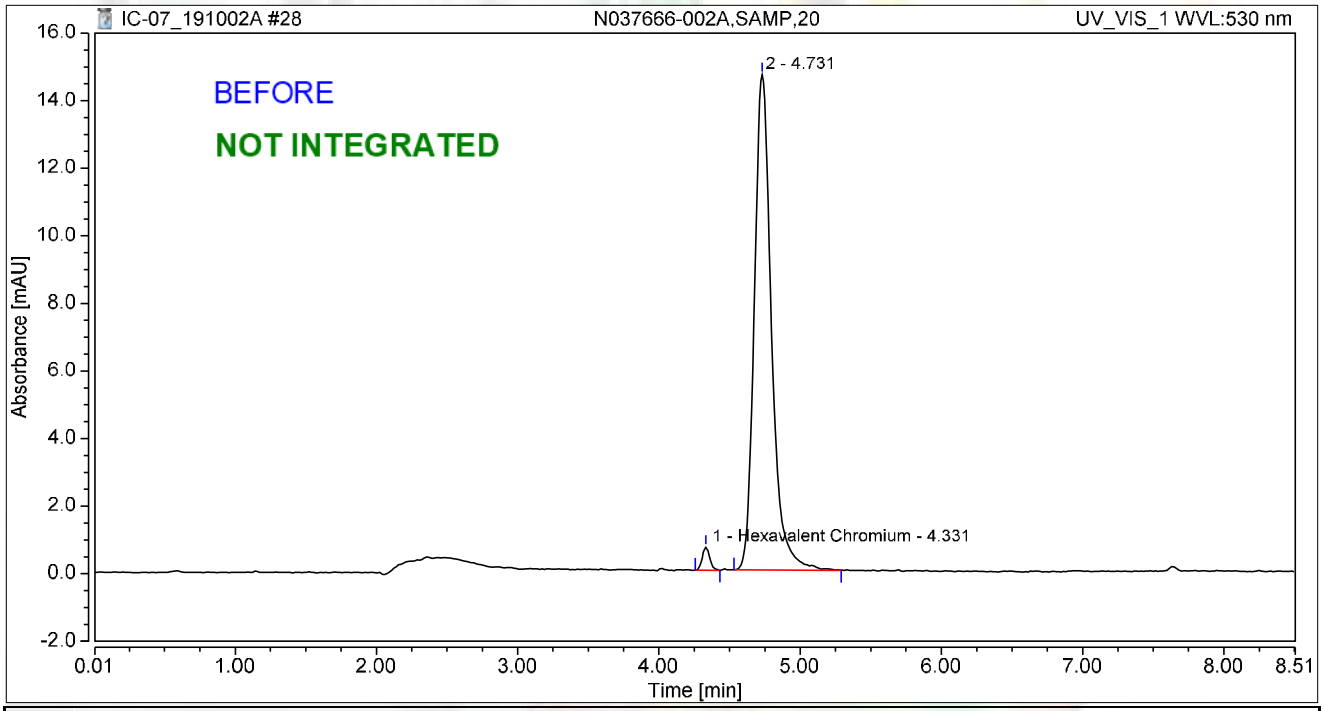
Reviewed by:
Nancy 10/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

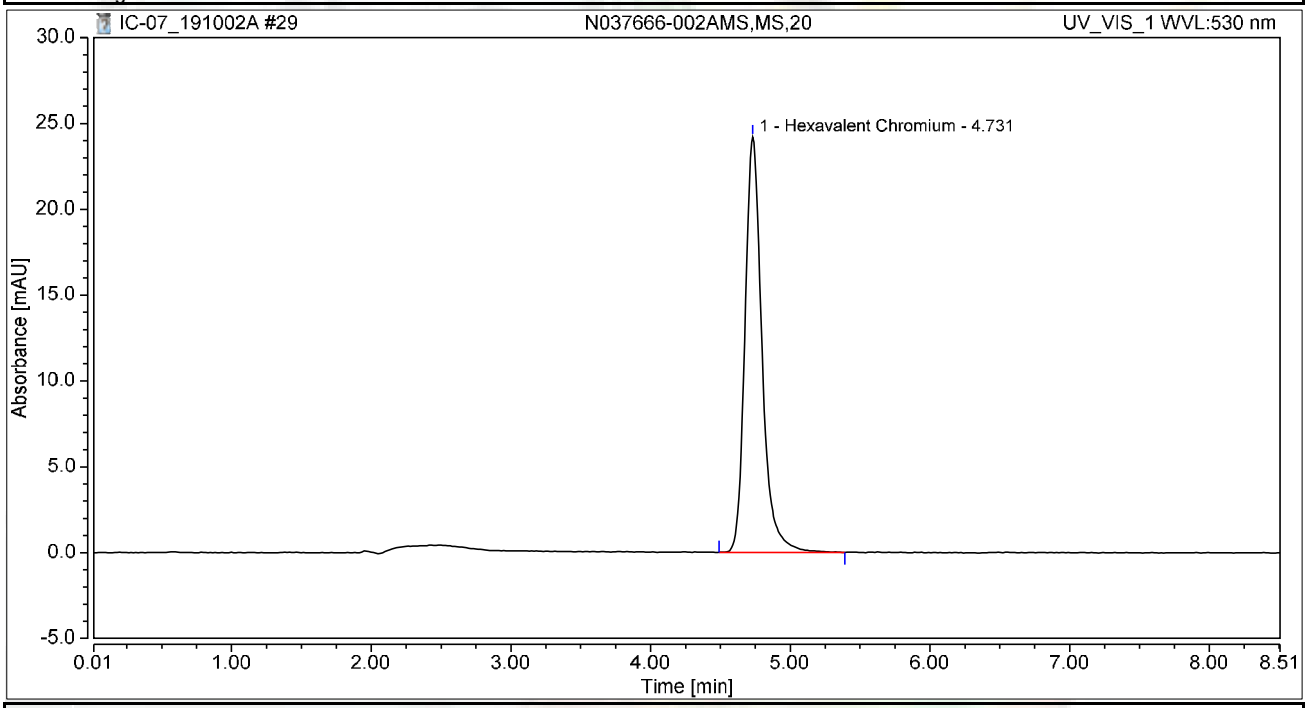
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.331	0.042	0.676	1.98	4.41	0.1530
2		4.731	2.059	14.662	98.02	95.59	n.a.
Total:			**2.101**	**15.338**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002AMS,MS,20**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

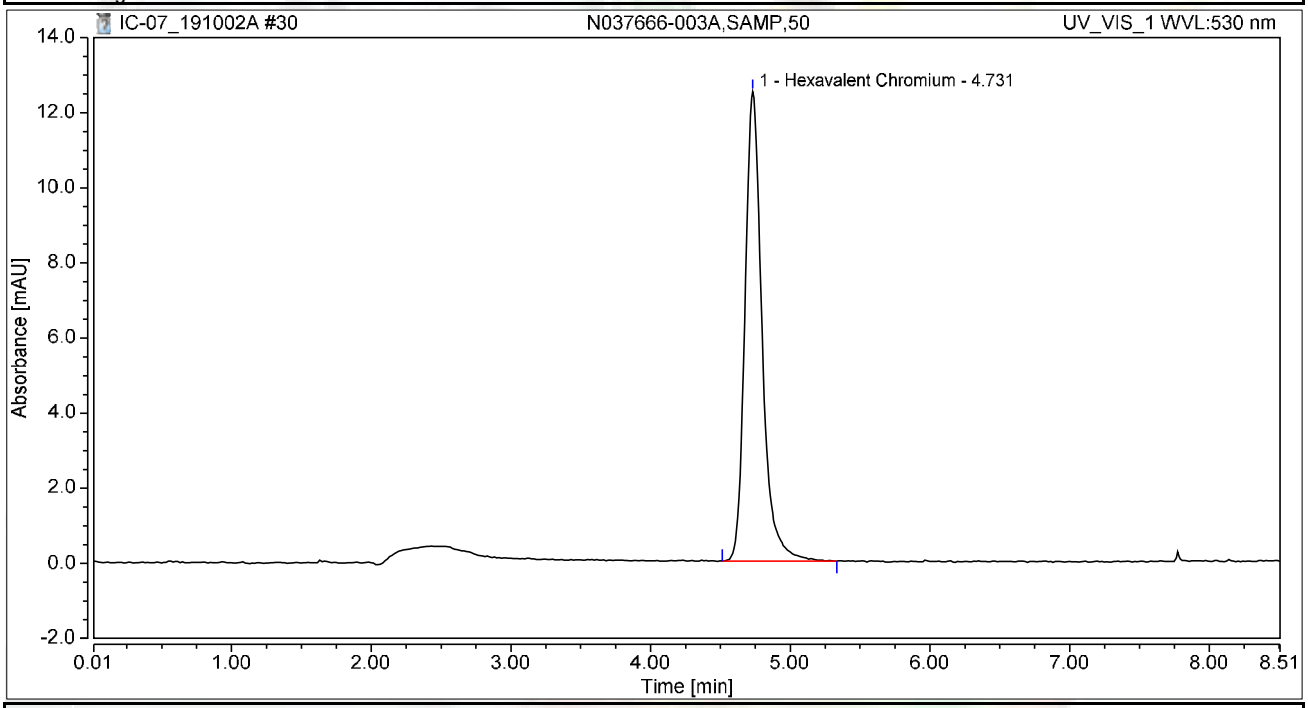
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.418	24.193	100.00	100.00	12.5838
Total:			**3.418**	**24.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-003A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

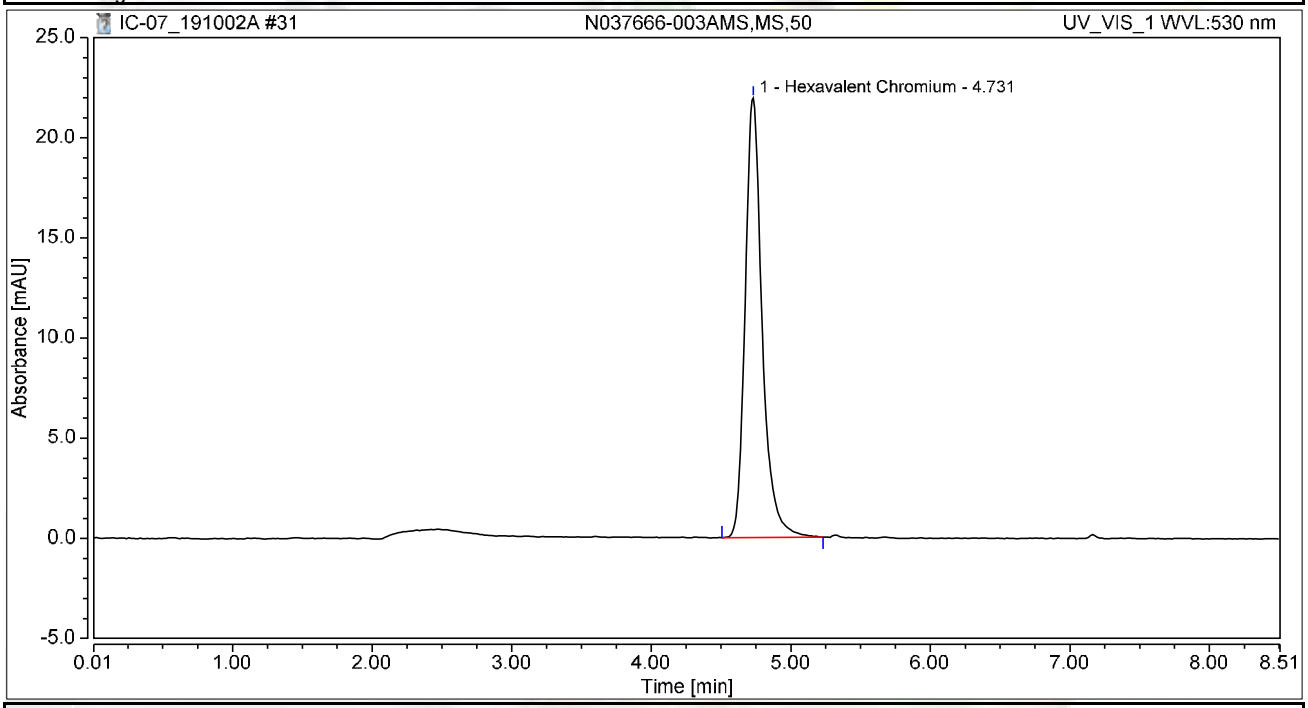
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.771	12.504	100.00	100.00	6.5195
Total:			**1.771**	**12.504**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-003AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

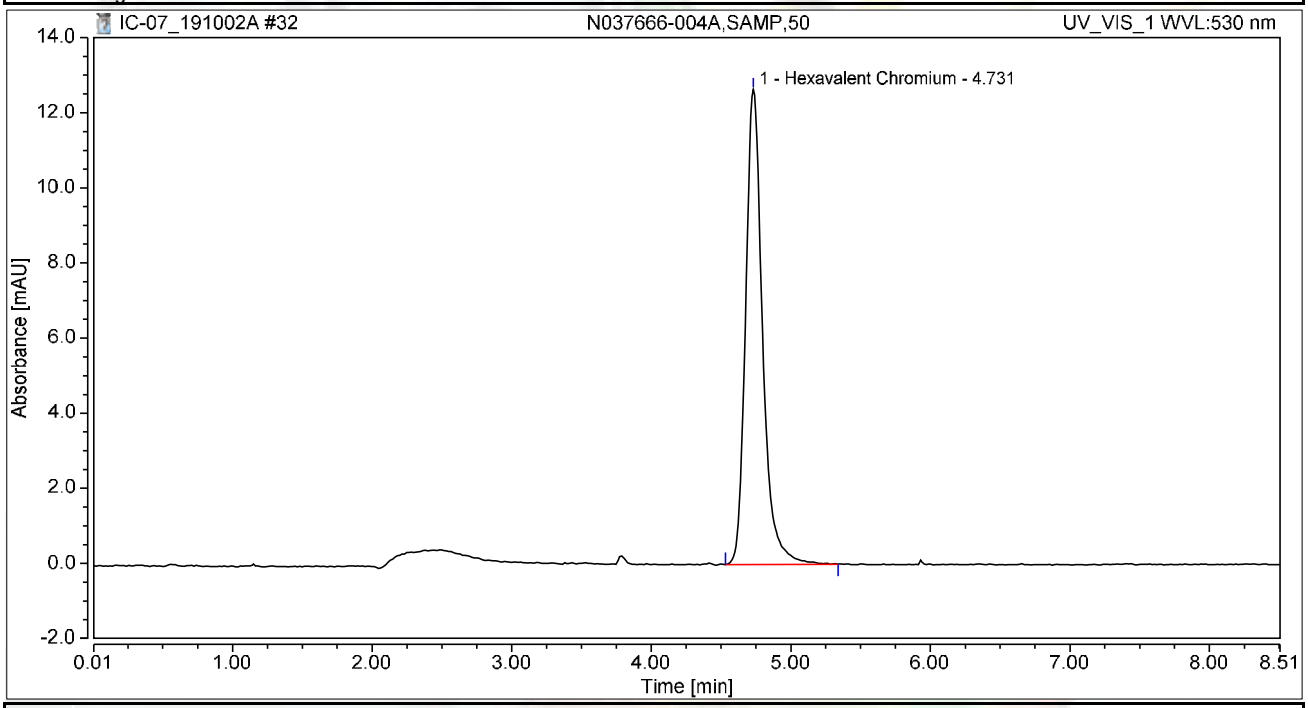
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.110	21.939	100.00	100.00	11.4508
Total:			**3.110**	**21.939**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-004A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

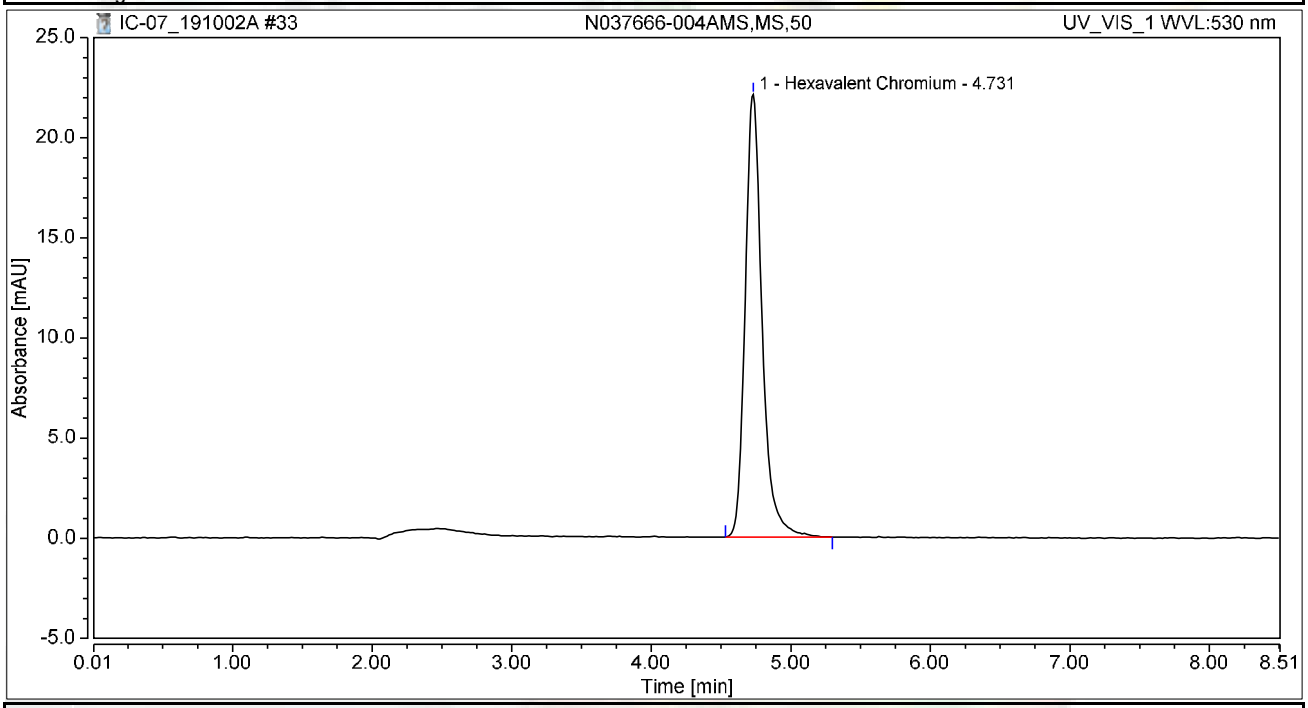
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.782	12.644	100.00	100.00	6.5603
Total:			**1.782**	**12.644**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-004AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

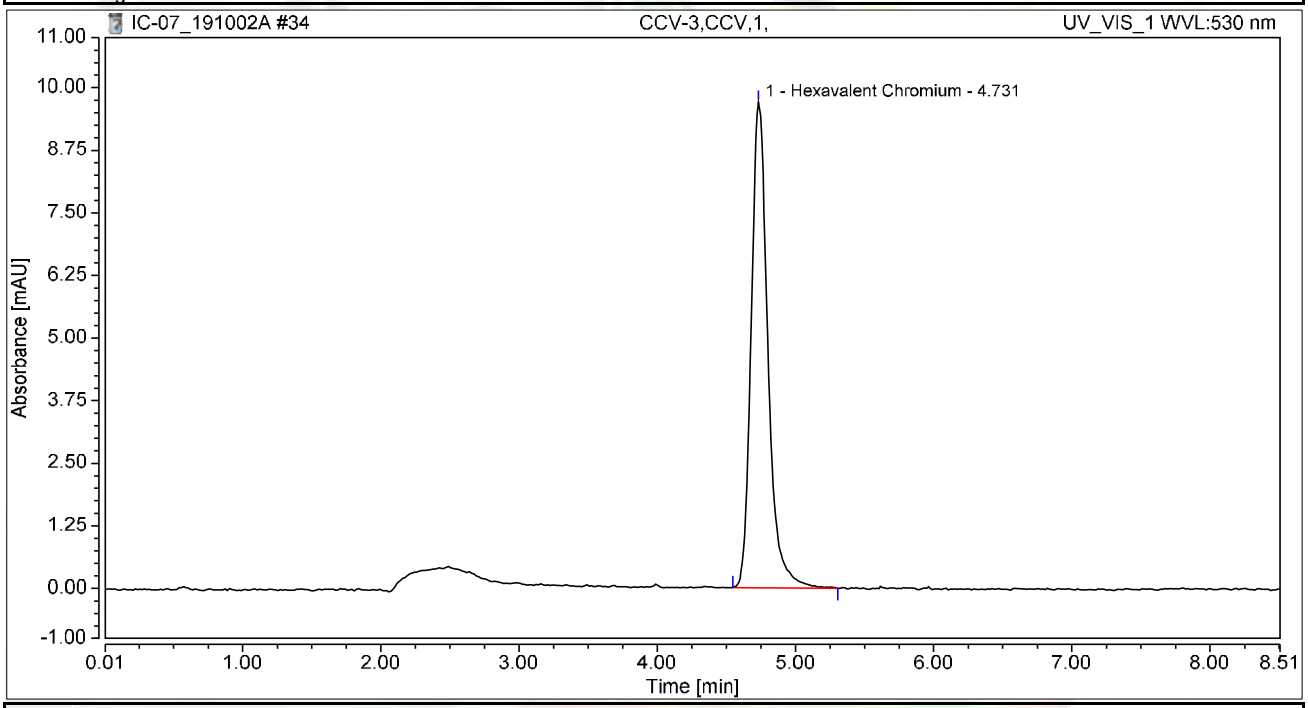
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.124	22.104	100.00	100.00	11.5007
Total:			**3.124**	**22.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

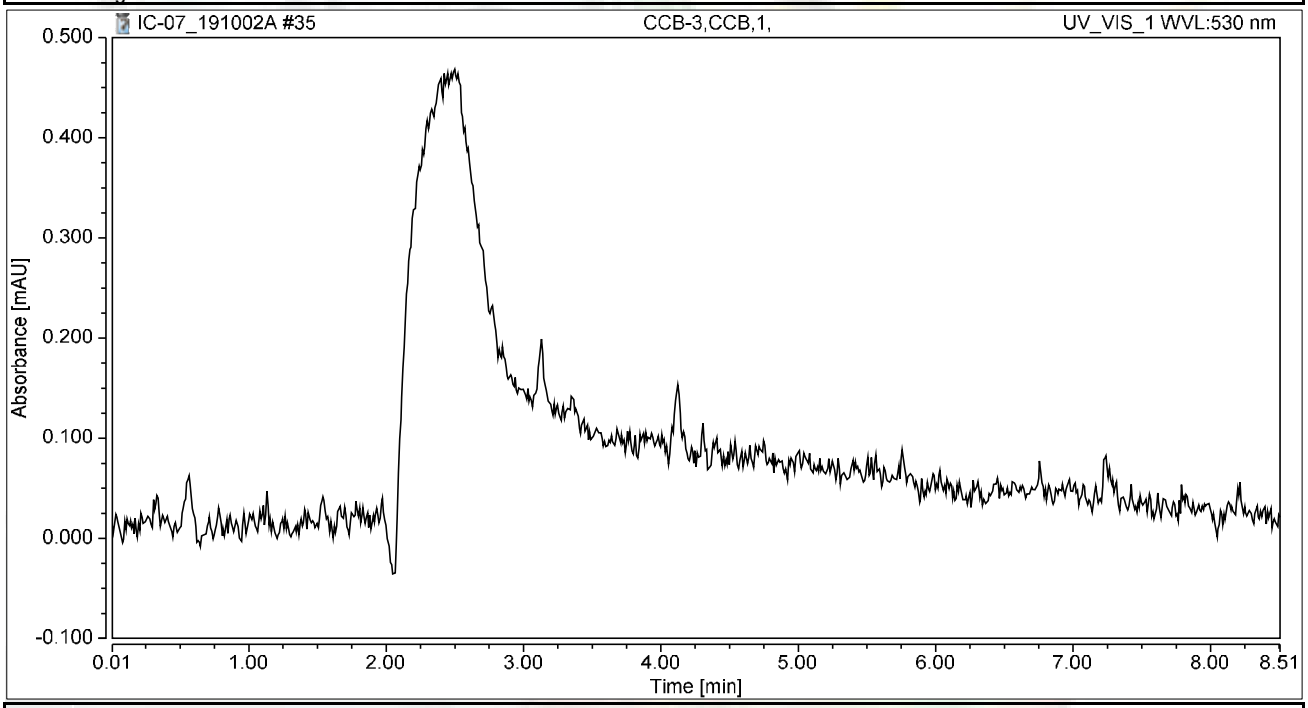
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.362	9.703	100.00	100.00	5.0157
Total:			**1.362**	**9.703**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

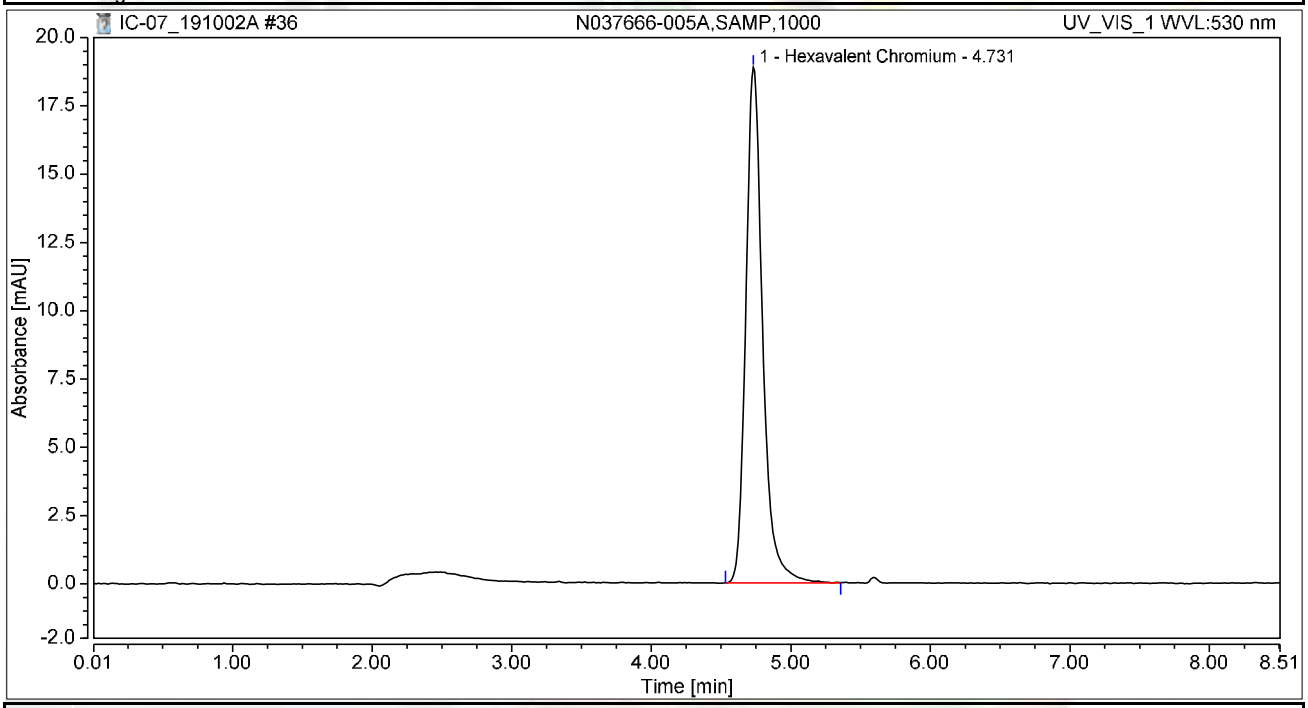
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-005A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

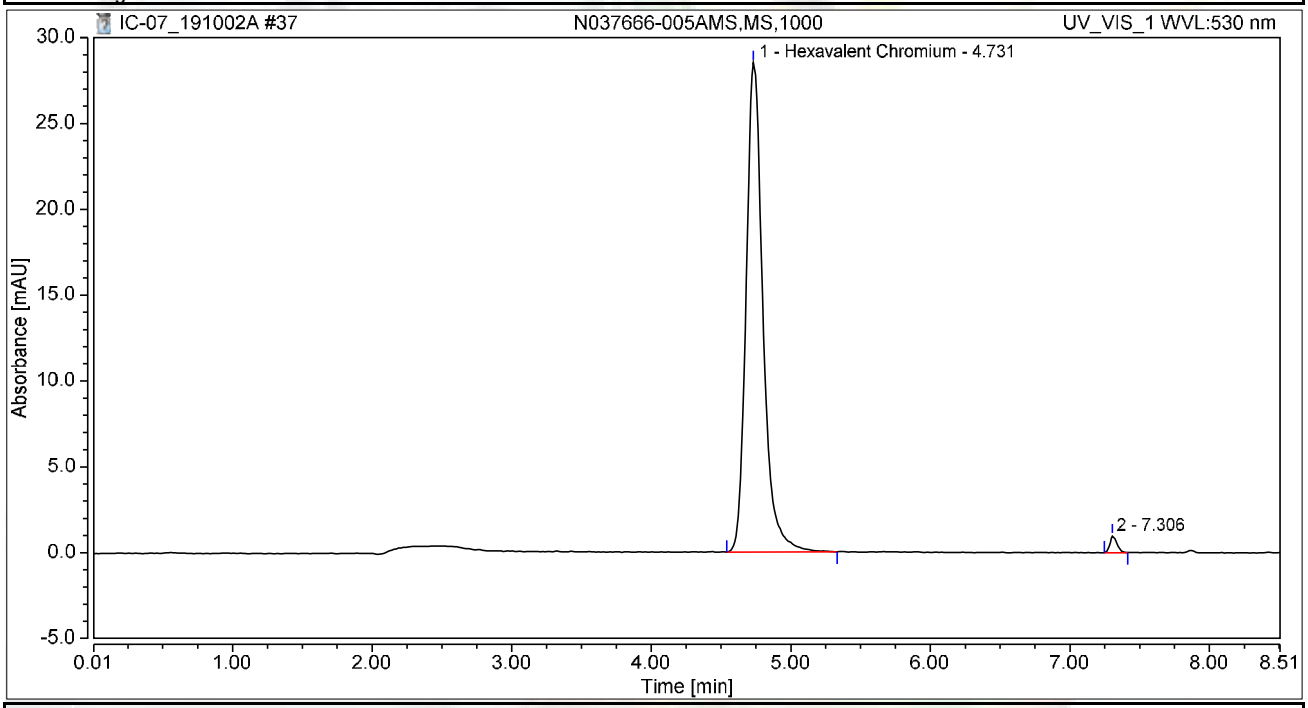
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.645	18.873	100.00	100.00	9.7364
Total:			**2.645**	**18.873**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-005AMS,MS,1000**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

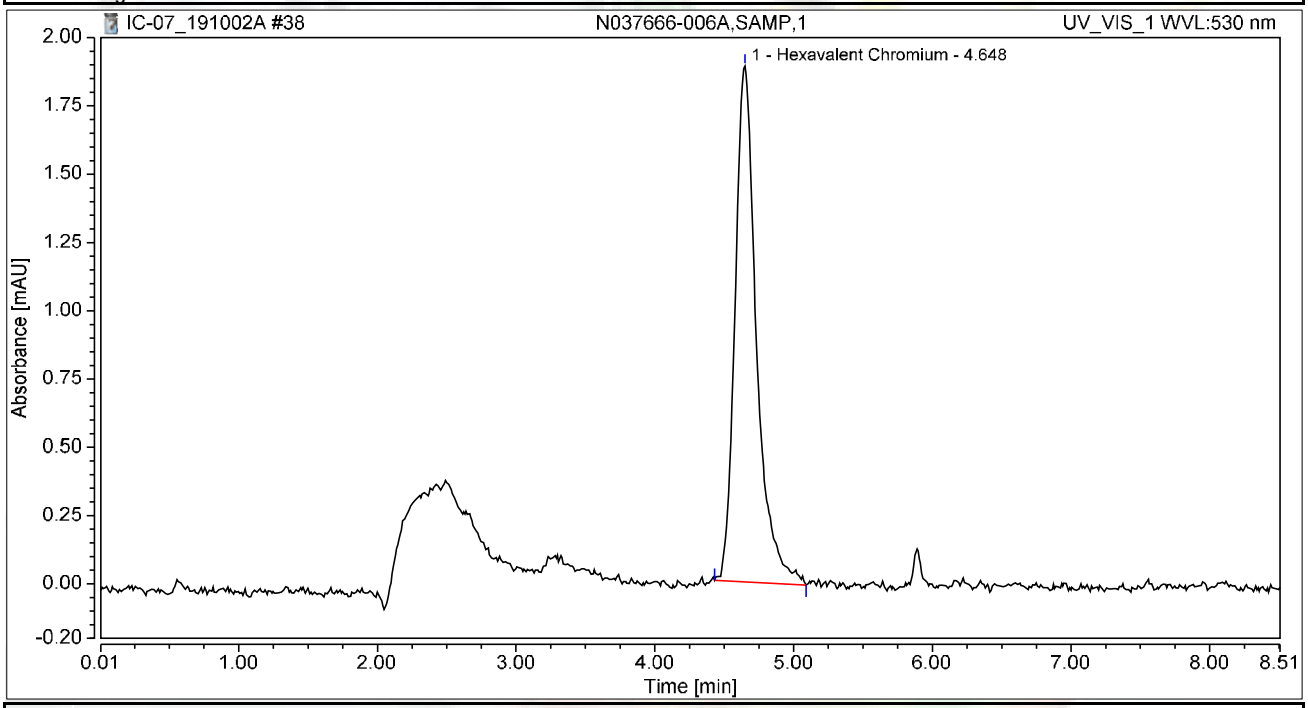
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.994	28.524	98.56	96.68	14.7051
2		7.306	0.058	0.980	1.44	3.32	n.a.
Total:			**4.053**	**29.504**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

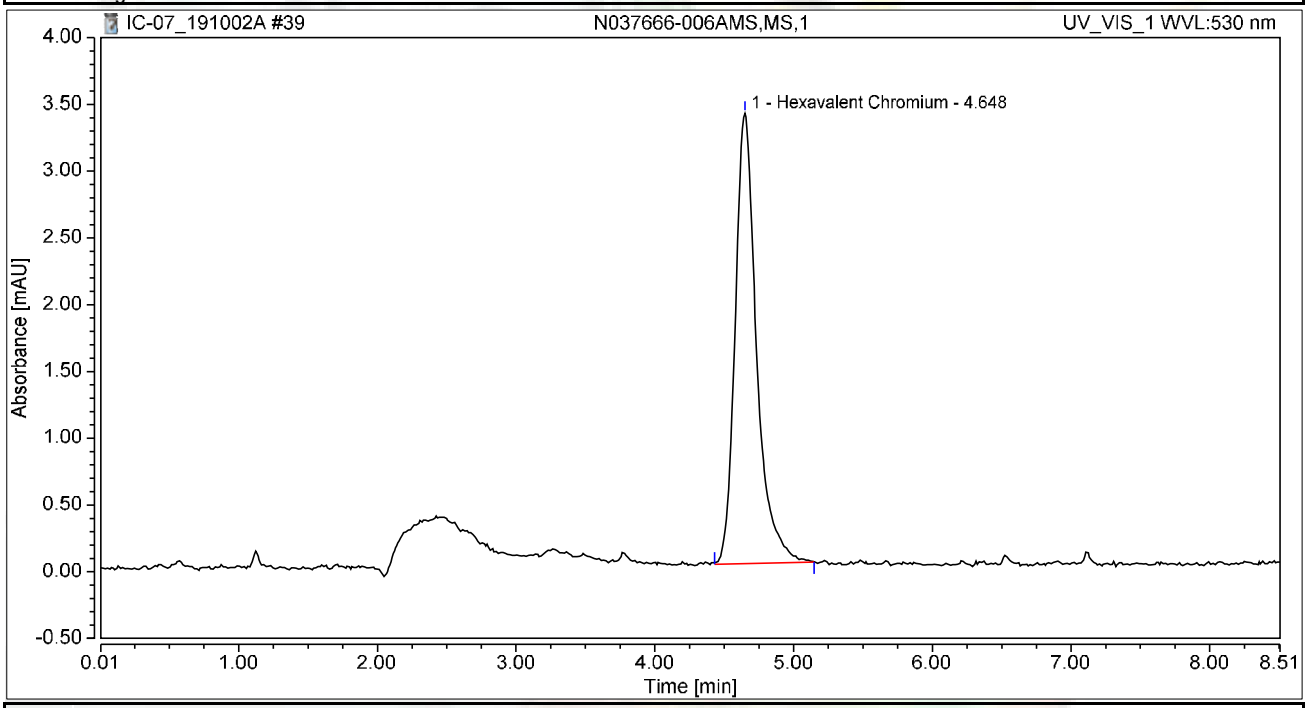
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.338	1.889	100.00	100.00	1.2452
Total:			**0.338**	**1.889**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 14:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

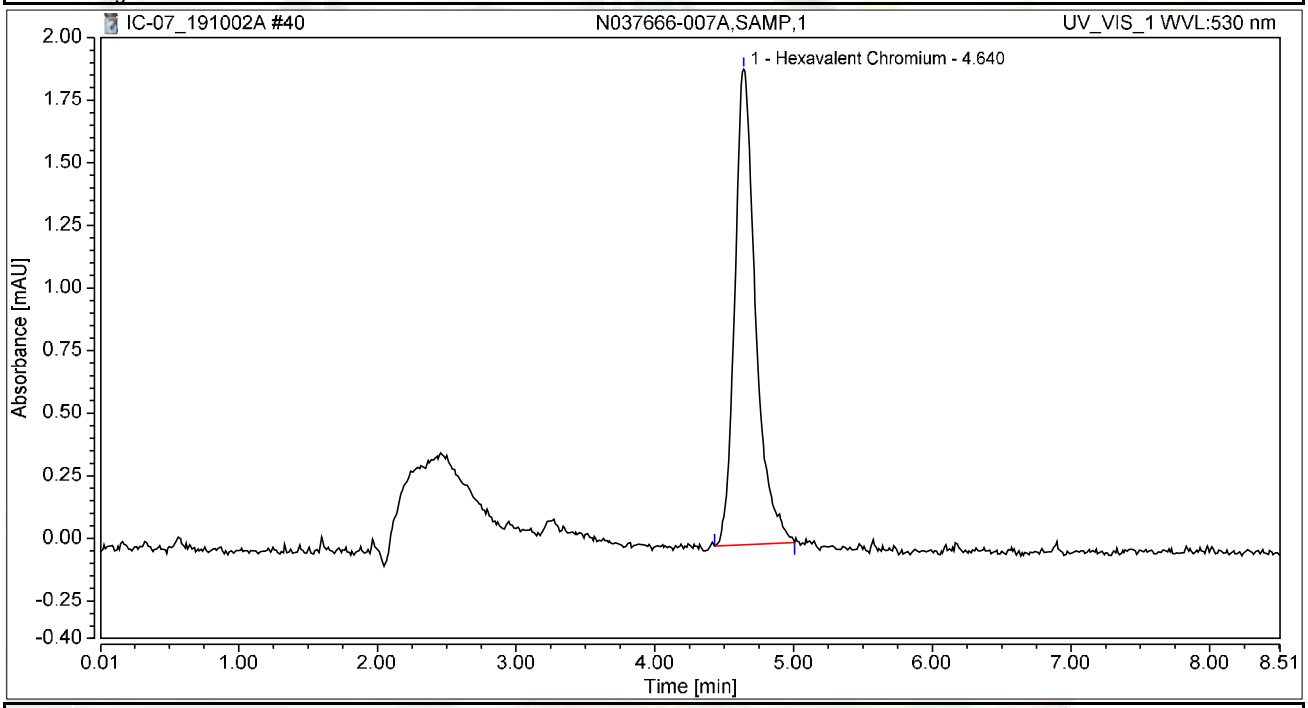
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.601	3.371	100.00	100.00	2.2141
Total:			**0.601**	**3.371**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

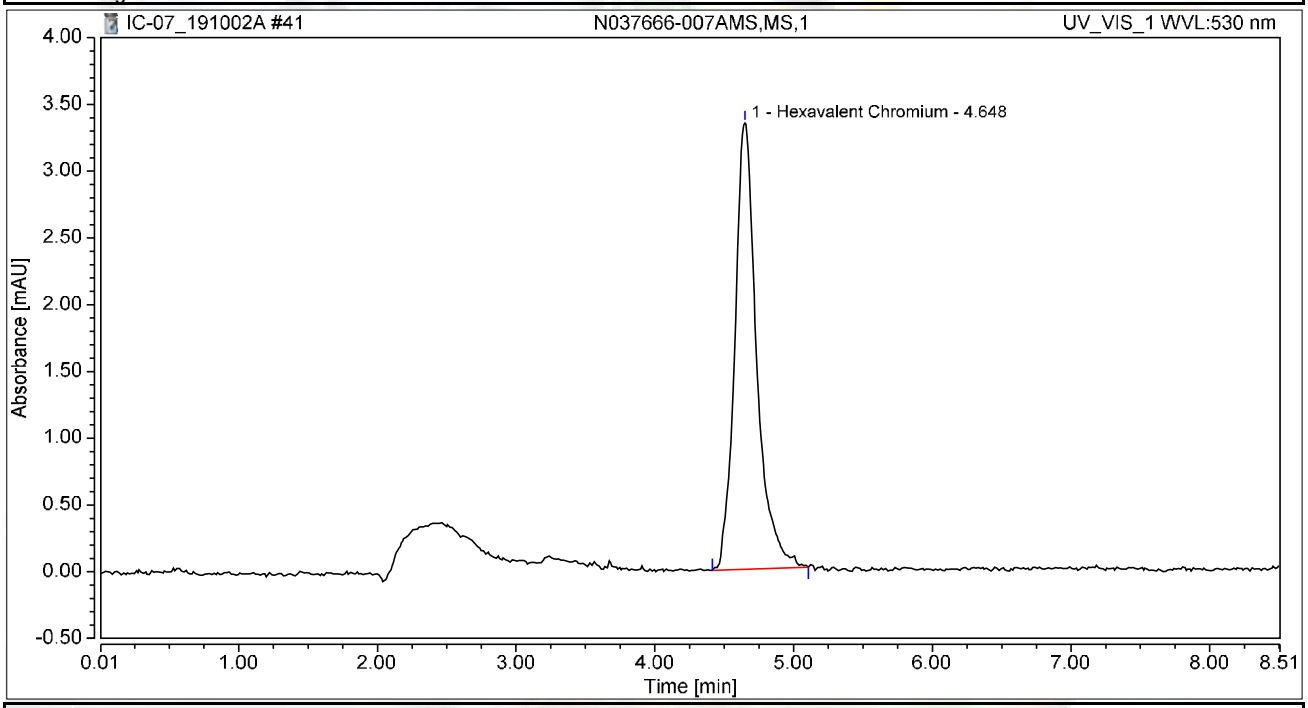
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.640	0.330	1.899	100.00	100.00	1.2148
Total:			**0.330**	**1.899**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

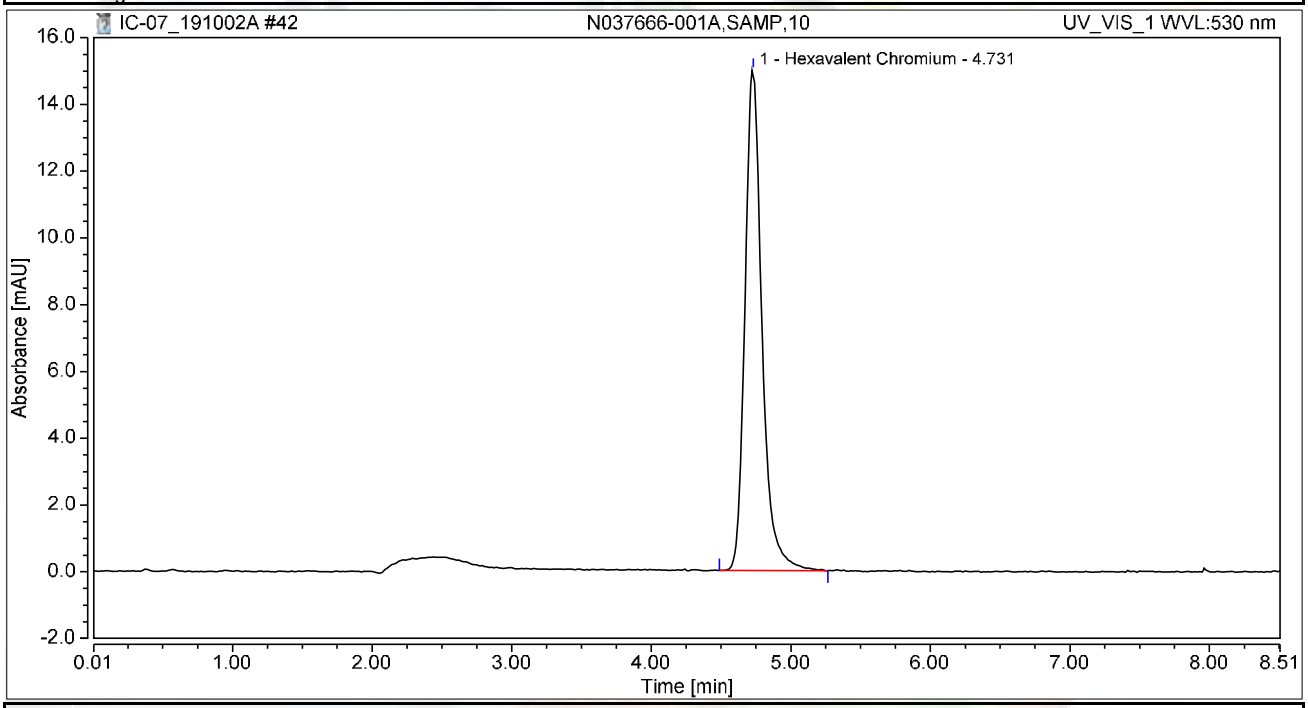
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.611	3.344	100.00	100.00	2.2490
Total:			**0.611**	**3.344**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

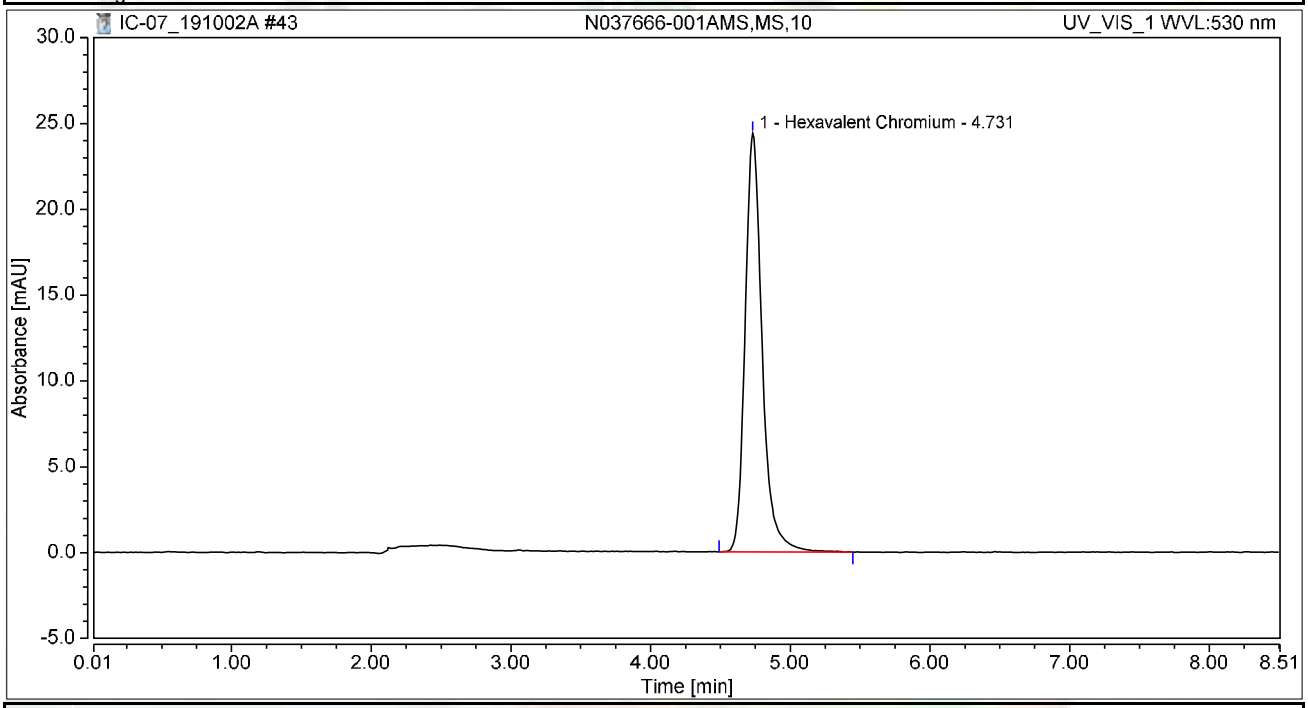
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.126	14.991	100.00	100.00	7.8284
Total:			**2.126**	**14.991**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

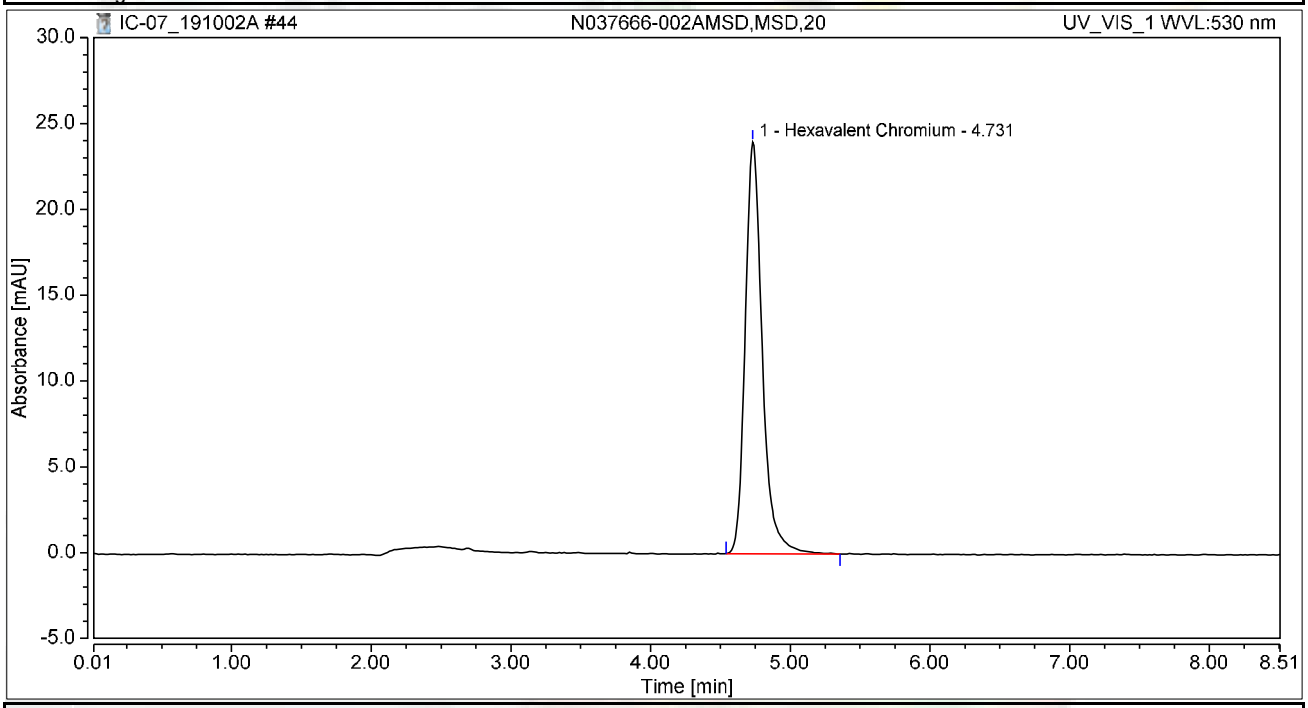
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.449	24.393	100.00	100.00	12.6961
Total:			**3.449**	**24.393**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-002AMSD,MSD,20**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

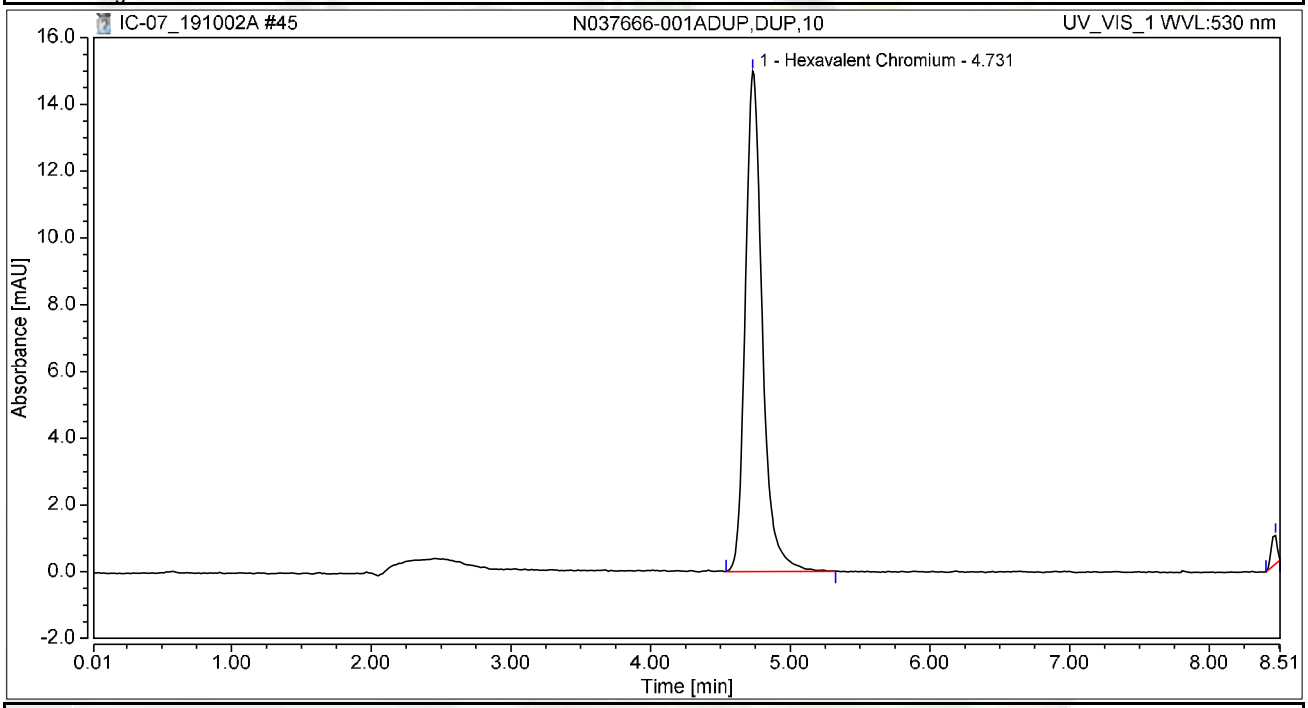
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.396	23.990	100.00	100.00	12.5037
Total:			**3.396**	**23.990**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037666-001ADUP,DUP,10**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 15:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

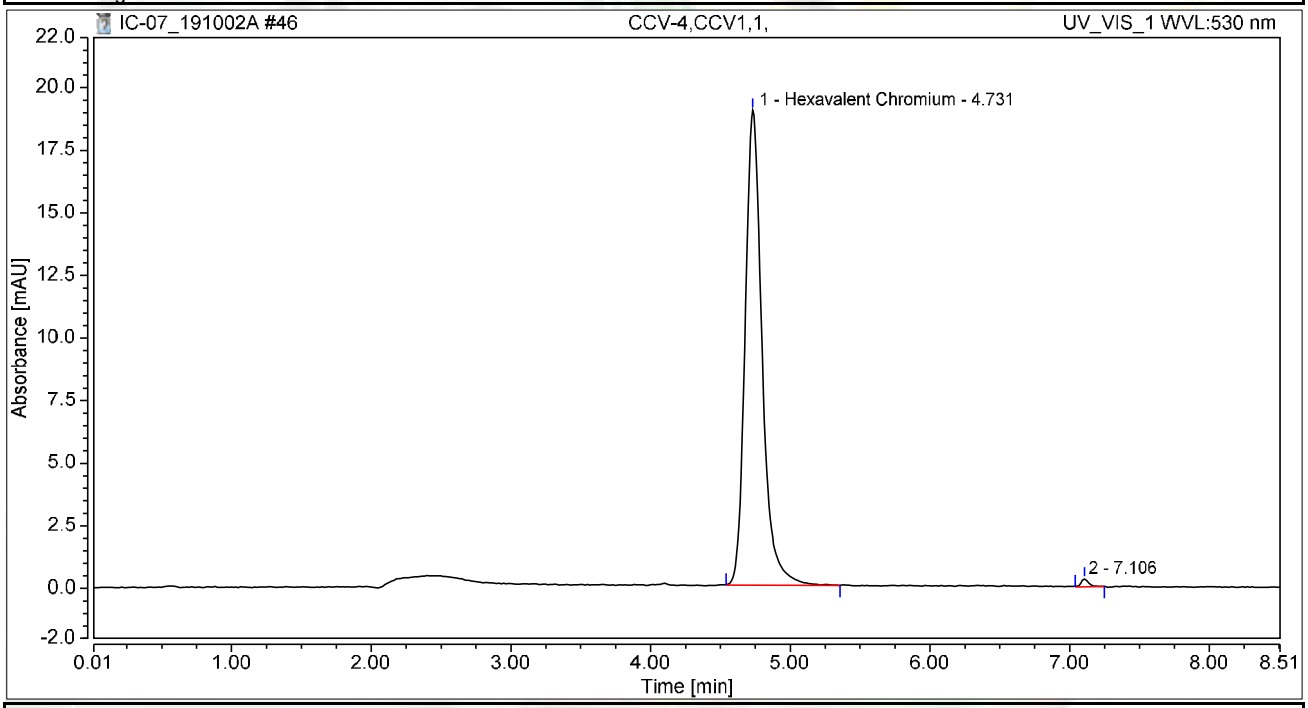
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.119	14.987	97.93	94.61	7.8017
2		8.473	0.045	0.853	2.07	5.39	n.a.
Total:			**2.164**	**15.840**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

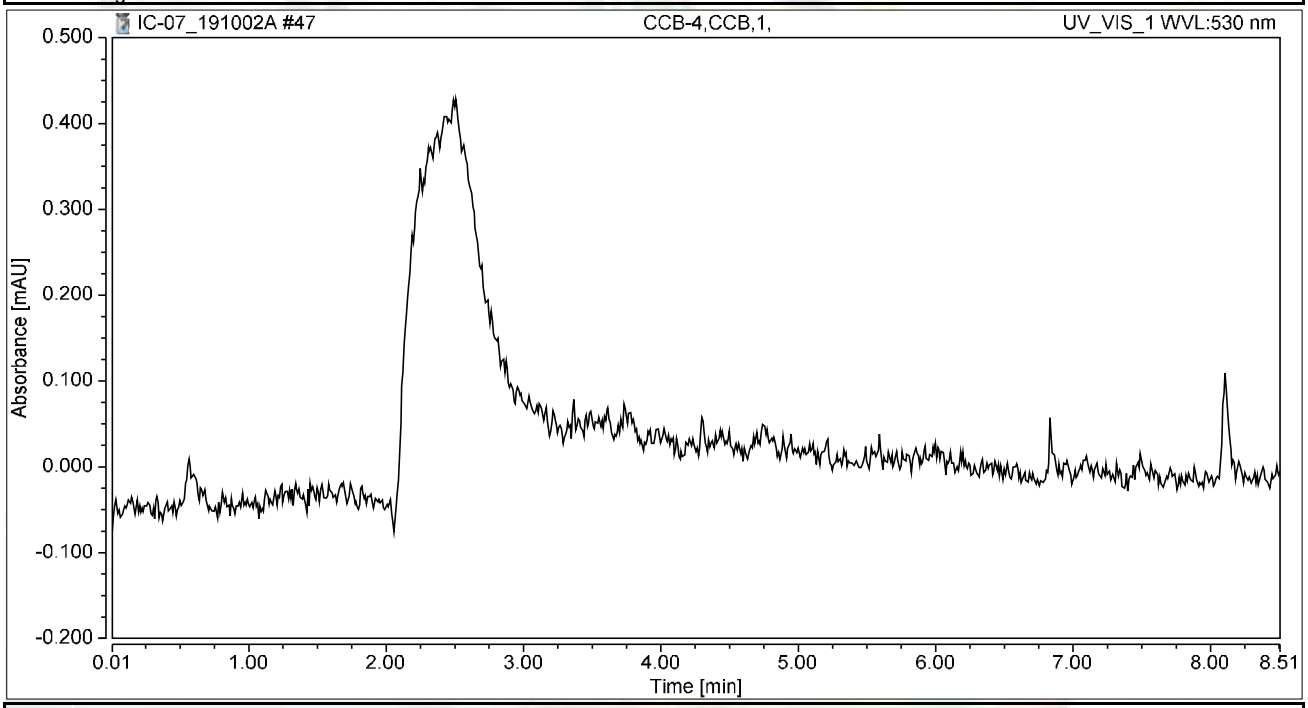
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.670	18.964	99.30	98.43	9.8302
2		7.106	0.019	0.303	0.70	1.57	n.a.
Total:			**2.689**	**19.267**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

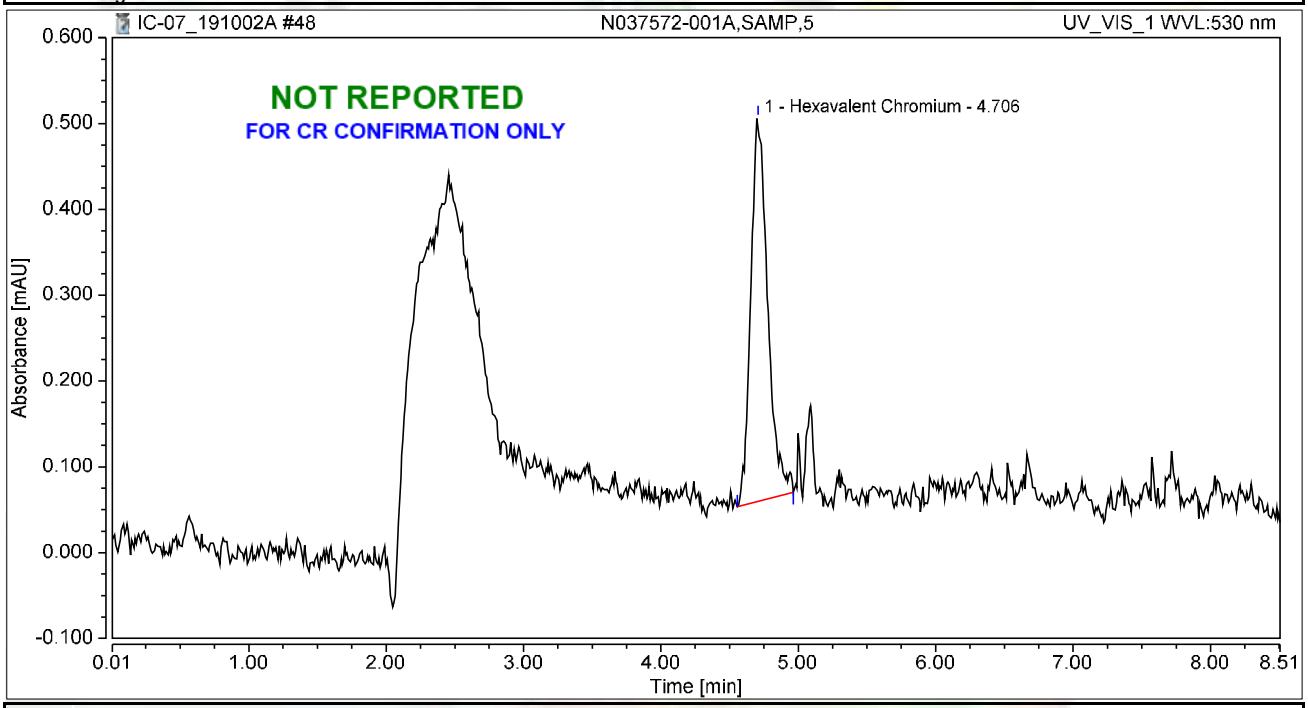
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037572-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

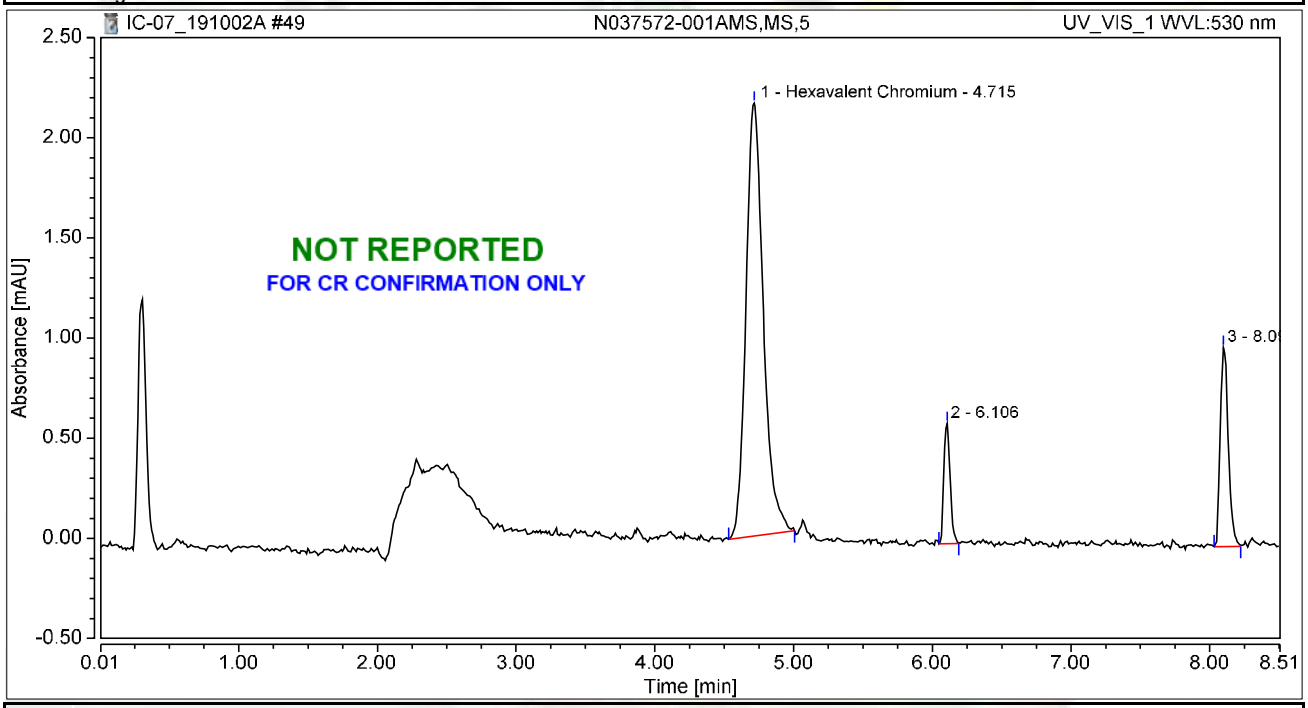
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.064	0.447	100.00	100.00	0.2360
Total:			**0.064**	**0.447**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037572-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

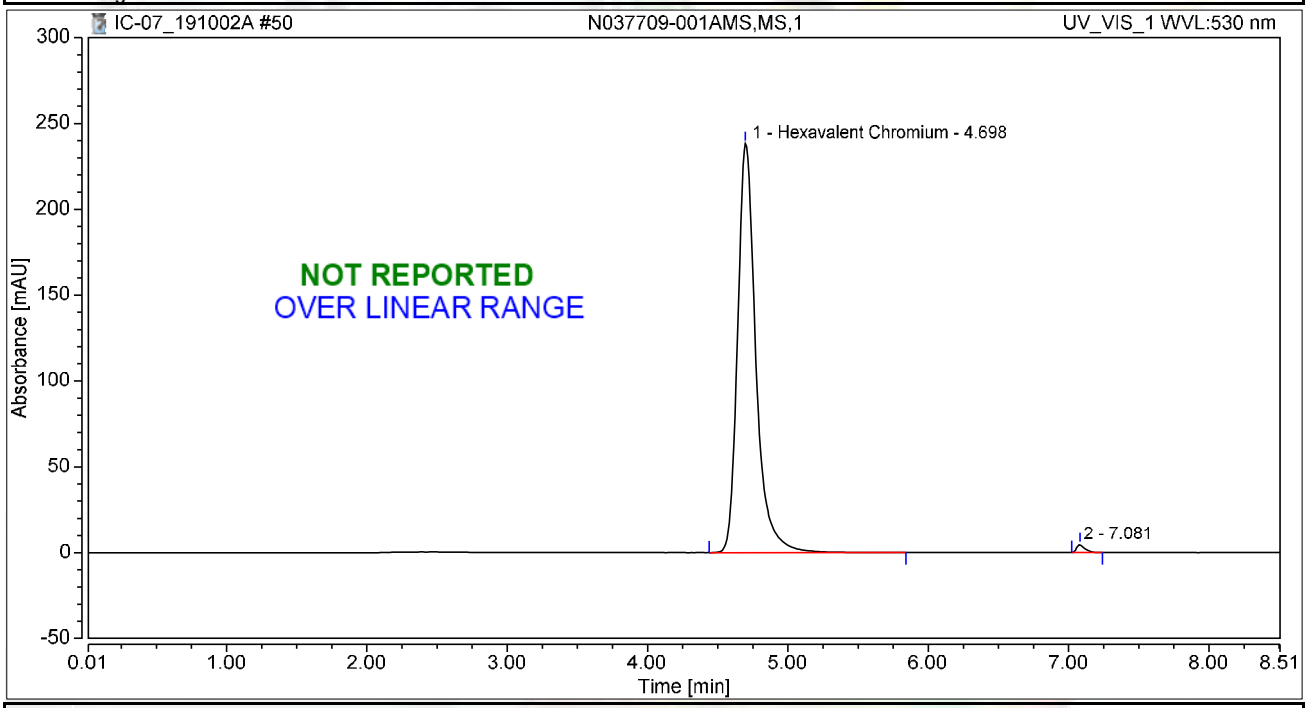
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.314	2.162	76.11	57.56	1.1557
2		6.106	0.031	0.600	7.64	15.97	n.a.
3		8.098	0.067	0.994	16.25	26.46	n.a.
Total:			**0.412**	**3.756**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

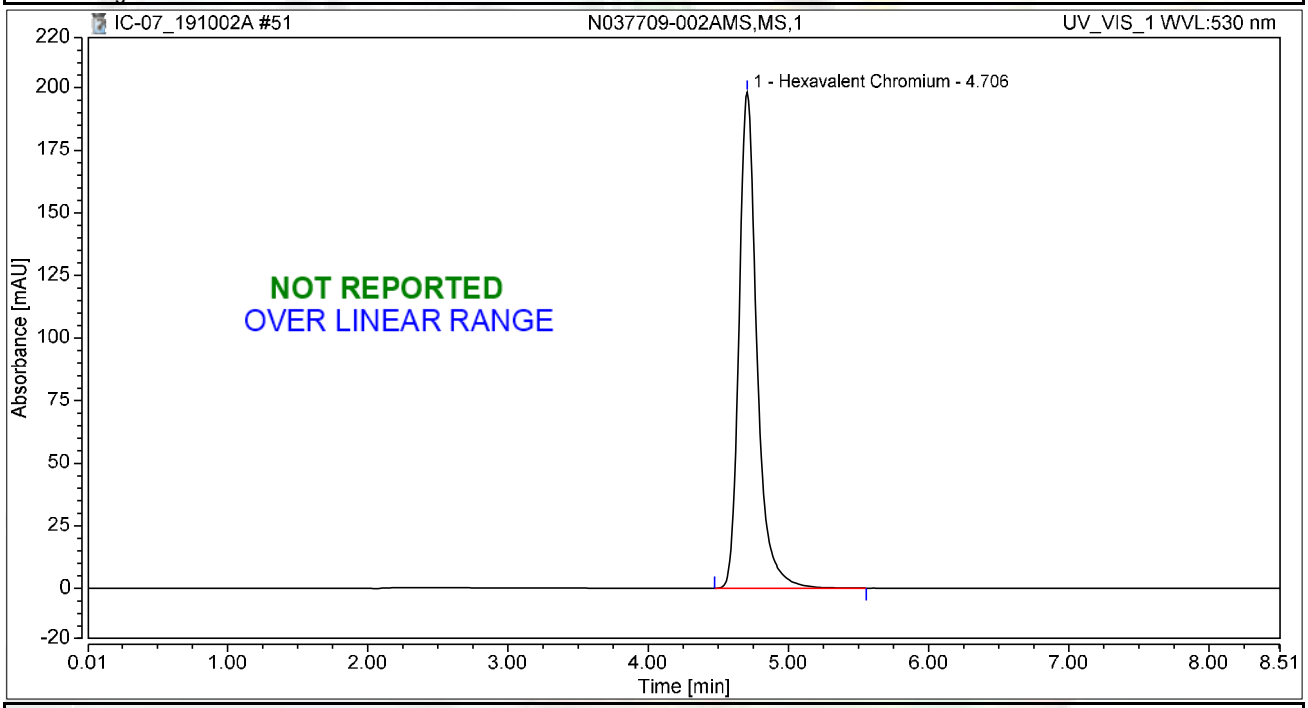
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	35.936	238.381	99.12	98.03	132.2985
2		7.081	0.317	4.790	0.88	1.97	n.a.
Total:			**36.253**	**243.171**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

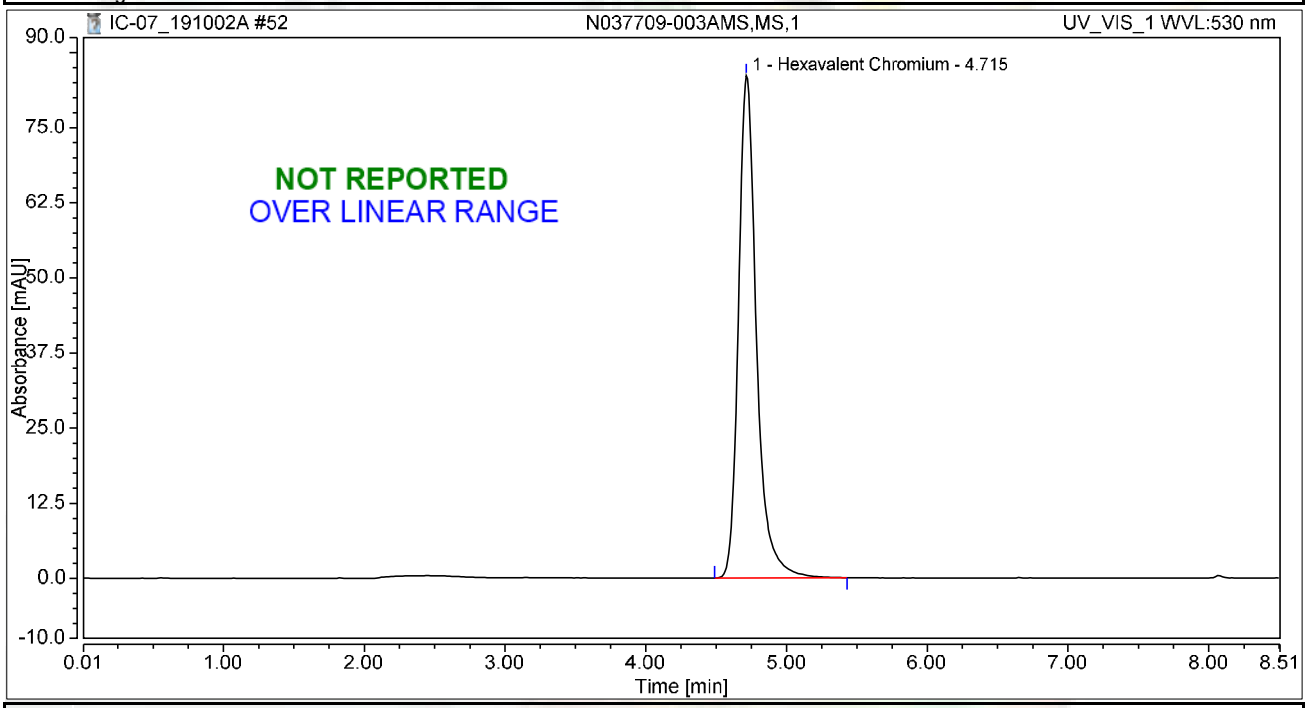
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	29.386	198.079	100.00	100.00	108.1862
Total:			**29.386**	**198.079**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**47**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 16:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

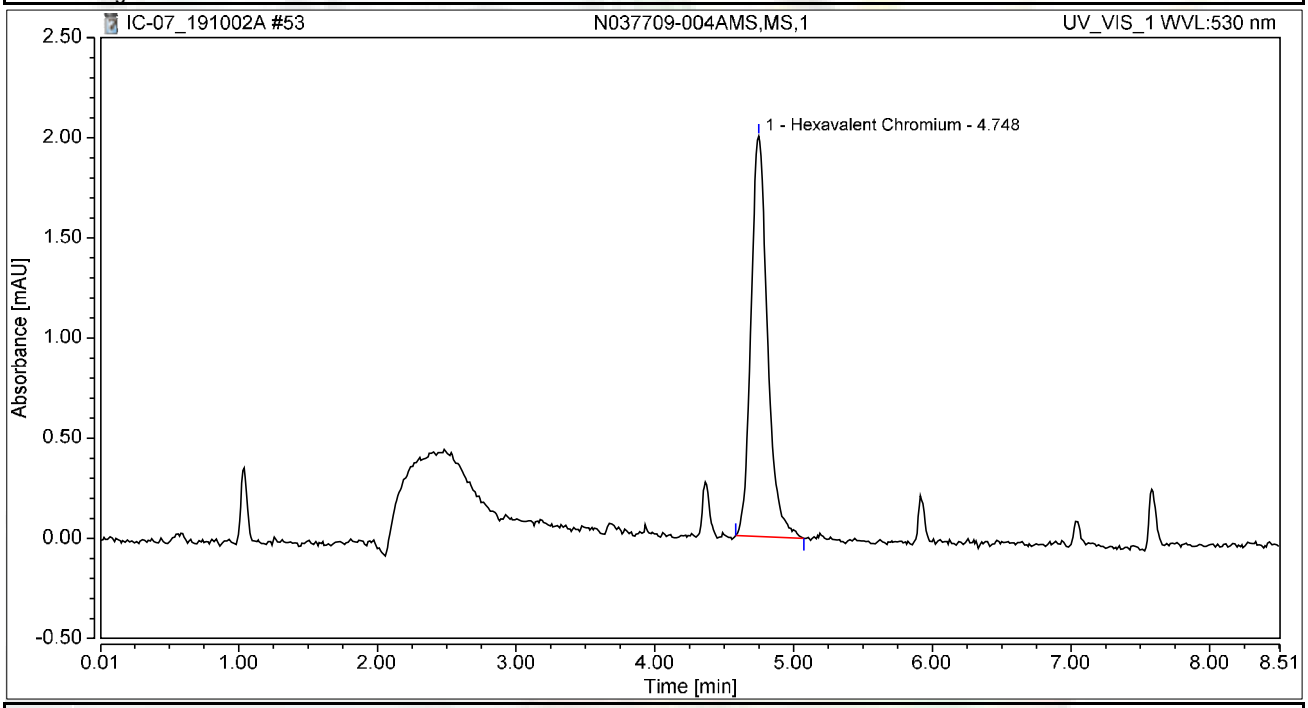
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	12.413	83.602	100.00	100.00	45.6977
Total:			**12.413**	**83.602**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**48**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

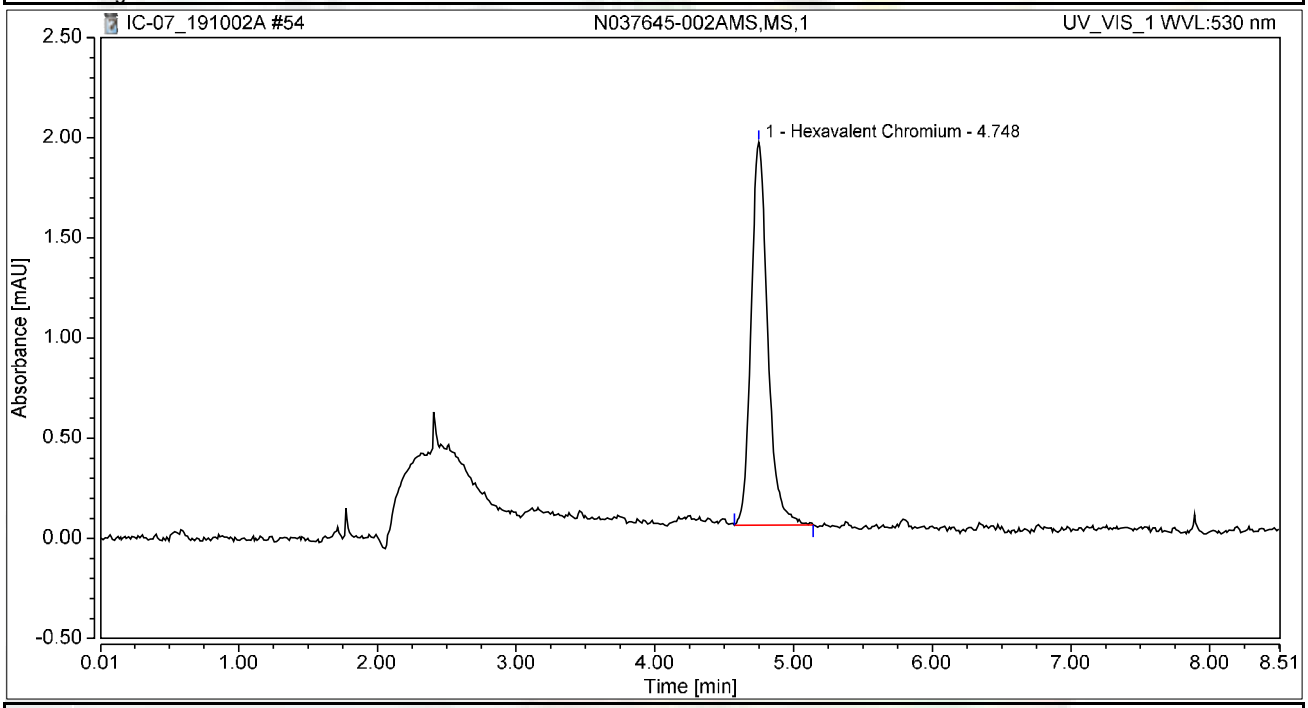
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.276	1.999	100.00	100.00	1.0151
Total:			**0.276**	**1.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037645-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**49**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

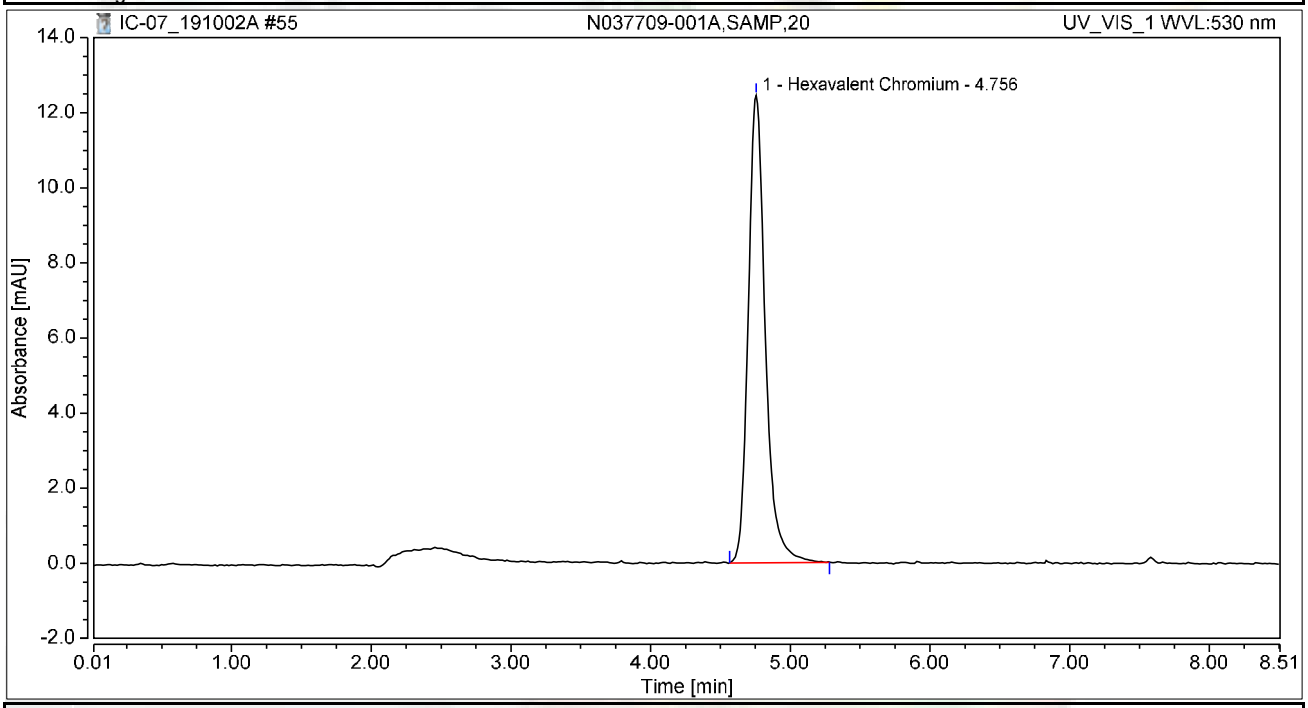
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.265	1.912	100.00	100.00	0.9756
Total:			**0.265**	**1.912**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

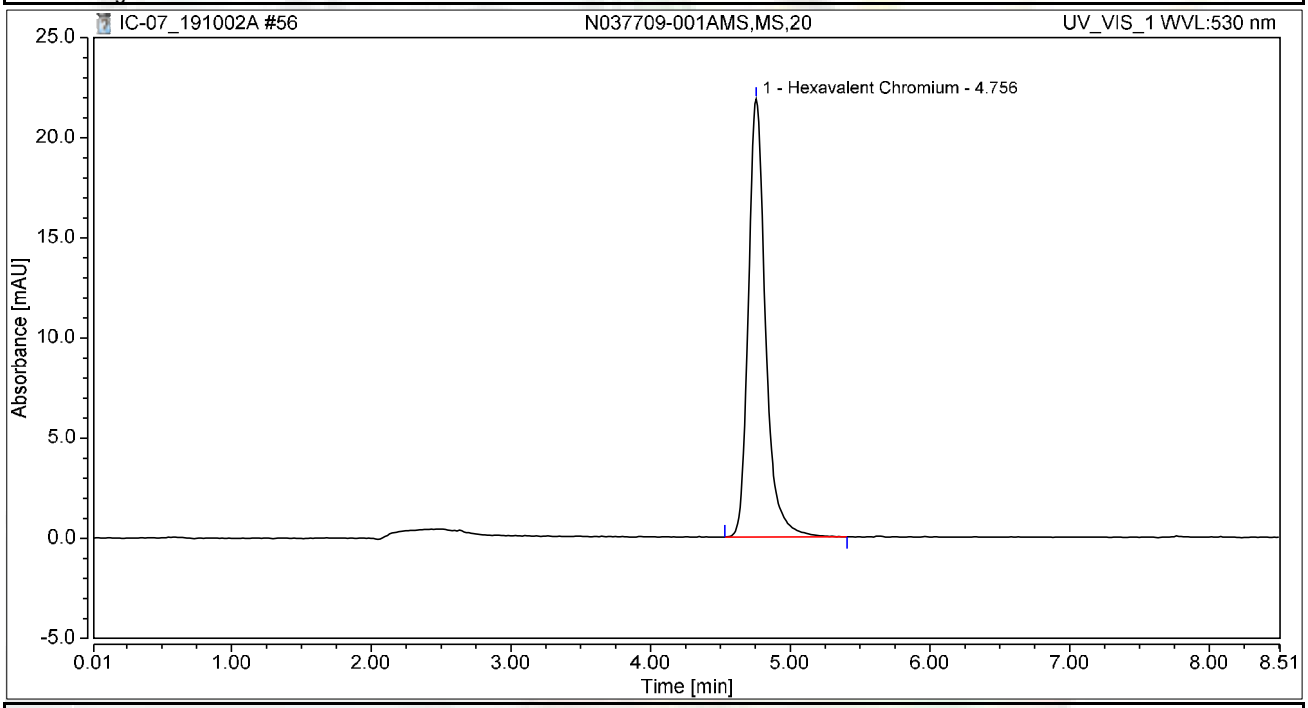
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	1.763	12.448	100.00	100.00	6.4923
Total:			**1.763**	**12.448**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-001AMS,MS,20**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

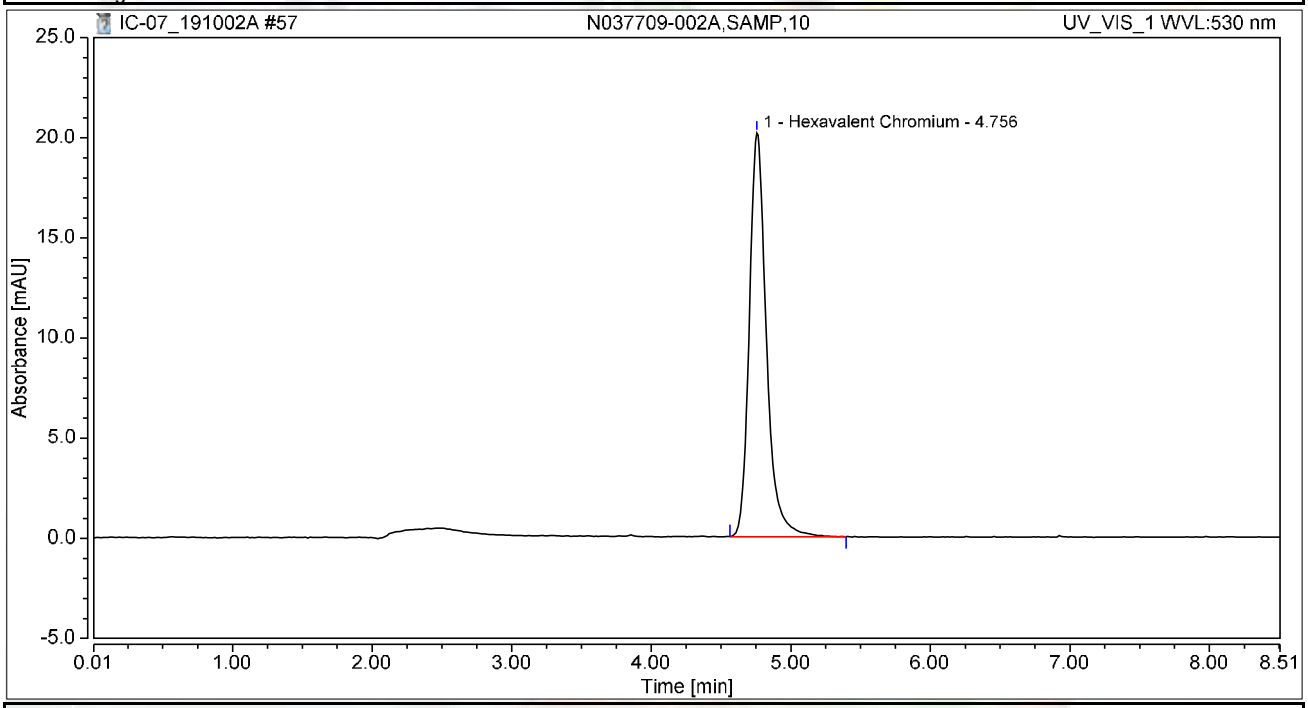
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.113	21.863	100.00	100.00	11.4610
Total:			**3.113**	**21.863**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 17:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

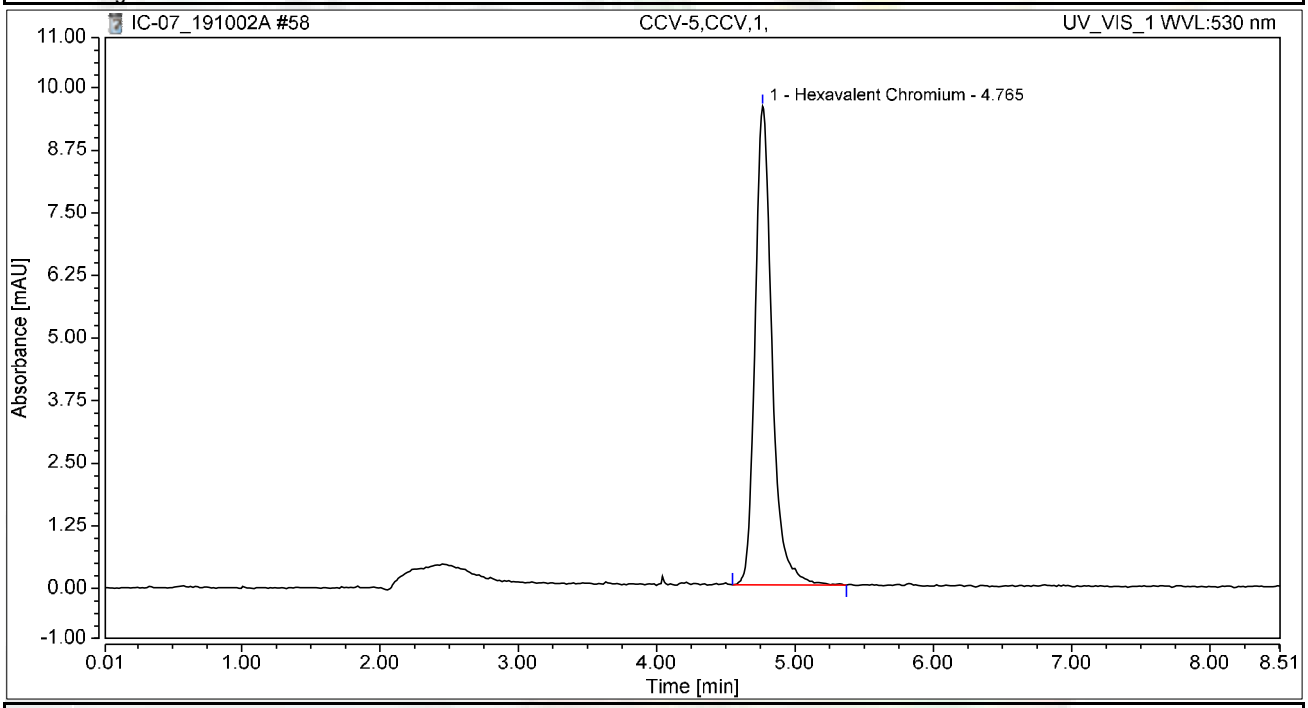
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	2.872	20.161	100.00	100.00	10.5727
Total:			**2.872**	**20.161**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

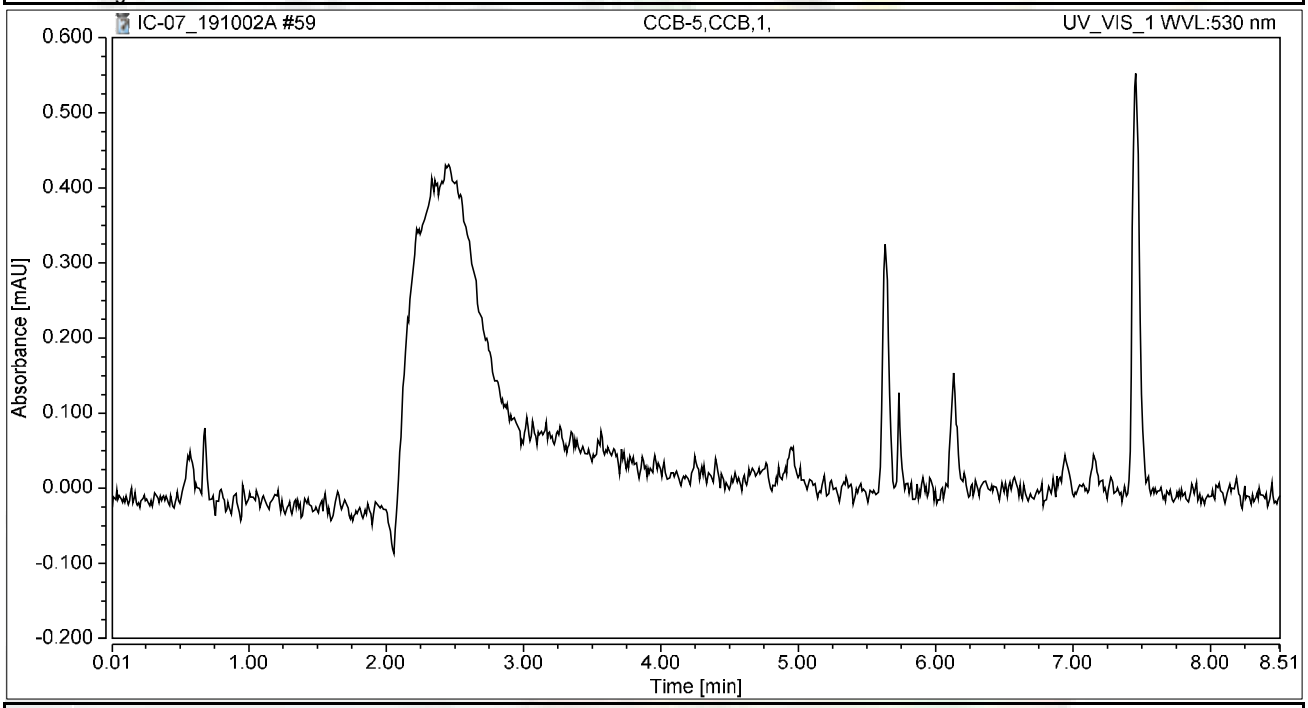
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.356	9.555	100.00	100.00	4.9922
Total:			**1.356**	**9.555**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

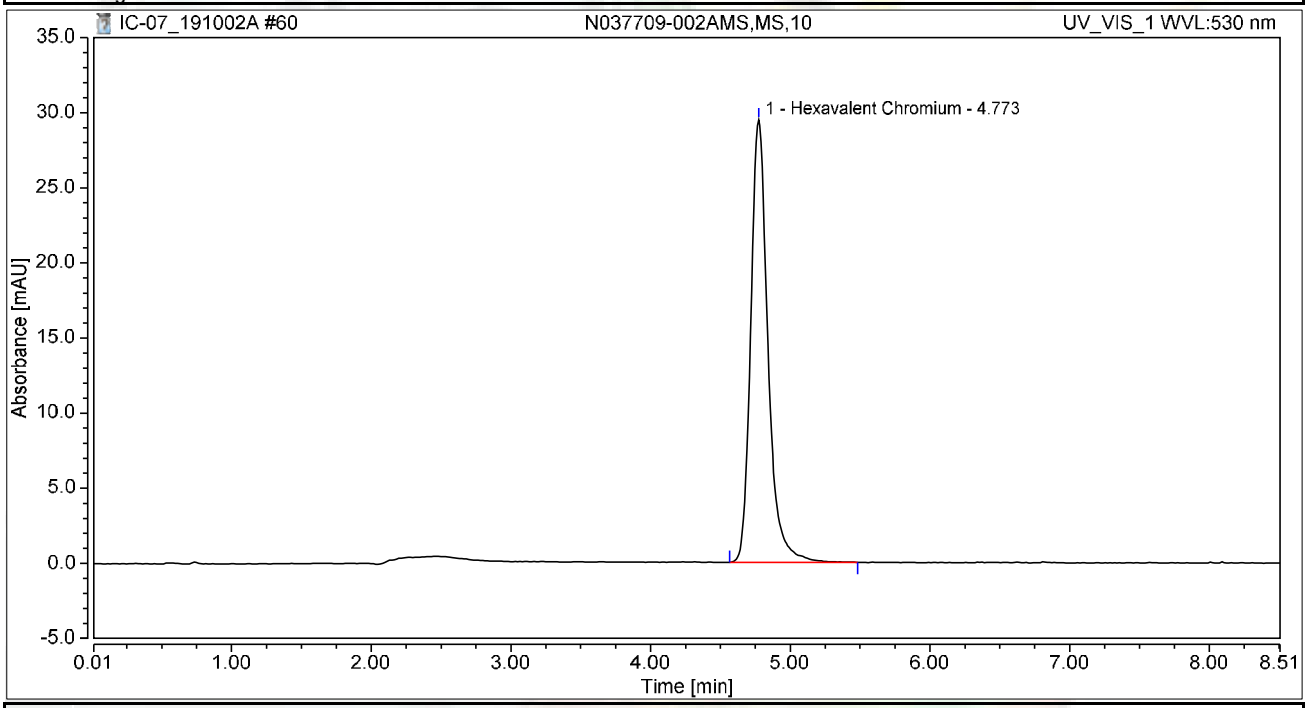
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-002AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

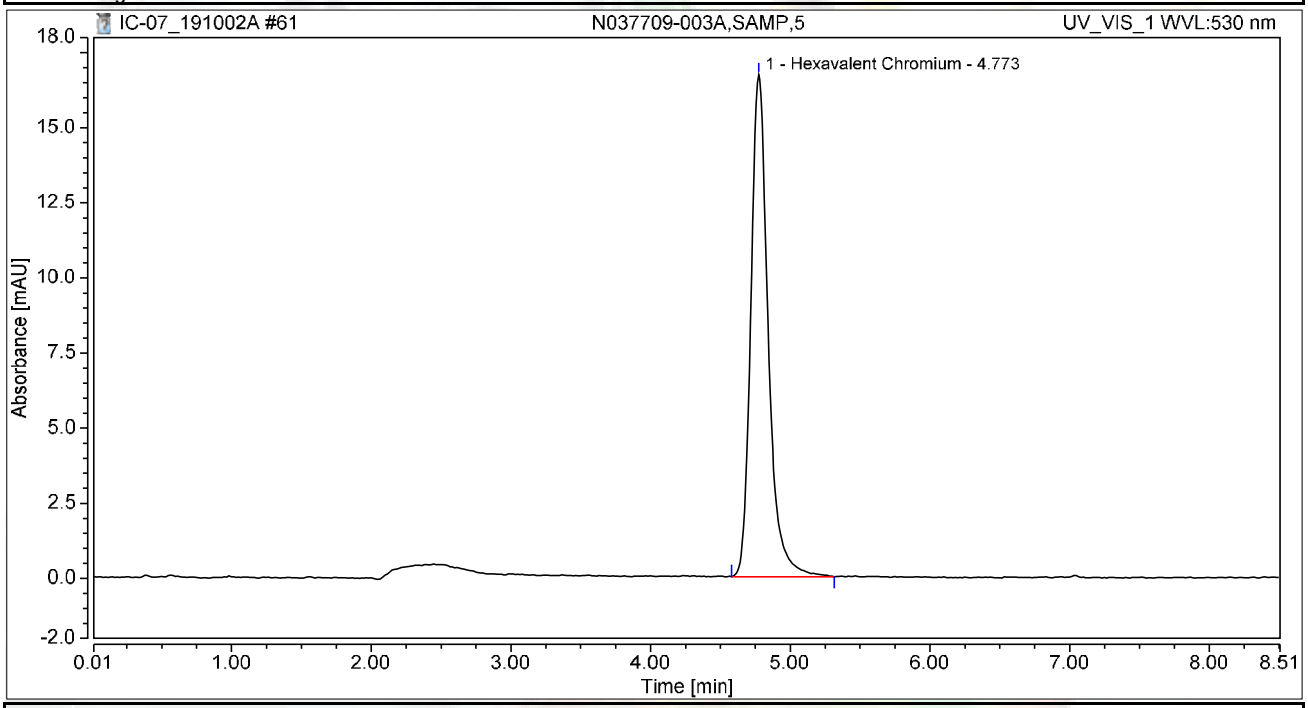
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	4.207	29.454	100.00	100.00	15.4886
Total:			**4.207**	**29.454**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

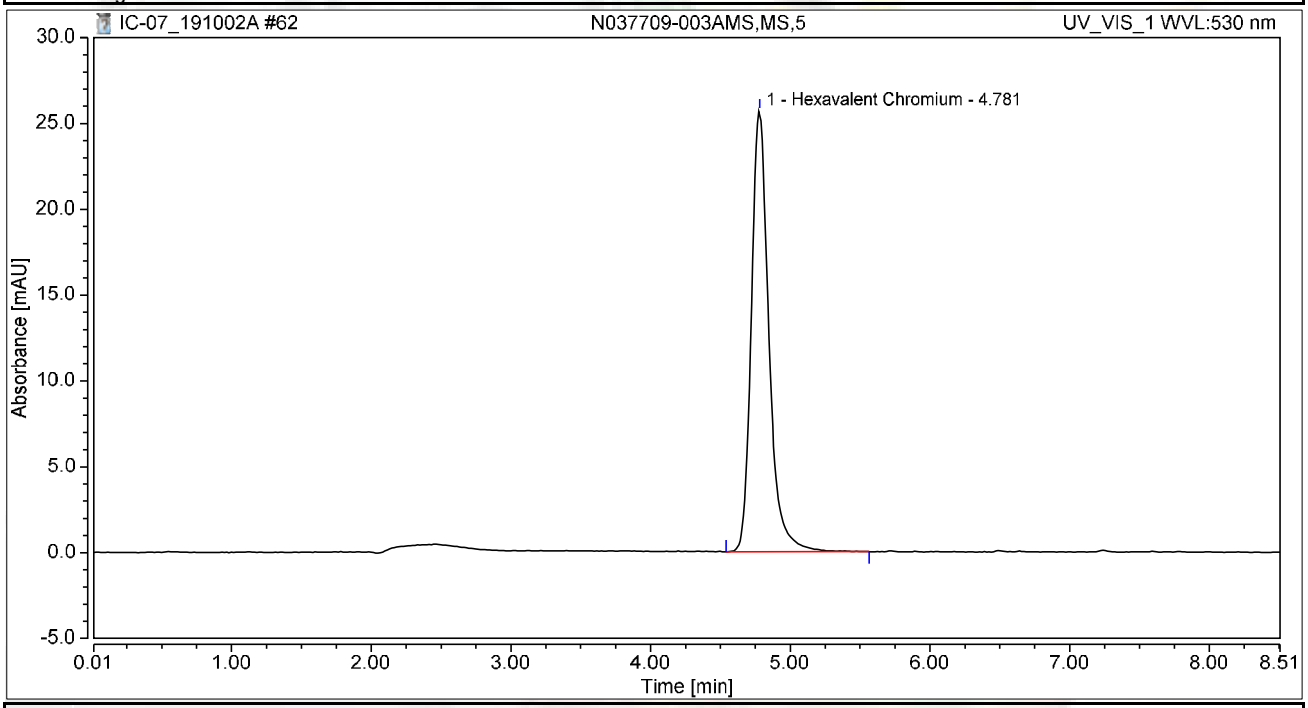
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	2.403	16.702	100.00	100.00	8.8486
Total:			**2.403**	**16.702**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

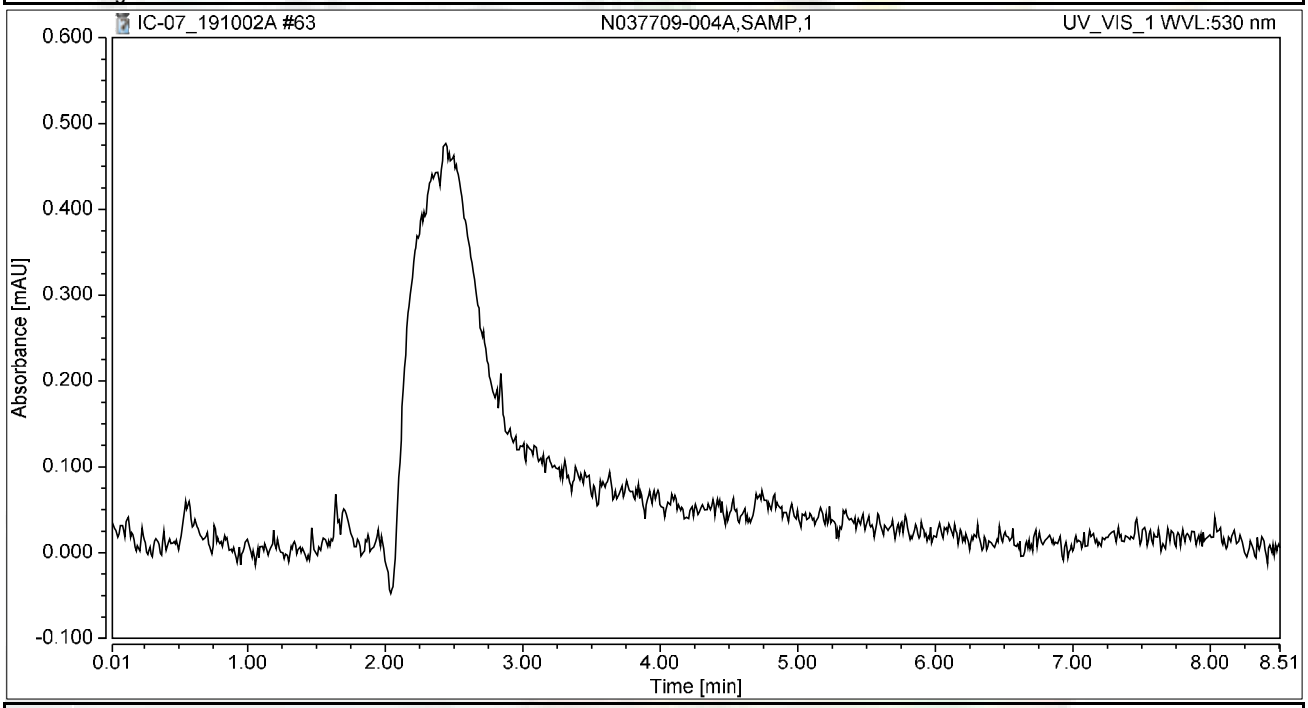
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.781	3.746	25.678	100.00	100.00	13.7899
Total:			**3.746**	**25.678**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N037709-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 18:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

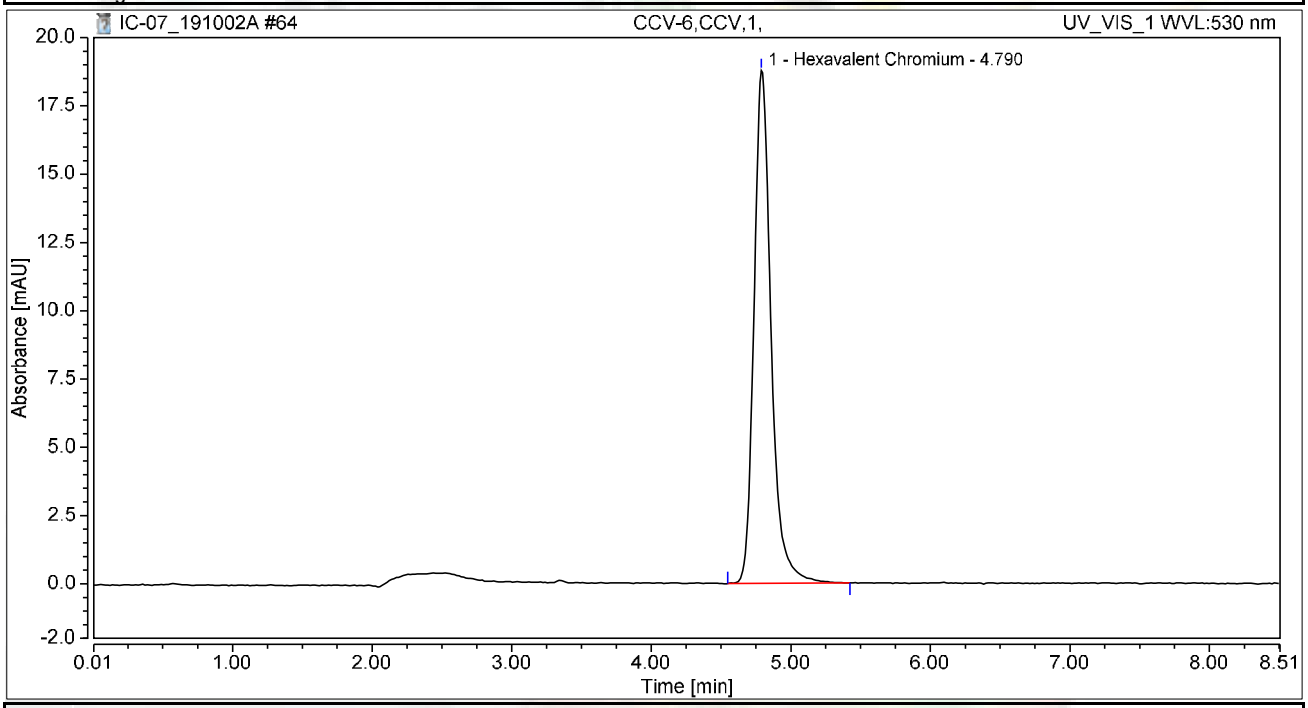
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

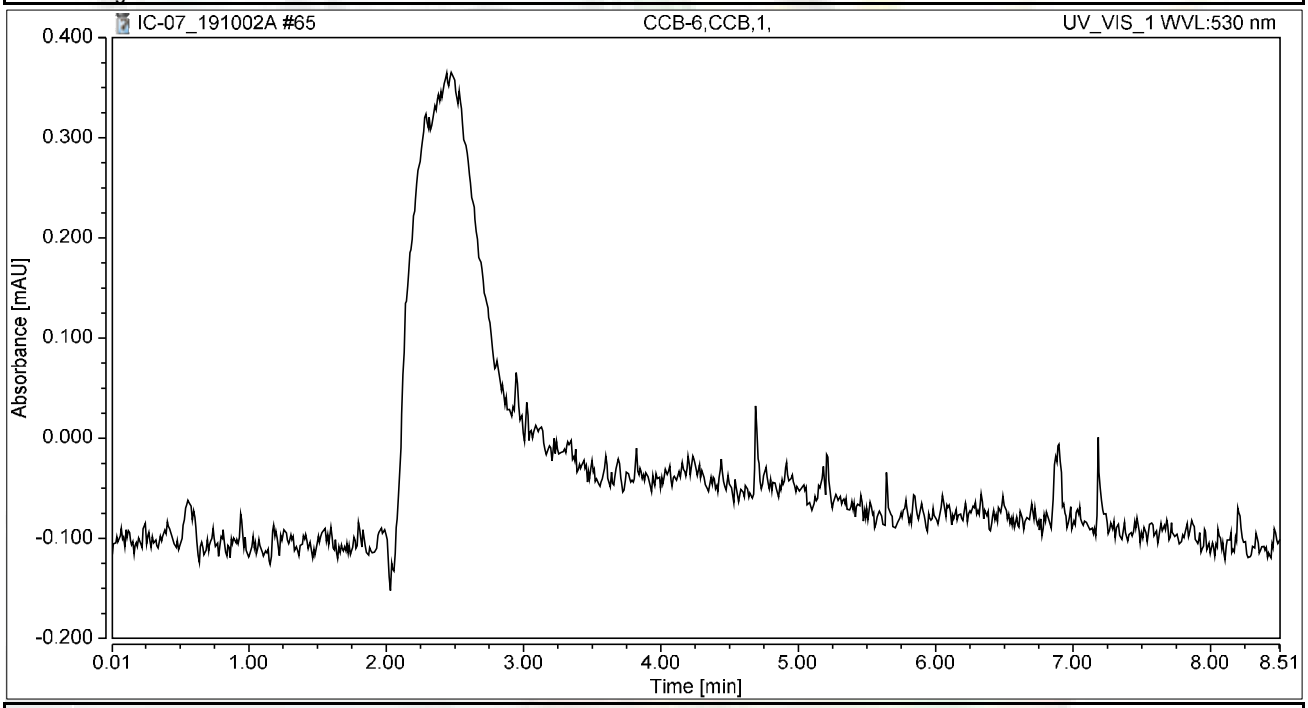
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	2.678	18.776	100.00	100.00	9.8588
Total:			**2.678**	**18.776**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

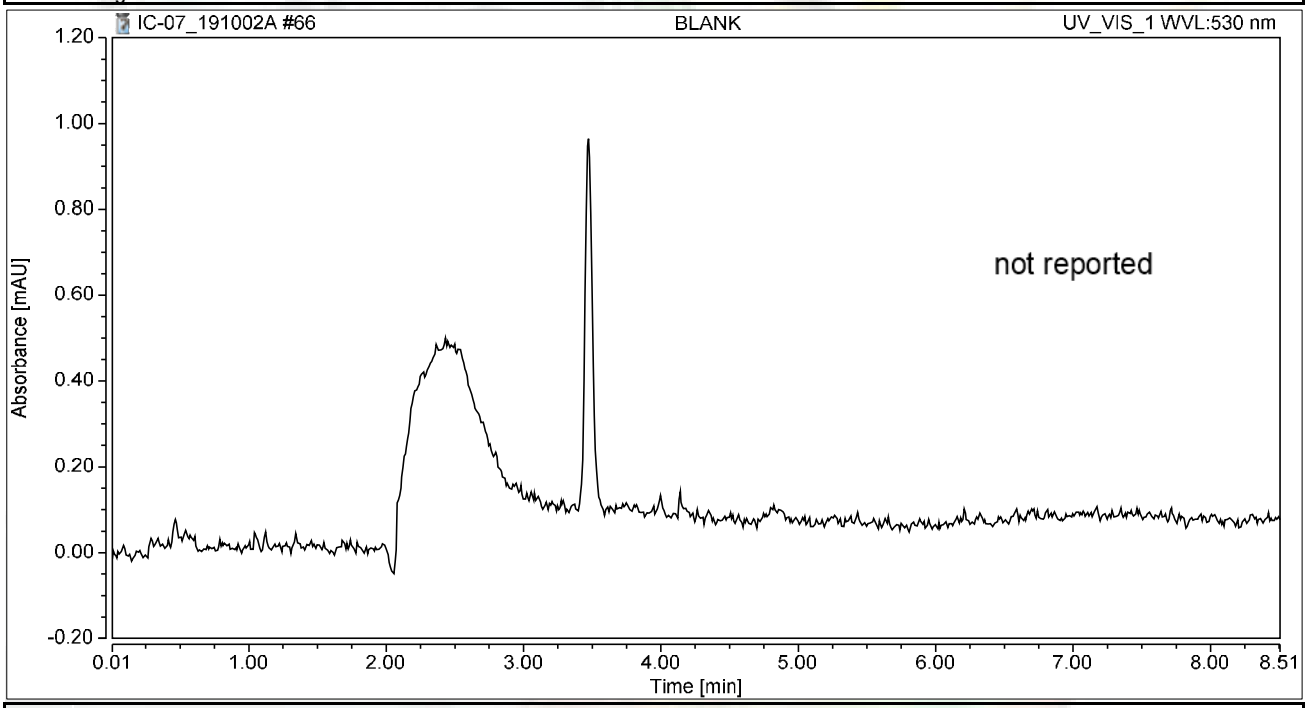
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190924_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/19 19:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136777 **Analyst:** MBC

ASSET #: N037648, 666, 665, 679, 709 **Date Analyzed:** 10/3/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			~~X~~	X	
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)		X		X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits		X		X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

~~%Rec of Nitrate/Nitrite as N in MS/MSD failed, low bias. Possibly due to matrix interference.~~

%Rec of Nitrate/Nitrite as N in CCV-3 failed, low bias. Affected samples were not reported.

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer MBC Date: 10/16/2019

2nd Level Reviewer NS 10/16/2019 Date:

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R136984 **Analyst:** MBC

ASSET #: N037679, N037666 **Date Analyzed:** 10/9/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X	X	
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

Detection in CCB-1 is > PQL. However, results of reported samples are > 10x the CCB detection.

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer MBC Date: 10/16/2019

2nd Level Reviewer NS 10/16/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N037666-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N = 0.4631 * 20
= 9.262 mg/L

Reporting result in two significant figures,

Nitrate/Nitrite-N = 9.3 mg/L

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

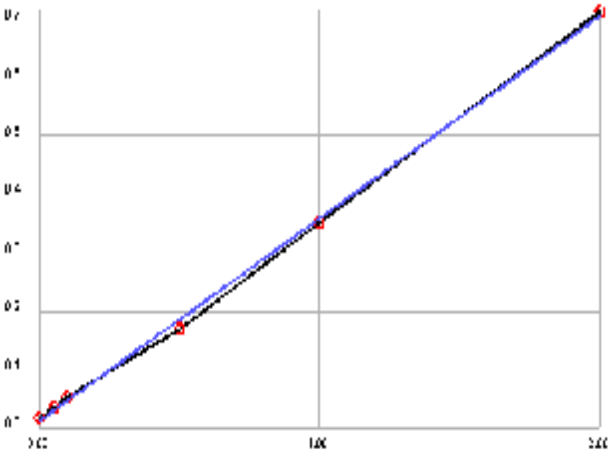
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3471x + 0.0115
Correlation	.999317

Calibrant	Energy	Set	Conc
1	0.0167	0.0000	0.0149
2	0.0340	0.0500	0.0647
3	0.0530	0.1000	0.1194
4	0.1685	0.5000	0.4522
5	0.3505	1.0000	0.9764
6	0.7136	2.0000	2.0224

Notes:

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
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Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**Yes**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

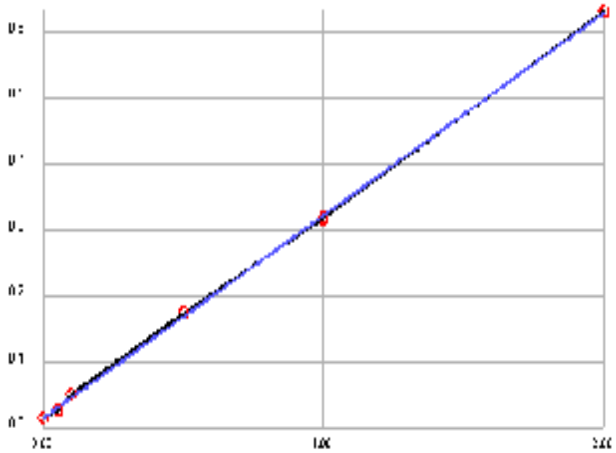
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3069x + 0.016
Correlation	.999818

Calibrant	Energy	Set	Conc
1	0.0147	0.0000	-0.0042
2	0.0273	0.0500	0.0368
3	0.0513	0.1000	0.1150
4	0.1746	0.5000	0.5168
5	0.3169	1.0000	0.9804
6	0.6314	2.0000	2.0052

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136777**
Client ID: **ICV**	Batch ID: **R136777**	TestNo: **SM4500-NO3**		Analysis Date: **10/3/2019**	SeqNo: **3526572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.455	0.050	0.5000	0	91.1	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136777**
Client ID: **CCV**	Batch ID: **R136777**	TestNo: **SM4500-NO3**		Analysis Date: **10/3/2019**	SeqNo: **3526583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.458	0.050	0.5000	0	91.6	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136777**
Client ID: **CCV**	Batch ID: **R136777**	TestNo: **SM4500-NO3**		Analysis Date: **10/3/2019**	SeqNo: **3526594**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.453	0.050	0.5000	0	90.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136984**
Client ID: **ICV**	Batch ID: **R136984**	TestNo: **SM4500-NO3**		Analysis Date: **10/9/2019**	SeqNo: **3536839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.507	0.050	0.5000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136984**
Client ID: **CCV**	Batch ID: **R136984**	TestNo: **SM4500-NO3**		Analysis Date: **10/9/2019**	SeqNo: **3536850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.542	0.050	0.5000	0	108	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136777**
Client ID: **ICB**	Batch ID: **R136777**	TestNo: **SM4500-NO3**		Analysis Date: **10/3/2019**	SeqNo: **3526573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136777**
Client ID: **CCB**	Batch ID: **R136777**	TestNo: **SM4500-NO3**		Analysis Date: **10/3/2019**	SeqNo: **3526584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136777**
Client ID: **CCB**	Batch ID: **R136777**	TestNo: **SM4500-NO3**		Analysis Date: **10/3/2019**	SeqNo: **3526595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136984**
Client ID: **ICB**	Batch ID: **R136984**	TestNo: **SM4500-NO3**		Analysis Date: **10/9/2019**	SeqNo: **3536840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **136984**
Client ID: **CCB**	Batch ID: **R136984**	TestNo: **SM4500-NO3**		Analysis Date: **10/9/2019**	SeqNo: **3536851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.051	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

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Las Vegas, NV. 89118
702-307-2659
702-307-2691
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Time start: 10-03-2019 16:58
Time end: 10-03-2019 19:49

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	19:09:56	0.0255		0.0204
2	<BLANK>	19:10:49	0.0166		0.0173
3	<CAL1>	19:11:45	0.0149	[0]	0.0167
4	<CAL2>	19:12:46	0.0647	[0.05]	0.0340
5	<CAL3>	19:13:40	0.1194	[0.1]	0.0530
6	<CAL4>	19:14:35	0.4522	[0.5]	0.1685
7	<CAL5>	19:15:31	0.9764	[1]	0.3505
8	<CAL6>	19:16:32	2.0224	[2]	0.7136
9	,BLANK,BLANK,1, NOT REPORTED	19:17:27	0.0702		0.0359
10	,ICV,ICV,1,	19:18:22	0.4553		0.1696
11	,ICB,ICB,1,	19:19:24	0.0244		0.0200
12	,MB-H2O,MBLK,1,	19:20:18	0.0137		0.0163
13	,LCS-H2O,LCS,1,	19:21:13	0.4530		0.1688
14	,N037648-009B,SAMP,1,	19:22:09	0.2534		0.0995
15	,N037648-009BDUP,DUP,1,	19:23:11	0.2450		0.0966
16	,N037666-001C,SAMP,20,	19:24:05	0.4631		0.1723
17	,N037666-001CMS,MS,20,	19:25:00	0.8595		0.3099
18	,N037666-001CMSD,MSD,20,	19:26:02	0.9453		0.3397
19	,N037665-005B,SAMP,1,	19:26:56	0.5075		0.1877
20	,N037665-006B,SAMP,1,	19:27:52	0.0491		0.0286
21	,BLANK, NOT REPORTED	19:28:47	0.0105		0.0152
22	,CCV-1,CCV,1,	19:29:49	0.4579		0.1705
23	,CCB-1,CCB,1,	19:30:43	0.0195		0.0183
24	,N037665-007B,SAMP,1,	19:31:45	0.0373		0.0245
25	,N037665-008B,SAMP,1,	19:32:40	0.0411		0.0258
26	,N037666-002C,SAMP,20,	19:33:34	0.6771		0.2466

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N037666-003C,SAMP,5,	19:34:24	1.0456		0.3745
28	,N037666-004C,SAMP,20, NOT REPORTED	19:35:07	0.3306		0.1263
29	,N037666-005C,SAMP,20,	19:35:55	0.5570		0.2049
30	,N037666-006C,SAMP,1,	19:36:39	1.2455		0.4439
31	,N037666-007C,SAMP,1,	19:37:21	1.2262		0.4372
32	,N037679-001B,SAMP,1,	19:38:04	1.0977		0.3926
33	,BLANK, NOT REPORTED	19:38:52	0.0281		0.0213
34	,CCV-2,CCV,1,	19:39:36	0.4533		0.1689
35	,CCB-2,CCB,1,	19:40:18	0.0149		0.0167
36	,N037679-002B,SAMP,1, NOT REPORTED	19:41:07	1.1331		0.4049
37	,N037679-003B,SAMP,1,	19:41:51	0.3850		0.1452
38	,N037679-004B,SAMP,20,	19:42:33	0.6970		0.2535
39	,N037679-005B,SAMP,10,	19:43:16	0.9577		0.3440
40	,N037679-006B,SAMP,20,	19:44:04	0.7008		0.2548
41	,N037679-007B,SAMP,20,	19:44:48	0.4493		0.1675
42	,N037709-001C,SAMP,20,	19:45:30	0.5089		0.1882
43	,BLANK,	19:46:19	0.0117		0.0156
44	,CCV-3,CCV,1,	19:47:03	0.4354		0.1627
45	,CCB-3,CCB,1,	19:47:45	0.0120		0.0157

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Time start: 10-09-2019 21:03
Time end: 10-09-2019 23:54

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	23:14:40	0.0013		0.0164
2	<BLANK>	23:15:39	-0.0026		0.0152
3	<CAL1>	23:16:35	-0.0042	[0]	0.0147
4	<CAL2>	23:17:30	0.0368	[0.05]	0.0273
5	<CAL3>	23:18:24	0.1150	[0.1]	0.0513
6	<CAL4>	23:19:26	0.5168	[0.5]	0.1746
7	<CAL5>	23:20:21	0.9804	[1]	0.3169
8	<CAL6>	23:21:17	2.0052	[2]	0.6314
9	,BLANK,BLANK,1, NOT REPORTED	23:22:17	0.5823		0.1947
10	,ICV,ICV,1,	23:23:13	0.5070		0.1716
11	,ICB,ICB,1,	23:24:08	0.0111		0.0194
12	,MB-H2O,MBLK,1,	23:25:02	-0.0019		0.0154
13	,LCS-H2O,LCS,1,	23:26:04	0.5161		0.1744
14	,N037679-002B,SAMP,1,	23:27:00	1.2603		0.4028
15	,N037679-002BDUP,DUP,1,	23:27:55	1.3242		0.4224
16	,N037679-004B,SAMP,20,	23:28:56	0.8263		0.2696
17	,N037679-004BMS,MS,20,	23:29:51	1.2939		0.4131
18	,N037679-004BMSD,MSD,20,	23:30:47	1.3597		0.4333
19	,N037666-004C,SAMP,5,	23:31:41	1.1486		0.3685
20	,N037679-003B,SAMP,1, NOT REPORTED	23:32:43	0.4669		0.1593
21	,BLANK, NOT REPORTED	23:33:38	0.0505		0.0315
22	,CCV-1,CCV,1,	23:34:34	0.5419		0.1823
23	,CCB-1,CCB,1,	23:35:34	0.0512		0.0317
24	,N037679-005B,SAMP,10, NOT REPORTED	23:36:30	1.0264		0.3310
25	,N037679-006B,SAMP,20, NOT REPORTED	23:37:25	0.8032		0.2625
26	,N037679-007B,SAMP,20, NOT REPORTED	23:38:25	0.6041		0.2014

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N037709-001C,SAMP,20,	NOT REPORTED	23:39:09	0.6184	0.2058
28	,N037709-002C,SAMP,20,		23:39:53	0.6250	0.2078
29	,N037709-003C,SAMP,10,		23:40:41	0.5474	0.1840
30	,N037718-001D,SAMP,5,		23:41:24	0.7885	0.2580
31	,N037718-002D,SAMP,5,		23:42:06	0.6253	0.2079
32	,N037722-001E,SAMP,5,		23:42:56	0.5702	0.1910
33	,BLANK,		23:43:38	0.0518	0.0319
34	,CCV-2,CCV,1,		23:44:21	0.5552	0.1864
35	,CCB-2,CCB,1,		23:45:11	0.0476	0.0306
36	,N037722-002E,SAMP,5,		23:45:53	0.5855	0.1957
37	,N037723-001C,SAMP,1,		23:46:36	0.0850	0.0421
38	,N037723-002C,SAMP,1,		23:47:18	1.0824	0.3482
39	,N037723-003C,SAMP,1,		23:48:08	0.0766	0.0395
40	,N037723-004C,SAMP,5,		23:48:50	0.9573	0.3098
41	,N037736-001E,SAMP,5,		23:49:33	0.5774	0.1932
42	,N037736-002E,SAMP,5,		23:50:22	0.6132	0.2042
43	,BLANK,		23:51:05	0.0495	0.0312
44	,CCV-3,CCV,1,		23:51:48	0.5546	0.1862
45	,CCB-3,CCB,1,		23:52:30	0.0450	0.0298

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/03/2019
Time Analyzed: 4:58 PM ; 7:49 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R190913A
Color reagent: R191003A
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190821B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037648-009B		8.29							
N037666-001C		7.77							
N037665-005B		8.97							
N037665-006B		8.39							
N037665-007B		6.85							
N037665-008B		7.57							
N037666-002C		8.73							
N037666-003C		8.52							
N037666-004C		8.24							
N037666-005C		8.82							
N037666-006C		7.39							
N037666-007C		8.15							
N037679-001B		8.30							
N037679-002B		8.08							
N037679-003B		8.01							
N037679-004B		8.71							
N037679-005B		7.98							
N037679-006B		7.99							
N037679-007B		8.46							
N037709-001C		7.81							

Advanced Technology Laboratories, Inc.
Book # 1

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/09/2019
Time Analyzed: 9:03 PM ; 11:54 PM
Analyzed By: MBC

Reagent ID #
Ammonium Chloride reagent/Buffer: R191004B
Color reagent: R191008D
2% Copper Sulfate: R190904B
Ammonium Hydroxide: CINV-190919A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N037679-002B		8.08							
N037679-004B		8.71							
N037666-004C		8.24							
N037679-003B		8.01							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75504
ASSET #: N037666
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/11/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X	X	
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)		X			X	
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).		X			X	
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented	X			X		
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N037666-003B / 006B / 007B failed. For rerun.
IS of Mo in ICSAB3 failed. Corrective Action Report ID: 2902
% Rec of Cr in N037666-001B-PS failed, low bias. However, LCS passed criteria.
Detection of Cr in CCB4 and CCB5 is greatr than 1/2 PQL. N037666-006B / 007B for rerun.
Detection of Mo in CCB2 is greater than 1/2 PQL. However, sample is greater than 5X the CCB detection.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 75504
ASSET #: N037666
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/14/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits			X			X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Cr & Se rerun

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 10/15/2019

2nd Level Reviewer NS 10/15/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Molybdenum concentration, in ug/L , in the original sample as follows:

Molybdenum , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N037666-001B** , the concentration in ug/L is calculated as follows:

Molybdenum , ug/L = 64.7468 * 1 *(25 / 25)

Molybdenum , ug/L = 64.7468

Reporting results in two significant figures,

Molybdenum, ug/L = 65

% RSD SUMMARY

PERCENT RSD SUMMARY: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	13.529	15	PASS	0.19	4.38	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	12.759	15	PASS	0.55	18.891	15	NR!
Std3-5/50 ppb	ICAL	1	5.08	1.978	15	PASS	5.22	0.975	15	PASS
Std4-10/100 ppb	ICAL	1	10.07	1.752	15	PASS	10.28	0.387	15	PASS
Std5-20/200 ppb	ICAL	1	20.2	1.294	15	PASS	20.36	0.962	15	PASS
Std6-40/400 ppb	ICAL	1	39.97	1.222	15	PASS	40.81	0.278	15	PASS
Std7-100/1000 ppb	ICAL	1	99.96	1.395	15	PASS	100.57	1.394	15	PASS
Std8-200/2000 ppb	ICAL	1	197.02	0.399	15	PASS	199.5	0.247	15	PASS
ICV	ICV	1	10.95	2.574	15	PASS	108.12	1.189	15	PASS
ICB	ICB	1	0.24	4.08	15	PASS	0.15	30.57	15	<PQL
LLICV	CCV1	1	1.2	7.085	20	PASS	0.66	3.033	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.32	3.135	15	PASS	19.69	2.769	15	PASS
LLICV	CCV1	1	1.01	2.407	20	PASS	0.53	3.221	20	PASS
CCV1	CCV	1	19.92	0.717	15	PASS	20.69	2.622	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	19.82	1.974	15	PASS	20.28	1.599	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.74	2.441	15	PASS	19.47	1.005	15	PASS
MB-75504	MBLK	1	<0.000	N/A	15	<PQL	0.03	49.588	15	<PQL
LCS-75504	LCS	1	10.45	2.323	15	PASS	106.71	0.286	15	PASS
N037666-001B	SAMP	1	76.97	0.744	15	PASS	<0.000	N/A	15	<PQL
N037666-001B	SAMP	5	15.98	1.08	15	PASS	<0.000	N/A	15	<PQL
N037666-001B	SAMP	25	3.24	2.911	15	PASS	<0.000	N/A	15	<PQL
N037666-001B-PS	PS	1	84.86	1.695	15	PASS	94.85	1.765	15	PASS
N037666-001B-PS	PS	5	18.32	2.389	15	PASS	23.14	1.698	15	PASS
N037666-001B-MS	MS	1	88.13	0.911	15	PASS	93.92	0.477	15	PASS
N037666-001B-MS	MS	5	18.48	1.258	15	PASS	20.23	1.948	15	PASS
N037666-001B-MSD	MSD	1	88.68	0.762	15	PASS	93.31	0.732	15	PASS
CCV3	CCV	1	19.53	0.214	15	PASS	20.12	0.747	15	PASS
CCB3	CCB	1	0.02	130.341	15	<PQL	0.13	21.916	15	<PQL
N037666-001B-MSD	MSD	5	18.34	0.515	15	PASS	19.51	3.082	15	PASS
N037666-002B	SAMP	1	156.2	0.299	15	PASS	7.46	6.561	15	PASS
N037666-002B	SAMP	5	32.13	1.674	15	PASS	1.75	6.36	15	PASS
N037666-003B	SAMP	1	328.97	1.183	15	PASS	<0.000	N/A	15	<PQL
N037666-003B	SAMP	5	68.24	1.216	15	PASS	<0.000	N/A	15	<PQL
N037666-004B	SAMP	1	305.66	0.622	15	PASS	<0.000	N/A	15	<PQL
N037666-004B	SAMP	5	63.77	0.966	15	PASS	<0.000	N/A	15	<PQL
N037666-005B	SAMP	1	10638.67	1.002	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037666-005B	SAMP	5	2188.44	0.757	15	PASS	<0.000	N/A	15	<PQL
N037666-005B	SAMP	100	110.66	1.314	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	21.52	0.706	15	PASS	20.22	2.696	15	PASS
CCB4	CCB	1	1.14	4.748	15	PASS	<0.000	N/A	15	<PQL
N037666-006B	SAMP	1	2.2	2.106	15	PASS	<0.000	N/A	15	<PQL
N037666-006B	SAMP	5	1.22	3.285	15	PASS	<0.000	N/A	15	<PQL
N037666-007B	SAMP	1	2.13	2.939	15	PASS	<0.000	N/A	15	<PQL
N037666-007B	SAMP	5	0.84	2.776	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	20.08	1.712	15	PASS	19.75	1.576	15	PASS
CCB5	CCB	1	0.56	5.52	15	PASS	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.36	7.65	15	PASS	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.48	1.143	15	PASS	18.88	1.181	15	PASS

PERCENT RSD SUMMARY: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.13	24.733	15	NR!	0.27	65.458	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.51	7.562	15	PASS	0.45	25.757	15	<PQL
Std3-5/50 ppb	ICAL	1	4.99	6.784	15	PASS	5.13	11.036	15	PASS
Std4-10/100 ppb	ICAL	1	10.36	1.303	15	PASS	10.14	13.235	15	PASS
Std5-20/200 ppb	ICAL	1	20.06	2.751	15	PASS	20.64	3.96	15	PASS
Std6-40/400 ppb	ICAL	1	39.53	0.547	15	PASS	40.45	3.37	15	PASS
Std7-100/1000 ppb	ICAL	1	100.14	1.26	15	PASS	101.23	2.141	15	PASS
Std8-200/2000 ppb	ICAL	1	197.96	1.011	15	PASS	199.22	1.988	15	PASS
ICV	ICV	1	10.19	0.715	15	PASS	9.94	10.551	15	PASS
ICB	ICB	1	0.01	151.575	15	<PQL	0.08	173.205	15	<PQL
LLICV	CCV1	1	0.1	7.636	20	PASS	0.4	2.17	20	PASS
ICSA1	ICSA	1	0.02	147.87	15	<PQL	0.07	99.177	15	<PQL
ICSAB1	ICSAB	1	20.8	0.969	15	PASS	22.21	13.014	15	PASS
LLICV	CCV1	1	0.2	39.666	20	NR!	0.7	28.13	20	~~NR!~~ FAIL
CCV1	CCV	1	20.38	1.659	15	PASS	20.51	7.895	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.19	142.223	15	<PQL
CCV2	CCV	1	20.01	1.134	15	PASS	19.58	5.204	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.31	13.56	15	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.42	34.176	15	<PQL
ICSAB2	ICSAB	1	21.1	4.304	15	PASS	19.72	14.825	15	PASS
MB-75504	MBLK	1	<0.000	N/A	15	<PQL	0.25	66.208	15	<PQL
LCS-75504	LCS	1	10.34	4.383	15	PASS	10.37	3.953	15	PASS
N037666-001B	SAMP	1	2.49	5.152	15	PASS	8	9.204	15	PASS
N037666-001B	SAMP	5	0.54	5.218	15	PASS	1.99	2.927	15	PASS
N037666-001B	SAMP	25	0.08	96.736	15	<PQL	0.55	10.752	15	PASS
N037666-001B-PS	PS	1	12.82	1.59	15	PASS	17.88	5.219	15	PASS
N037666-001B-PS	PS	5	2.54	5.685	15	PASS	4.38	6.772	15	PASS
N037666-001B-MS	MS	1	13.24	3.548	15	PASS	18.33	0.619	15	PASS
N037666-001B-MS	MS	5	2.59	1.021	15	PASS	3.43	24.38	15	NR!
N037666-001B-MSD	MSD	1	13.19	3.491	15	PASS	18.57	2.303	15	PASS
CCV3	CCV	1	19.79	2.171	15	PASS	20.38	7.33	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.22	77.723	15	<PQL
N037666-001B-MSD	MSD	5	2.57	5.521	15	PASS	4.09	6.411	15	PASS
N037666-002B	SAMP	1	0.61	8.652	15	PASS	9.84	2.216	15	PASS
N037666-002B	SAMP	5	0.05	38.824	15	<PQL	2.29	12.668	15	PASS
N037666-003B	SAMP	1	2.36	5.472	15	PASS	4.13	19.824	15	NR!
N037666-003B	SAMP	5	0.5	21.047	15	NR!	0.97	21.683	15	NR!
N037666-004B	SAMP	1	2.31	4	15	PASS	4.6	4.085	15	PASS
N037666-004B	SAMP	5	0.42	10.413	15	PASS	0.9	18.696	15	NR!
N037666-005B	SAMP	1	3.06	3.102	15	PASS	10.19	9.534	15	PASS

JRB 10/21/2019

PERCENT RSD SUMMARY: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N037666-005B	SAMP	5	0.61	12.321	15	PASS	1.67	31.106	15	NR!
N037666-005B	SAMP	100	<0.000	N/A	15	<PQL	0.17	77.59	15	<PQL
CCV4	CCV	1	20.63	3.947	15	PASS	19.41	8.295	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.05	87.018	15	<PQL
N037666-006B	SAMP	1	1.48	9.932	15	PASS	1.26	36.412	15	NR!
N037666-006B	SAMP	5	0.21	6.756	15	PASS	0.23	120.153	15	<PQL
N037666-007B	SAMP	1	1.54	5.448	15	PASS	1.53	48.426	15	NR!
N037666-007B	SAMP	5	0.25	7.761	15	PASS	0.27	24.765	15	<PQL
CCV5	CCV	1	20.16	0.775	15	PASS	20.9	12.223	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.12	34.521	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.11	43.815	15	<PQL
ICSAB3	ICSAB	1	20.85	0.949	15	PASS	21.08	6.496	15	PASS

PERCENT RSD SUMMARY: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.08	46.591	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.49	5.961	15	PASS
Std3-5/50 ppb	ICAL	1	4.94	2.554	15	PASS
Std4-10/100 ppb	ICAL	1	10.07	1.56	15	PASS
Std5-20/200 ppb	ICAL	1	19.99	0.929	15	PASS
Std6-40/400 ppb	ICAL	1	39.63	1.331	15	PASS
Std7-100/1000 ppb	ICAL	1	100.14	0.791	15	PASS
Std8-200/2000 ppb	ICAL	1	200	0.613	15	PASS
ICV	ICV	1	10.56	1.861	15	PASS
ICB	ICB	1	0.11	20.368	15	<PQL
LLICV	CCV1	1	0.58	21.652	20	NR!
ICSA1	ICSA	1	0.17	15.826	15	<PQL
ICSAB1	ICSAB	1	22.37	1.911	15	PASS
LLICV	CCV1	1	0.71	6.36	20	PASS
CCV1	CCV	1	20.15	0.787	15	PASS
CCB1	CCB	1	0.21	2.232	15	PASS
CCV2	CCV	1	20.63	2.05	15	PASS
CCB2	CCB	1	0.34	6.914	15	PASS
ICSA2	ICSA	1	0.16	13.68	15	PASS
ICSAB2	ICSAB	1	22.98	0.887	15	PASS
MB-75504	MBLK	1	0.19	13.198	15	PASS
LCS-75504	LCS	1	10.66	0.11	15	PASS
N037666-001B	SAMP	1	64.75	1.073	15	PASS
N037666-001B	SAMP	5	13.18	3.368	15	PASS
N037666-001B	SAMP	25	2.6	3.634	15	PASS
N037666-001B-PS	PS	1	74.73	0.588	15	PASS
N037666-001B-PS	PS	5	15.4	2.421	15	PASS
N037666-001B-MS	MS	1	76.22	0.74	15	PASS
N037666-001B-MS	MS	5	15.56	2.349	15	PASS
N037666-001B-MSD	MSD	1	76.33	1.185	15	PASS
CCV3	CCV	1	20.53	1.206	15	PASS
CCB3	CCB	1	0.25	14.534	15	PASS
N037666-001B-MSD	MSD	5	15.4	1.317	15	PASS
N037666-002B	SAMP	1	64.5	0.931	15	PASS
N037666-002B	SAMP	5	13.25	0.804	15	PASS
N037666-003B	SAMP	1	32.15	0.152	15	PASS
N037666-003B	SAMP	5	6.8	3.17	15	PASS
N037666-004B	SAMP	1	32.58	1.578	15	PASS
N037666-004B	SAMP	5	6.55	0.817	15	PASS
N037666-005B	SAMP	1	32.74	0.867	15	PASS

PERCENT RSD SUMMARY: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N037666-005B	SAMP	5	6.81	2.892	15	PASS
N037666-005B	SAMP	100	0.48	1.182	15	PASS
CCV4	CCV	1	20.45	2.532	15	PASS
CCB4	CCB	1	0.2	12.659	15	PASS
N037666-006B	SAMP	1	15.83	2.136	15	PASS
N037666-006B	SAMP	5	3.25	4.025	15	PASS
N037666-007B	SAMP	1	15.2	0.795	15	PASS
N037666-007B	SAMP	5	3	4.34	15	PASS
CCV5	CCV	1	20.32	1.614	15	PASS
CCB5	CCB	1	0.16	17.994	15	<PQL
ICSA3	ICSA	1	0.11	10.383	15	PASS
ICSAB3	ICSAB	1	22.39	1.339	15	PASS

PERCENT RSD SUMMARY: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.08	4.817	15	PASS	0.13	83.678	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.49	6.356	15	PASS	0.57	9.679	15	PASS
Std3-5/50 ppb	ICAL	1	5.14	1.152	15	PASS	4.53	13.876	15	PASS
Std4-10/100 ppb	ICAL	1	10.32	1.069	15	PASS	9.18	6.15	15	PASS
Std5-20/200 ppb	ICAL	1	20.54	0.446	15	PASS	20.58	1.035	15	PASS
Std6-40/400 ppb	ICAL	1	40.55	2.199	15	PASS	40.23	3.778	15	PASS
Std7-100/1000 ppb	ICAL	1	102.21	1.745	15	PASS	100.07	2.928	15	PASS
Std8-200/2000 ppb	ICAL	1	198.71	0.477	15	PASS	199.92	3.297	15	PASS
ICV	ICV	1	10.32	1.561	15	PASS	10.75	4	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.09	86.586	15	<PQL
LLICV	CCV1	1	1	3.097	20	PASS	0.5	4.64	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0	1761.856	15	<PQL
ICSAB1	ICSAB	1	20.83	0.587	15	PASS	20.99	12.989	15	PASS
LLICV	CCV1	1	1.09	6.007	20	PASS	0.47	56.07	20	<PQL
CCV1	CCV	1	20.2	0.852	15	PASS	19.95	5.339	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	19.7	0.831	15	PASS	18.69	5.775	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.04	228.247	15	<PQL
N037666-003B	SAMP	1	356.84	5.598	15	PASS	4.14	14.556	15	PASS
N037666-006B	SAMP	1	1.03	5.671	15	PASS	1.08	33.331	15	NR!
N037666-007B	SAMP	1	1.1	3.498	15	PASS	0.89	11.518	15	PASS
CCV3	CCV	1	20.01	1.814	15	PASS	20.33	1.894	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.07	95.604	15	<PQL
N037666-006B	SAMP	1	1	7.591	15	PASS	0.91	9.863	15	PASS
CCV4	CCV	1	19.6	0.85	15	PASS	18.81	6.142	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.06	1.633	15	PASS	20.41	1.945	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 191011A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1011001.D	RINSE	RINSE	1	10/11/19 1:58 AM
A1011002.D	Cal Blank	IBLK	1	10/11/19 2:03 AM
A1011003.D	Std1-0.1/1 ppb	ICAL	1	10/11/19 2:07 AM
A1011004.D	Std2-0.5/5 ppb	ICAL	1	10/11/19 2:13 AM
A1011005.D	Std3-5/50 ppb	ICAL	1	10/11/19 2:18 AM
A1011006.D	Std4-10/100 ppb	ICAL	1	10/11/19 2:22 AM
A1011007.D	Std5-20/200 ppb	ICAL	1	10/11/19 2:27 AM
A1011008.D	Std6-40/400 ppb	ICAL	1	10/11/19 2:32 AM
A1011009.D	Std7-100/1000 ppb	ICAL	1	10/11/19 2:36 AM
A1011010.D	Std8-200/2000 ppb	ICAL	1	10/11/19 2:41 AM
A1011011.D	ICV	ICV	1	10/11/19 2:46 AM
A1011012.D	ICB	ICB	1	10/11/19 2:51 AM
A1011013.D	LLICV	CCV1	1	10/11/19 2:55 AM
A1011014.D	ICSA1	ICSA	1	10/11/19 3:00 AM
A1011015.D	ICSAB1	ICSAB	1	10/11/19 3:05 AM
A1011016.D	LLICV	CCV1	1	10/11/19 3:10 AM
A1011017.D	MB-75481	MBLK	1	10/11/19 3:15 AM
A1011018.D	LCS-75481	LCS	1	10/11/19 3:19 AM
A1011019.D	N037648-001E	SAMP	1	10/11/19 3:24 AM
A1011020.D	N037648-001E	SAMP	5	10/11/19 3:29 AM
A1011021.D	N037648-001E-PS	PS	1	10/11/19 3:34 AM
A1011022.D	N037648-001E-MS	MS	1	10/11/19 3:39 AM
A1011023.D	N037648-001E-MSD	MSD	1	10/11/19 3:45 AM
A1011024.D	N037648-002E	SAMP	1	10/11/19 3:50 AM
A1011025.D	N037648-003E	SAMP	1	10/11/19 3:55 AM
A1011026.D	N037648-003E	SAMP	25	10/11/19 4:00 AM
A1011027.D	CCV1	CCV	1	10/11/19 4:05 AM
A1011028.D	CCB1	CCB	1	10/11/19 4:09 AM
A1011029.D	N037648-004E	SAMP	1	10/11/19 4:14 AM
A1011030.D	N037648-005E	SAMP	1	10/11/19 4:19 AM
A1011031.D	N037648-006E	SAMP	1	10/11/19 4:24 AM
A1011032.D	N037648-007E	SAMP	1	10/11/19 4:29 AM
A1011033.D	N037648-008E	SAMP	1	10/11/19 4:35 AM
A1011034.D	N037648-009E	SAMP	1	10/11/19 4:40 AM
A1011035.D	N037648-010E	SAMP	1	10/11/19 4:45 AM
A1011036.D	N037648-011E	SAMP	1	10/11/19 4:50 AM
A1011037.D	N037648-012E	SAMP	1	10/11/19 4:55 AM
A1011038.D	N037648-013E	SAMP	1	10/11/19 5:00 AM
A1011039.D	CCV2	CCV	1	10/11/19 5:06 AM
A1011040.D	CCB2	CCB	1	10/11/19 5:10 AM
A1011041.D	ICSA2	ICSA	1	10/11/19 5:15 AM
A1011042.D	ICSAB2	ICSAB	1	10/11/19 5:20 AM

INJECTION LOG: 191011A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1011043.D	MB-75504	MBLK	1	10/11/19 5:24 AM
A1011044.D	LCS-75504	LCS	1	10/11/19 5:29 AM
A1011045.D	N037666-001B	SAMP	1	10/11/19 5:34 AM
A1011046.D	N037666-001B	SAMP	5	10/11/19 5:39 AM
A1011047.D	N037666-001B	SAMP	25	10/11/19 5:44 AM
A1011048.D	N037666-001B-PS	PS	1	10/11/19 5:49 AM
A1011049.D	N037666-001B-PS	PS	5	10/11/19 5:54 AM
A1011050.D	N037666-001B-MS	MS	1	10/11/19 5:59 AM
A1011051.D	N037666-001B-MS	MS	5	10/11/19 6:04 AM
A1011052.D	N037666-001B-MSD	MSD	1	10/11/19 6:08 AM
A1011053.D	CCV3	CCV	1	10/11/19 6:14 AM
A1011054.D	CCB3	CCB	1	10/11/19 6:18 AM
A1011055.D	N037666-001B-MSD	MSD	5	10/11/19 6:23 AM
A1011056.D	N037666-002B	SAMP	1	10/11/19 6:28 AM
A1011057.D	N037666-002B	SAMP	5	10/11/19 6:33 AM
A1011058.D	N037666-003B	SAMP	1	10/11/19 6:37 AM
A1011059.D	N037666-003B	SAMP	5	10/11/19 6:43 AM
A1011060.D	N037666-004B	SAMP	1	10/11/19 6:48 AM
A1011061.D	N037666-004B	SAMP	5	10/11/19 6:53 AM
A1011062.D	N037666-005B	SAMP	1	10/11/19 6:58 AM
A1011063.D	N037666-005B	SAMP	5	10/11/19 7:03 AM
A1011064.D	N037666-005B	SAMP	100	10/11/19 7:08 AM
A1011065.D	CCV4	CCV	1	10/11/19 7:13 AM
A1011066.D	CCB4	CCB	1	10/11/19 7:17 AM
A1011067.D	N037666-006B	SAMP	1	10/11/19 7:22 AM
A1011068.D	N037666-006B	SAMP	5	10/11/19 7:27 AM
A1011069.D	N037666-007B	SAMP	1	10/11/19 7:32 AM
A1011070.D	N037666-007B	SAMP	5	10/11/19 7:37 AM
A1011071.D	CCV5	CCV	1	10/11/19 7:42 AM
A1011072.D	CCB5	CCB	1	10/11/19 7:46 AM
A1011073.D	ICSA3	ICSA	1	10/11/19 7:51 AM
A1011074.D	ICSAB3	ICSAB	1	10/11/19 7:56 AM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014001.D	RINSE	RINSE	1	10/14/19 12:32 PM
B1014002.D	Cal Blank	IBLK	1	10/14/19 12:37 PM
B1014003.D	Std1-0.1/1 ppb	ICAL	1	10/14/19 12:42 PM
B1014004.D	Std2-0.5/5 ppb	ICAL	1	10/14/19 12:49 PM
B1014005.D	Std3-5/50 ppb	ICAL	1	10/14/19 12:54 PM
B1014006.D	Std4-10/100 ppb	ICAL	1	10/14/19 12:59 PM
B1014007.D	Std5-20/200 ppb	ICAL	1	10/14/19 1:04 PM
B1014008.D	Std6-40/400 ppb	ICAL	1	10/14/19 1:09 PM
B1014009.D	Std7-100/1000 ppb	ICAL	1	10/14/19 1:14 PM
B1014010.D	Std8-200/2000 ppb	ICAL	1	10/14/19 1:20 PM
B1014011.D	ICV	ICV	1	10/14/19 1:25 PM
B1014012.D	ICB	ICB	1	10/14/19 1:29 PM
B1014013.D	LLICV	CCV1	1	10/14/19 1:34 PM
B1014014.D	ICSA1	ICSA	1	10/14/19 1:39 PM
B1014015.D	ICSAB1	ICSAB	1	10/14/19 1:44 PM
B1014016.D	LLICV	CCV1	1	10/14/19 1:59 PM
B1014017.D	MB-75625	MBLK	1	10/14/19 2:04 PM
B1014018.D	LCS-75625	LCS	1	10/14/19 2:08 PM
B1014019.D	N037828-001A	SAMP	1	10/14/19 2:13 PM
B1014020.D	N037828-001A	SAMP	5	10/14/19 2:18 PM
B1014021.D	N037828-001A-PS	PS	1	10/14/19 2:23 PM
B1014022.D	N037828-001A-MS	MS	1	10/14/19 2:28 PM
B1014023.D	N037828-001A-MSD	MSD	1	10/14/19 2:33 PM
B1014024.D	N037828-002A	SAMP	1	10/14/19 2:39 PM
B1014025.D	MB-75562	MBLK	1	10/14/19 2:44 PM
B1014026.D	LCS-75562	LCS	1	10/14/19 2:49 PM
B1014027.D	CCV1	CCV	1	10/14/19 2:54 PM
B1014028.D	CCB1	CCB	1	10/14/19 2:59 PM
B1014029.D	N037709-001B	SAMP	1	10/14/19 3:04 PM
B1014030.D	N037709-001B	SAMP	5	10/14/19 3:09 PM
B1014031.D	N037709-001B-PS	PS	1	10/14/19 3:14 PM
B1014032.D	N037709-001B-MS	MS	1	10/14/19 3:19 PM
B1014033.D	N037709-001B-MSD	MSD	1	10/14/19 3:24 PM
B1014034.D	N037709-002B	SAMP	1	10/14/19 3:29 PM
B1014035.D	N037709-003B	SAMP	1	10/14/19 3:34 PM
B1014036.D	N037723-001B	SAMP	1	10/14/19 3:39 PM
B1014037.D	N037723-002B	SAMP	1	10/14/19 3:45 PM
B1014038.D	N037723-003B	SAMP	1	10/14/19 3:50 PM
B1014039.D	CCV2	CCV	1	10/14/19 3:55 PM
B1014040.D	CCB2	CCB	1	10/14/19 4:00 PM
B1014041.D	MB-75562	MBLK	1	10/14/19 4:05 PM
B1014042.D	N037723-004B	SAMP	1	10/14/19 4:10 PM

INJECTION LOG: 191014B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1014043.D	N037756-001B	SAMP	1	10/14/19 4:16 PM
B1014044.D	N037828-002A	SAMP	1	10/14/19 4:21 PM
B1014045.D	N037723-002B	SAMP	1	10/14/19 4:26 PM
B1014046.D	N037756-001B	SAMP	1	10/14/19 4:31 PM
B1014047.D	N037828-002A	SAMP	1	10/14/19 4:36 PM
B1014048.D	N037666-003B	SAMP	1	10/14/19 4:41 PM
B1014049.D	N037666-006B	SAMP	1	10/14/19 4:46 PM
B1014050.D	N037666-007B	SAMP	1	10/14/19 4:51 PM
B1014051.D	CCV3	CCV	1	10/14/19 4:57 PM
B1014052.D	CCB3	CCB	1	10/14/19 5:02 PM
B1014053.D	N037828-002A	SAMP	1	10/14/19 5:06 PM
B1014054.D	N037723-002B	SAMP	1	10/14/19 5:12 PM
B1014055.D	N037666-006B	SAMP	1	10/14/19 5:17 PM
B1014056.D	N037828-002A	SAMP	1	10/14/19 5:22 PM
B1014057.D	N037723-002B	SAMP	1	10/14/19 5:27 PM
B1014058.D	N037723-002B	SAMP	1	10/14/19 5:32 PM
B1014059.D	N037723-002B	SAMP	1	10/14/19 5:37 PM
B1014060.D	N037723-002B	SAMP	1	10/14/19 5:43 PM
B1014061.D	CCV4	CCV	1	10/14/19 5:48 PM
B1014062.D	CCB4	CCB	1	10/14/19 5:53 PM
B1014063.D	ICSA2	ICSA	1	10/14/19 5:58 PM
B1014064.D	ICSAB2	ICSAB	1	10/14/19 6:03 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2019 12:36:03**
Prep End Date: **9/29/2019 5:00:00 P**
Prep Batch **75504** Prep Code: **3010_W_MSDI**

Reviewed/ Date: JRB 10/21/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95.1**	**02-30**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Fin Vol	factor	Clean Up Code	TURB Check
LCS-75504	Aqueous		25	☐	25	1.000		
MB-75504	Aqueous		25	☐	25	1.000		
N037666-001B	Groundwater	<2	25	☐	25	1.000		
N037666-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037666-001B-MS	Groundwater	<2	25	☐	25	1.000		
N037666-002B	Groundwater	<2	25	☐	25	1.000		
N037666-003B	Groundwater	<2	25	☐	25	1.000		
N037666-004B	Groundwater	<2	25	☐	25	1.000		
N037666-005B	Groundwater	<2	25	☐	25	1.000		
N037666-006B	Groundwater	<2	25	☐	25	1.000		
N037666-007B	Groundwater	<2	25	☐	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11301	HYDROCHLORIC ACID
11319	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190812	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2019 02:38:43 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	96050.50	0.00	
24 Mg	212058.00	0.00	
25 Mg	27559.70	0.00	
26 Mg	32141.80	0.00	
59 Co	186908.00	0.00	
115 In	253394.00	0.00	
206 Pb	84354.30	0.00	
207 Pb	74840.20	0.00	
208 Pb	182447.00	0.00	

RSD (%)

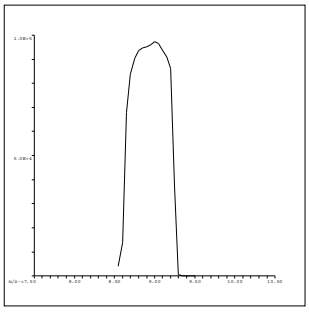
Element	Actual	Required	Flag
9 Be	0.84	5.00	
24 Mg	0.54	5.00	
25 Mg	1.61	5.00	
26 Mg	1.77	5.00	
59 Co	1.27	5.00	
115 In	0.69	5.00	
206 Pb	0.89	5.00	
207 Pb	0.47	5.00	
208 Pb	0.82	5.00	

Ion Ratio

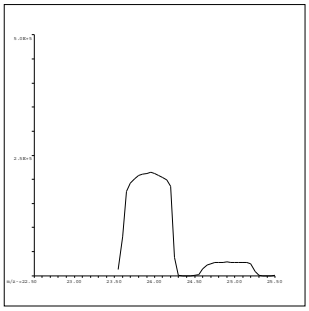
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

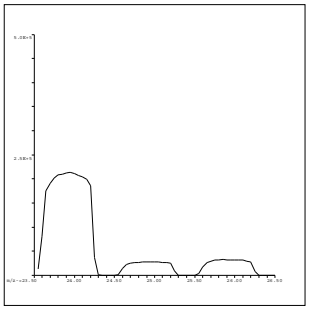
Element	Actual	Required	Flag



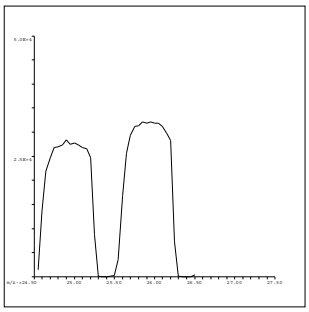
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



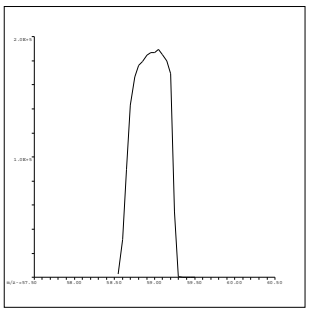
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



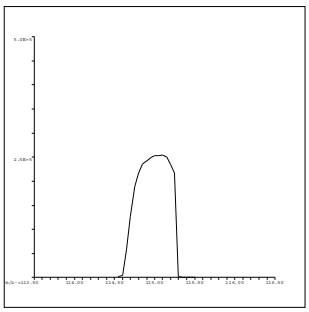
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



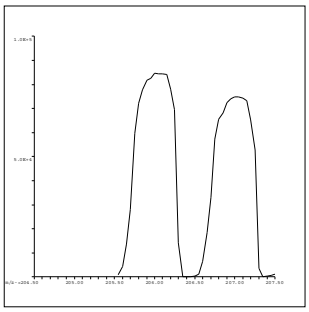
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



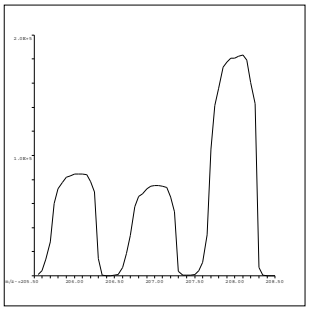
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



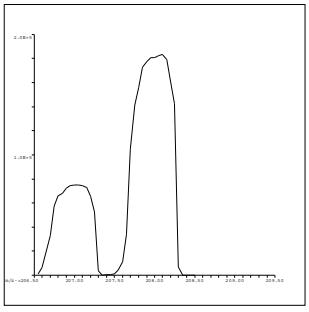
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Oct 2019 08:29:10 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	72409.90	0.00	
24	Mg	265407.00	0.00	
25	Mg	34485.40	0.00	
26	Mg	39923.50	0.00	
59	Co	229056.00	0.00	
115	In	366181.00	0.00	
206	Pb	109296.00	0.00	
207	Pb	96870.30	0.00	
208	Pb	236666.00	0.00	

RSD (%)

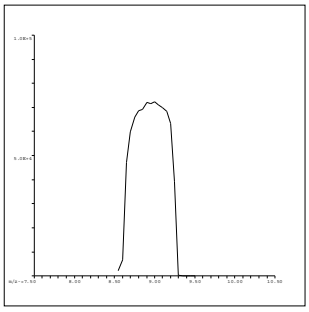
Element		Actual	Required	Flag
9	Be	0.81	5.00	
24	Mg	1.53	5.00	
25	Mg	2.48	5.00	
26	Mg	0.72	5.00	
59	Co	0.96	5.00	
115	In	0.58	5.00	
206	Pb	0.84	5.00	
207	Pb	0.59	5.00	
208	Pb	0.62	5.00	

Ion Ratio

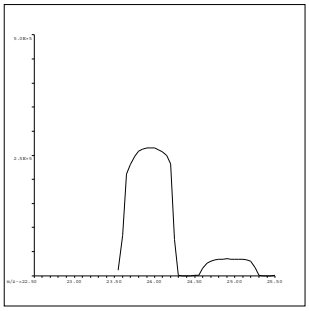
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

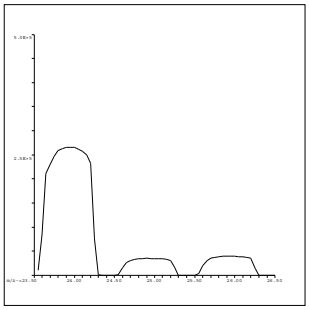
Element	Actual	Required	Flag



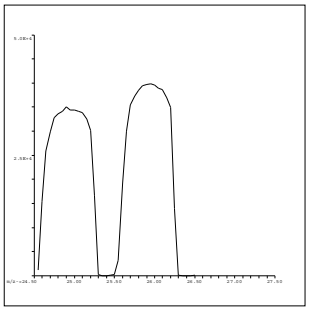
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



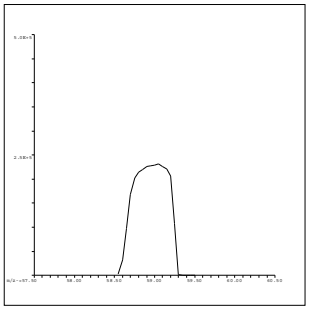
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



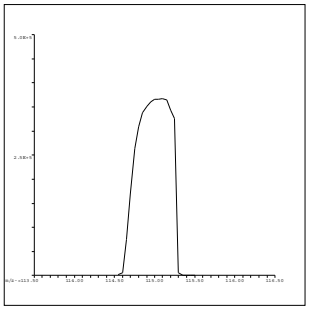
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



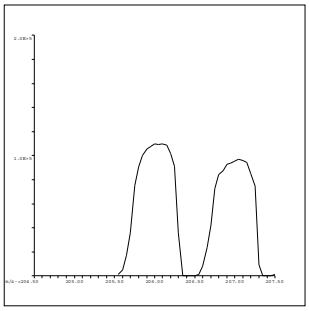
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



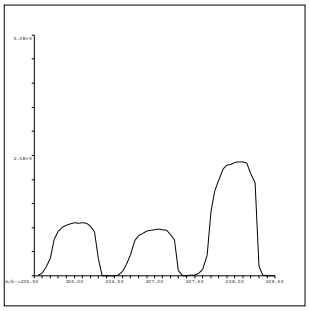
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



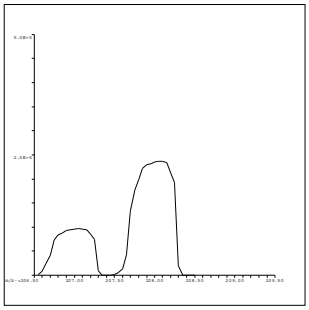
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 191011A

Instrument ID: ICPMS-02

Analyte	Data File	A1011002.D	A1011003.D	A1011004.D	A1011005.D	A1011006.D	A1011007.D	A1011008.D	A1011009.D	A1011010.D	
	Acq. Date-Time	10/11/2019 02:03 AM	10/11/2019 02:07 AM	10/11/2019 02:13 AM	10/11/2019 02:18 AM	10/11/2019 02:22 AM	10/11/2019 02:27 AM	10/11/2019 02:32 AM	10/11/2019 02:36 AM	10/11/2019 02:41 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	47663.5		51461.7	49555.9	49149.1	48537.5	48705.6	47690.5	48199.7	
55 Mn [2]	CPS	40.2		969.2	8451	16488.8	32197.6	64715.2	156079.2	312915.3	1.0000
52 Cr [2]	CPS	430.7		1957.6	16065.6	31136	61247	121202	296100.1	589455.6	1.0000
72 Ge (ISTD) [1]	CPS	15826.2		16875	16367.7	16182	15909.5	16129.7	15470.2	15223.3	
78 Se [1]	CPS	0		26.7	296.7	581.2	1160.1	2305.8	5535.7	10712.8	1.0000
72 Ge (ISTD) [2]	CPS	25900.4	27762.3	27727.7	27306	26672.8	26690.5	27055.6	26237.5	26402.3	
75 As [2]	CPS	68.9	126.2	287.6	2115.7	4213.5	8100.8	16112.1	39477.4	78460	1.0000
103 Rh (ISTD) [2]	CPS	582534.6		623688.3	614620.2	611672.6	604998.5	605991.8	589621.8	586664.3	
95 Mo [2]	CPS	4.4		767.8	7582.2	15368	30153.9	59897.3	147249.3	292563.7	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 191014B

Instrument ID: ICPMS-02

Analyte	Data File	B1014002.D	B1014004.D	B1014005.D	B1014006.D	B1014007.D	B1014008.D	B1014009.D	B1014010.D	
	Acq. Date-Time	10/14/2019 12:37 PM	10/14/2019 12:49 PM	10/14/2019 12:54 PM	10/14/2019 12:59 PM	10/14/2019 01:04 PM	10/14/2019 01:09 PM	10/14/2019 01:14 PM	10/14/2019 01:20 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	57258.5	57814	56095.6	54862.6	55206.9	55677.4	54497	55390	
52 Cr [2]	CPS	996.5	2830.2	19749.9	37791.3	74746	147839.6	363340	717181.4	0.9999
72 Ge (ISTD) [1]	CPS	20186.6	20431.4	19781.7	19693.8	19282.2	18764.9	19045.2	18984	
78 Se [1]	CPS	2.2	44.4	326.7	657.8	1441.2	2739.2	6914	13762	1.0000

Standard Code
ICAL: 2MSST-190712B
ICAL: 2MSST-190712C
ICAL: 2MWST-190812C
IS Mix: 2MWST-190812A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **ICV** Batch ID: **R136917** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3534099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.192	0.10	10.00	0	102	90	110				
Manganese	108.117	0.50	100.0	0	108	90	110				
Molybdenum	10.556	0.50	10.00	0	106	90	110				
Selenium	9.942	0.50	10.00	0	99.4	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **ZZZZZZ** Batch ID: **R136917** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3534101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.104	0.10	0.1000	0	104	80	120				
Molybdenum	0.576	0.50	0.5000	0	115	80	120				
Selenium	0.404	0.50	0.5000	0	80.8	80	120				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **ZZZZZZ** Batch ID: **R136917** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3534104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.529	0.50	0.5000	0	106	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **CCV** Batch ID: **R136917** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3534115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.384	0.10	20.00	0	102	90	110				
Manganese	20.691	0.50	20.00	0	103	90	110				
Molybdenum	20.147	0.50	20.00	0	101	90	110				
Selenium	20.507	0.50	20.00	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.012	0.10	20.00	0	100	90	110				
Manganese	20.277	0.50	20.00	0	101	90	110				
Molybdenum	20.627	0.50	20.00	0	103	90	110				
Selenium	19.583	0.50	20.00	0	97.9	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.791	0.10	20.00	0	99.0	90	110				
Manganese	20.121	0.50	20.00	0	101	90	110				
Molybdenum	20.529	0.50	20.00	0	103	90	110				
Selenium	20.377	0.50	20.00	0	102	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.634	0.10	20.00	0	103	90	110				
Manganese	20.225	0.50	20.00	0	101	90	110				
Molybdenum	20.448	0.50	20.00	0	102	90	110				
Selenium	19.408	0.50	20.00	0	97.0	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534159**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.164	0.10	20.00	0	101	90	110				
Manganese	19.753	0.50	20.00	0	98.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534159**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	20.318	0.50	20.00	0	102	90	110				
Selenium	20.900	0.50	20.00	0	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.501	0.10	10.00	0	105	90	110				
Selenium	10.752	0.50	10.00	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535805**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.500	0.50	0.5000	0	100	80	120				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.107	0.10	0.1000	0	107	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.851	0.10	20.00	0	104	90	110				
Selenium	19.953	0.50	20.00	0	99.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.650	0.10	20.00	0	103	90	110				
Selenium	18.686	0.50	20.00	0	93.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.546	0.10	20.00	0	103	90	110				
Selenium	20.327	0.50	20.00	0	102	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.726	0.10	20.00	0	104	90	110				
Selenium	18.811	0.50	20.00	0	94.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.946	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ZZZZZZ**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.195	1.0	1.000	0	120	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.925	1.0	20.00	0	99.6	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534063**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.818	1.0	20.00	0	99.1	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.527	1.0	20.00	0	97.6	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534089**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.523	1.0	20.00	0	108	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCV**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.077	1.0	20.00	0	100	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.323	1.0	10.00	0	103	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ZZZZZZ**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.000	1.0	1.000	0	100	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.200	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535885**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.701	1.0	20.00	0	98.5	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.007	1.0	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCV**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.598	1.0	20.00	0	98.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.341	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detect of Mo in CCB2 is > 1/2 RL. However, affected samples are >5x the CCB detection. JRB 10/21/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.248	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534160**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.244	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.141	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

Detect of Cr in CCB4 is > RL. However, reported samples are > 10x the CCB detection. JRB 10/21/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **CCB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.560	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detect of Cr in CCB5 is > 1/2 RL. Samples affected not reported for Cr. JRB 10/21/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **CCB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSA**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSAB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.797	0.10	20.00	0	104	80	120				
Manganese	19.686	0.50	20.00	0	98.4	80	120				
Molybdenum	22.368	0.50	20.00	0	112	80	120				
Selenium	22.211	0.50	20.00	0	111	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSA**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	0.420	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSAB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.105	0.10	20.00	0	106	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detect of Se in ICSA2 is > 1/2 RL. However, reported samples are >5x the ICSA detection. JRB 10/21/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **ICSAB** Batch ID: **R136917** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3534130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.472	0.50	20.00	0	97.4	80	120				
Molybdenum	22.979	0.50	20.00	0	115	80	120				
Selenium	19.719	0.50	20.00	0	98.6	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **ICSA** Batch ID: **R136917** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3534161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **ICSAB** Batch ID: **R136917** TestNo: **EPA 6020** Analysis Date: **10/11/2019** SeqNo: **3534162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.854	0.10	20.00	0	104	80	120				
Manganese	18.875	0.50	20.00	0	94.4	80	120				
Molybdenum	22.391	0.50	20.00	0	112	80	120				
Selenium	21.077	0.50	20.00	0	105	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSAB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.118	0.10	20.00	0	106	80	120				
Selenium	20.986	0.50	20.00	0	105	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSAB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.376	0.10	20.00	0	107	80	120				
Selenium	20.408	0.50	20.00	0	102	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSA**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSAB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.317	1.0	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSA**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSAB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.738	1.0	20.00	0	98.7	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSA**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534097**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.364	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136917**
Client ID: **ICSAB**	Batch ID: **R136917**	TestNo: **EPA 6020**		Analysis Date: **10/11/2019**	SeqNo: **3534098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.479	1.0	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSAB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.826	1.0	20.00	0	104	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSA**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **136952**
Client ID: **ICSAB**	Batch ID: **R136952**	TestNo: **EPA 6020**		Analysis Date: **10/14/2019**	SeqNo: **3535910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.064	1.0	20.00	0	100	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	47663.5	47663.5	100	PASS	70-125	25900.4	25900.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	50129.9	47663.5	105.17	PASS	70-125	27762.3	25900.4	107.19	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	51461.7	47663.5	107.97	PASS	70-125	27727.7	25900.4	107.06	PASS	70-125
Std3-5/50 ppb	ICAL	1	49555.9	47663.5	103.97	PASS	70-125	27306	25900.4	105.43	PASS	70-125
Std4-10/100 ppb	ICAL	1	49149.1	47663.5	103.12	PASS	70-125	26672.8	25900.4	102.98	PASS	70-125
Std5-20/200 ppb	ICAL	1	48537.5	47663.5	101.83	PASS	70-125	26690.5	25900.4	103.05	PASS	70-125
Std6-40/400 ppb	ICAL	1	48705.6	47663.5	102.19	PASS	70-125	27055.6	25900.4	104.46	PASS	70-125
Std7-100/1000 ppb	ICAL	1	47690.5	47663.5	100.06	PASS	70-125	26237.5	25900.4	101.3	PASS	70-125
Std8-200/2000 ppb	ICAL	1	48199.7	47663.5	101.12	PASS	70-125	26402.3	25900.4	101.94	PASS	70-125
ICV	ICV	1	35000	47663.5	73.43	PASS	70-125	19497.9	25900.4	75.28	PASS	70-125
ICB	ICB	1	36986.5	47663.5	77.6	PASS	70-125	20236.6	25900.4	78.13	PASS	70-125
LLICV	CCV1	1	35884.3	47663.5	75.29	PASS	70-125	19931.9	25900.4	76.96	PASS	70-125
ICSA1	ICSA	1	43594.7	47663.5	91.46	PASS	70-125	23481.2	25900.4	90.66	PASS	70-125
ICSAB1	ICSAB	1	43985.7	47663.5	92.28	PASS	70-125	24010.8	25900.4	92.7	PASS	70-125
LLICV	CCV1	1	45535.5	47663.5	95.54	PASS	70-125	25467.5	25900.4	98.33	PASS	70-125
CCV1	CCV	1	49132.3	47663.5	103.08	PASS	70-125	27123.4	25900.4	104.72	PASS	70-125
CCB1	CCB	1	43610.7	47663.5	91.5	PASS	70-125	23380.9	25900.4	90.27	PASS	70-125
CCV2	CCV	1	53208.4	47663.5	111.63	PASS	70-125	29553.3	25900.4	114.1	PASS	70-125
CCB2	CCB	1	45298.1	47663.5	95.04	PASS	70-125	24335.7	25900.4	93.96	PASS	70-125
ICSA2	ICSA	1	43644.9	47663.5	91.57	PASS	70-125	23814.9	25900.4	91.95	PASS	70-125
ICSAB2	ICSAB	1	43576.9	47663.5	91.43	PASS	70-125	23516.7	25900.4	90.8	PASS	70-125
MB-75504	MBLK	1	45553.3	47663.5	95.57	PASS	70-125	25312.7	25900.4	97.73	PASS	70-125
LCS-75504	LCS	1	44861.6	47663.5	94.12	PASS	70-125	24839.8	25900.4	95.91	PASS	70-125
N037666-001B	SAMP	1	41859.4	47663.5	87.82	PASS	70-125	22310.5	25900.4	86.14	PASS	70-125
N037666-001B	SAMP	5	43404.2	47663.5	91.06	PASS	70-125	23710.2	25900.4	91.54	PASS	70-125
N037666-001B	SAMP	25	43444.5	47663.5	91.15	PASS	70-125	24256.6	25900.4	93.65	PASS	70-125
N037666-001B-PS	PS	1	42614.5	47663.5	89.41	PASS	70-125	22831.2	25900.4	88.15	PASS	70-125
N037666-001B-PS	PS	5	43495.8	47663.5	91.26	PASS	70-125	24115.4	25900.4	93.11	PASS	70-125
N037666-001B-MS	MS	1	42240.2	47663.5	88.62	PASS	70-125	22712.3	25900.4	87.69	PASS	70-125
N037666-001B-MS	MS	5	44378	47663.5	93.11	PASS	70-125	24574.9	25900.4	94.88	PASS	70-125
N037666-001B-MSD	MSD	1	42529.8	47663.5	89.23	PASS	70-125	23114.9	25900.4	89.25	PASS	70-125
CCV3	CCV	1	47854	47663.5	100.4	PASS	70-125	25919.2	25900.4	100.07	PASS	70-125
CCB3	CCB	1	44361.3	47663.5	93.07	PASS	70-125	24374.6	25900.4	94.11	PASS	70-125
N037666-001B-MSD	MSD	5	44495	47663.5	93.35	PASS	70-125	24084.2	25900.4	92.99	PASS	70-125
N037666-002B	SAMP	1	40235.2	47663.5	84.42	PASS	70-125	21250.3	25900.4	82.05	PASS	70-125
N037666-002B	SAMP	5	43373.1	47663.5	91	PASS	70-125	23314.2	25900.4	90.02	PASS	70-125
N037666-003B	SAMP	1	38032.3	47663.5	79.79	PASS	70-125	20563.7	25900.4	79.4	PASS	70-125
N037666-003B	SAMP	5	44286.5	47663.5	92.91	PASS	70-125	23528.9	25900.4	90.84	PASS	70-125
N037666-004B	SAMP	1	41625.3	47663.5	87.33	PASS	70-125	22170.4	25900.4	85.6	PASS	70-125
N037666-004B	SAMP	5	44890.5	47663.5	94.18	PASS	70-125	23725.9	25900.4	91.6	PASS	70-125
N037666-005B	SAMP	1	42549.9	47663.5	89.27	PASS	70-125	22405.1	25900.4	86.5	PASS	70-125

INTERNAL STANDARD: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037666-005B	SAMP	5	45030.9	47663.5	94.48	PASS	70-125	24105.3	25900.4	93.07	PASS	70-125
N037666-005B	SAMP	100	44189.6	47663.5	92.71	PASS	70-125	23791.5	25900.4	91.86	PASS	70-125
CCV4	CCV	1	43964.7	47663.5	92.24	PASS	70-125	23931.8	25900.4	92.4	PASS	70-125
CCB4	CCB	1	41854.6	47663.5	87.81	PASS	70-125	22508.5	25900.4	86.9	PASS	70-125
N037666-006B	SAMP	1	36985.5	47663.5	77.6	PASS	70-125	20009.7	25900.4	77.26	PASS	70-125
N037666-006B	SAMP	5	43124.6	47663.5	90.48	PASS	70-125	23112.7	25900.4	89.24	PASS	70-125
N037666-007B	SAMP	1	38937.5	47663.5	81.69	PASS	70-125	21254.6	25900.4	82.06	PASS	70-125
N037666-007B	SAMP	5	43795.3	47663.5	91.88	PASS	70-125	23732.5	25900.4	91.63	PASS	70-125
CCV5	CCV	1	46352.2	47663.5	97.25	PASS	70-125	25207	25900.4	97.32	PASS	70-125
CCB5	CCB	1	42047.6	47663.5	88.22	PASS	70-125	22683.2	25900.4	87.58	PASS	70-125
ICSA3	ICSA	1	38059	47663.5	79.85	PASS	70-125	20756.2	25900.4	80.14	PASS	70-125
ICSAB3	ICSAB	1	37232.7	47663.5	78.12	PASS	70-125	19869.5	25900.4	76.72	PASS	70-125

INTERNAL STANDARD: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	15826.2	15826.2	100	PASS	70-125	582534.6	582534.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	16514.6	15826.2	104.35	PASS	70-125	625005.3	582534.6	107.29	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	16875	15826.2	106.63	PASS	70-125	623688.3	582534.6	107.07	PASS	70-125
Std3-5/50 ppb	ICAL	1	16367.7	15826.2	103.42	PASS	70-125	614620.2	582534.6	105.51	PASS	70-125
Std4-10/100 ppb	ICAL	1	16182	15826.2	102.25	PASS	70-125	611672.6	582534.6	105	PASS	70-125
Std5-20/200 ppb	ICAL	1	15909.5	15826.2	100.53	PASS	70-125	604998.5	582534.6	103.86	PASS	70-125
Std6-40/400 ppb	ICAL	1	16129.7	15826.2	101.92	PASS	70-125	605991.8	582534.6	104.03	PASS	70-125
Std7-100/1000 ppb	ICAL	1	15470.2	15826.2	97.75	PASS	70-125	589621.8	582534.6	101.22	PASS	70-125
Std8-200/2000 ppb	ICAL	1	15223.3	15826.2	96.19	PASS	70-125	586664.3	582534.6	100.71	PASS	70-125
ICV	ICV	1	11798.1	15826.2	74.55	PASS	70-125	429010.6	582534.6	73.65	PASS	70-125
ICB	ICB	1	11928.2	15826.2	75.37	PASS	70-125	440667.8	582534.6	75.65	PASS	70-125
LLICV	CCV1	1	11673.6	15826.2	73.76	PASS	70-125	435381.5	582534.6	74.74	PASS	70-125
ICSA1	ICSA	1	13981	15826.2	88.34	PASS	70-125	509425.8	582534.6	87.45	PASS	70-125
ICSAB1	ICSAB	1	13773.1	15826.2	87.03	PASS	70-125	506698	582534.6	86.98	PASS	70-125
LLICV	CCV1	1	15189.9	15826.2	95.98	PASS	70-125	563634.3	582534.6	96.76	PASS	70-125
CCV1	CCV	1	16342.2	15826.2	103.26	PASS	70-125	586063	582534.6	100.61	PASS	70-125
CCB1	CCB	1	13731.8	15826.2	86.77	PASS	70-125	486392.1	582534.6	83.5	PASS	70-125
CCV2	CCV	1	17605.7	15826.2	111.24	PASS	70-125	611382.8	582534.6	104.95	PASS	70-125
CCB2	CCB	1	14281.3	15826.2	90.24	PASS	70-125	494811.9	582534.6	84.94	PASS	70-125
ICSA2	ICSA	1	14152.2	15826.2	89.42	PASS	70-125	486797.1	582534.6	83.57	PASS	70-125
ICSAB2	ICSAB	1	13936.6	15826.2	88.06	PASS	70-125	479315.1	582534.6	82.28	PASS	70-125
MB-75504	MBLK	1	15197.7	15826.2	96.03	PASS	70-125	545605.4	582534.6	93.66	PASS	70-125
LCS-75504	LCS	1	14342.4	15826.2	90.62	PASS	70-125	533643.2	582534.6	91.61	PASS	70-125
N037666-001B	SAMP	1	13296	15826.2	84.01	PASS	70-125	454126.3	582534.6	77.96	PASS	70-125
N037666-001B	SAMP	5	14214.6	15826.2	89.82	PASS	70-125	486462.4	582534.6	83.51	PASS	70-125
N037666-001B	SAMP	25	13789.7	15826.2	87.13	PASS	70-125	506918.6	582534.6	87.02	PASS	70-125
N037666-001B-PS	PS	1	13608.5	15826.2	85.99	PASS	70-125	461670.6	582534.6	79.25	PASS	70-125
N037666-001B-PS	PS	5	14064.4	15826.2	88.87	PASS	70-125	491852.1	582534.6	84.43	PASS	70-125
N037666-001B-MS	MS	1	13280.4	15826.2	83.91	PASS	70-125	460443.8	582534.6	79.04	PASS	70-125
N037666-001B-MS	MS	5	14455.9	15826.2	91.34	PASS	70-125	496306.6	582534.6	85.2	PASS	70-125
N037666-001B-MSD	MSD	1	13671.9	15826.2	86.39	PASS	70-125	464530.2	582534.6	79.74	PASS	70-125
CCV3	CCV	1	14821.8	15826.2	93.65	PASS	70-125	550098.4	582534.6	94.43	PASS	70-125
CCB3	CCB	1	14100	15826.2	89.09	PASS	70-125	516173.8	582534.6	88.61	PASS	70-125
N037666-001B-MSD	MSD	5	13988.8	15826.2	88.39	PASS	70-125	489596.2	582534.6	84.05	PASS	70-125
N037666-002B	SAMP	1	12626.5	15826.2	79.78	PASS	70-125	427606.7	582534.6	73.4	PASS	70-125
N037666-002B	SAMP	5	13587.3	15826.2	85.85	PASS	70-125	472249.4	582534.6	81.07	PASS	70-125
N037666-003B	SAMP	1	11462.3	15826.2	72.43	PASS	70-125	401323.8	582534.6	68.89	NR!	70-125
N037666-003B	SAMP	5	13656.3	15826.2	86.29	PASS	70-125	471069.9	582534.6	80.87	PASS	70-125
N037666-004B	SAMP	1	12309.6	15826.2	77.78	PASS	70-125	419837.1	582534.6	72.07	PASS	70-125
N037666-004B	SAMP	5	14024.4	15826.2	88.62	PASS	70-125	470661.2	582534.6	80.8	PASS	70-125
N037666-005B	SAMP	1	13406	15826.2	84.71	PASS	70-125	447487.7	582534.6	76.82	PASS	70-125

INTERNAL STANDARD: 191011A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N037666-005B	SAMP	5	14100	15826.2	89.09	PASS	70-125	484693.1	582534.6	83.2	PASS	70-125
N037666-005B	SAMP	100	14399.2	15826.2	90.98	PASS	70-125	495449.1	582534.6	85.05	PASS	70-125
CCV4	CCV	1	13830.8	15826.2	87.39	PASS	70-125	515264	582534.6	88.45	PASS	70-125
CCB4	CCB	1	13083.6	15826.2	82.67	PASS	70-125	484222.8	582534.6	83.12	PASS	70-125
N037666-006B	SAMP	1	11734.7	15826.2	74.15	PASS	70-125	395987.7	582534.6	67.98	NR!	70-125
N037666-006B	SAMP	5	13419.4	15826.2	84.79	PASS	70-125	461431.9	582534.6	79.21	PASS	70-125
N037666-007B	SAMP	1	11848.1	15826.2	74.86	PASS	70-125	408127.2	582534.6	70.06	PASS	70-125
N037666-007B	SAMP	5	13723	15826.2	86.71	PASS	70-125	470259	582534.6	80.73	PASS	70-125
CCV5	CCV	1	14688.2	15826.2	92.81	PASS	70-125	531818.5	582534.6	91.29	PASS	70-125
CCB5	CCB	1	12926.8	15826.2	81.68	PASS	70-125	486845.8	582534.6	83.57	PASS	70-125
ICSA3	ICSA	1	11966	15826.2	75.61	PASS	70-125	417554.4	582534.6	71.68	PASS	70-125
ICSAB3	ICSAB	1	11485.6	15826.2	72.57	PASS	70-125	406787.8	582534.6	69.83	~~NR!~~ FAIL	70-125

for JRB 10/21/2019
CEI

INTERNAL STANDARD: 191014B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	57258.5	57258.5	100	PASS	70-125	20186.6	20186.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	56587.2	57258.5	98.83	PASS	70-125	20518.1	20186.6	101.64	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	57814	57258.5	100.97	PASS	70-125	20431.4	20186.6	101.21	PASS	70-125
Std3-5/50 ppb	ICAL	1	56095.6	57258.5	97.97	PASS	70-125	19781.7	20186.6	97.99	PASS	70-125
Std4-10/100 ppb	ICAL	1	54862.6	57258.5	95.82	PASS	70-125	19693.8	20186.6	97.56	PASS	70-125
Std5-20/200 ppb	ICAL	1	55206.9	57258.5	96.42	PASS	70-125	19282.2	20186.6	95.52	PASS	70-125
Std6-40/400 ppb	ICAL	1	55677.4	57258.5	97.24	PASS	70-125	18764.9	20186.6	92.96	PASS	70-125
Std7-100/1000 ppb	ICAL	1	54497	57258.5	95.18	PASS	70-125	19045.2	20186.6	94.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	55390	57258.5	96.74	PASS	70-125	18984	20186.6	94.04	PASS	70-125
ICV	ICV	1	53604	57258.5	93.62	PASS	70-125	18584.7	20186.6	92.07	PASS	70-125
ICB	ICB	1	52520.6	57258.5	91.73	PASS	70-125	18296.5	20186.6	90.64	PASS	70-125
LLICV	CCV1	1	52279.9	57258.5	91.31	PASS	70-125	18501.2	20186.6	91.65	PASS	70-125
ICSA1	ICSA	1	55190.5	57258.5	96.39	PASS	70-125	18251.9	20186.6	90.42	PASS	70-125
ICSAB1	ICSAB	1	57803.6	57258.5	100.95	PASS	70-125	19879.5	20186.6	98.48	PASS	70-125
LLICV	CCV1	1	55082.5	57258.5	96.2	PASS	70-125	19124.2	20186.6	94.74	PASS	70-125
CCV1	CCV	1	58613.2	57258.5	102.37	PASS	70-125	20799.5	20186.6	103.04	PASS	70-125
CCB1	CCB	1	56953.1	57258.5	99.47	PASS	70-125	20601.5	20186.6	102.06	PASS	70-125
CCV2	CCV	1	66767.1	57258.5	116.61	PASS	70-125	24784.2	20186.6	122.78	PASS	70-125
CCB2	CCB	1	64679.7	57258.5	112.96	PASS	70-125	23478.9	20186.6	116.31	PASS	70-125
N037666-003B	SAMP	1	59064.8	57258.5	103.15	PASS	70-125	19622.6	20186.6	97.21	PASS	70-125
N037666-006B	SAMP	1	61016.5	57258.5	106.56	PASS	70-125	21379.3	20186.6	105.91	PASS	70-125
N037666-007B	SAMP	1	61312.5	57258.5	107.08	PASS	70-125	21233.5	20186.6	105.19	PASS	70-125
CCV3	CCV	1	66786.1	57258.5	116.64	PASS	70-125	24009.5	20186.6	118.94	PASS	70-125
CCB3	CCB	1	64499.3	57258.5	112.65	PASS	70-125	22688.8	20186.6	112.4	PASS	70-125
N037666-006B	SAMP	1	60716.2	57258.5	106.04	PASS	70-125	20865.3	20186.6	103.36	PASS	70-125
CCV4	CCV	1	67470.8	57258.5	117.84	PASS	70-125	24163.2	20186.6	119.7	PASS	70-125
CCB4	CCB	1	64402.3	57258.5	112.48	PASS	70-125	23856.1	20186.6	118.18	PASS	70-125
ICSA2	ICSA	1	61065.2	57258.5	106.65	PASS	70-125	21572.9	20186.6	106.87	PASS	70-125
ICSAB2	ICSAB	1	60303.6	57258.5	105.32	PASS	70-125	21304.7	20186.6	105.54	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N037666
Test Method: EPA 6020
Analysis Date: 10/11/2019

Matrix: Groundwater
Batch No.: 75504

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As, Mn, Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N037666-001B DT 5x	Arsenic	As	µg/L	2.675471	NA	2.491631	7.38%	10
N037666-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N037666-001B DT 5x	Molybdenum	Mo	µg/L	65.91589	PASS	64.7468	1.81%	10
N037666-001B DT 5x	Selenium	Se	µg/L	9.949121	NA	7.999528	24.37%	10
N037666-001B DT 5x	Chromium	Cr	µg/L	79.89192	PASS	76.9702	3.80%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N037666-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **136917**
Client ID: **ZZZZZZ** Batch ID: **75504** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/11/2019** SeqNo: **3534136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.815	0.10	10.00	2.492	103	80	120				
Manganese	94.845	0.50	100.0	0	94.8	80	120				
Molybdenum	74.733	0.50	10.00	64.75	99.9	80	120				
Selenium	17.881	0.50	10.00	8.000	98.8	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N037666
Project: PG&E Topock - GMP, 30019131

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **N037666-001B-PS**	SampType: **PS**		TestCode: **6020DIS_CrP**		Units: **µg/L**		Prep Date:				RunNo: **136917**	
Client ID: **ZZZZZZ**	Batch ID: **75504**		TestNo: **EPA 6020**	**EPA 3010A**			Analysis Date: **10/11/2019**				SeqNo: **3534072**	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium	84.865	1.0	10.00	76.97	78.9	80	120				S	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CORRECTIVE ACTION DOCUMENTATION

ASSET Laboratories

Corrective Action Report (CAR)

Date Initiated: 15-Oct-19
Corrective Action Report ID: 2902
Initiated By: Claire Ignacio
Department: ME-3(ICPMS)

Corrective Action Description

CAR Summary: IS for Mo in ICSAB3 is outside criteria.

Description of Nonconformance: Internal Standard (IS) recovery for Mo in closing ICSAB3 is biased low at 69.8% with criteria at 70-125%. Affected samples are N037666.

Description of Corrective Action: Internal Standard (IS) recovery for Mo in closing ICSAB3 is biased low at 69.8% however analyte recovery in ICSAB3 passed criteria.

Performed By: **Completion Date:**

Client Notification

Client Notification Required: ~~No~~ **Notified By:**

Comment:

Quality Assurance Review

Corrective Action: Deficiency

Further Action required by QA: none

Approval and Closure

CAR Closed By: Close Date:

QA Reviewed By: 10/15/2019 QA Date:

Last Updated BY: nancys Updated: 15-Oct-2019 3:46 PM Reported: 15-Oct-2019 3:48 PM

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

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Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00